BUSINESS PLANS

BY

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To My Mother, Dorothy,

who gave me life and love

and

To My Grandmother, Hattie,

who gave me wisdom and insight

Preface

This book is the outgrowth of a long process of working with a great number of small start up companies as well as consulting with large corporations in the development of new businesses The observation made in these processes is that each time the group performing the task of developing the business plan has to ask themselves, what is included. This book is directed at answering that question More importantly, there is a need to provide financial information and the marketing and operational assumptions are directed at the assumptions related to those areas. The development of the technology that is inherent in the PC has allowed the business planner to quickly assess and develop the business concept and provide detailed financial answers. This book is built around using the PC as an essential ingredient in business planning

This book is directed towards the entrepreneur and his associates who are involved in the establishment of a new business. More particularly this is focused on the technical entrepreneur who has a more analytical mind and desires to develop a business and business plan within the context of the technical disciplines that he has been trained in. This book builds upon the base of understanding that most things can be presented in a systematic fashion and that in using the structure of such a system the strengths and weaknesses of a idea can be effectively evaluated and improved

The books objective is to describe the business plan and the business planning process. It is not a text on marketing or finance. It does however challenge the reader to address these issues as far as they apply to the development of the new business. Most importantly this is not a replacement for professional assistance in such areas as legal, accounting or other areas. It is a guide to seek out and obtain such assistance.

In my own experience, the business plan is the end of a process as well as the beginning of another. The plan is the result of developing the basis of a business. It can be prepared only after the entrepreneurs have proven to themselves that there is a market and that there are real customers for the product. The plan is complete only when the business has begun getting customers and producing the product. At that point it becomes the beginning of the business

This book is a result of many long efforts with start up company's who have a clear understanding of several of the components that are necessary to put a business together but do not understand all or even more so have a misunderstanding of several. Engineers may be great technical experts, and even great salesmen, but are often poor financial and marketing people. Even more so the entrepreneur may be a poor manager. In the current downturn of many technical markets, we have clear evidence of this. This book has one main focus, get the knowledge of what is needed and back that up with good people In the last review, the success factors of startups is people

The author would like to thank many of the people that helped with his understanding of new business, specifically the following Presidents of companies: Lou Gerstner of American Express, Steve Ross and David Horowitz of Warner Communications, Peter Hankin of OTC, Peter Beck of Digital Access Corp, Bart Stuck of Teltron, Gerry Clancy of DSO Systems, Fred Sutton of RCA, Ed Hughes and Carl Lindholm of Motorola, Mari Ulmer of BBI, Art Caisse of Cohesive, and Gus Hauser of HCI. The author would especially like to than Gus Hauser for his guiding and inspiring leadership along with his questioning and enlightening approach to business. He has provided me with a unique experience to watch the theory in this book successfully put to practice. In addition there is special thanks to Jim McGrath, with William E. Simon, Marcel Mihaeloff, and Ollie Curme of Battery Ventures for assistance on many of the thoughts contained in the cases. Special thanks to Mounir Chakarji who helped with all the figures and tables All in their way contributed to this effort

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PART I

CHAPTER 1 INTRODUCTION

The business plan is the cornerstone of a successful business venture. It articulates the business purpose and how it intends to achieve its goal of selling its product to the consumer. It also presents a forum to reposition the original business concept and if necessary to reposition the entire business or even to abandon it without dramatic losses

This book presents the business plan as an evolving process. It grows with the business. The business plan is not meant to be a one time effort, but it evolves into the strategic planning process of the company. In the early stages though the business plan represents the totality of the company

This chapter presents and overview of the book and presents the business plan in a broader light than that of merely the initial embodiment of the business. The reader must keep in mind that the plan is not only an articulation of the business at a single point in time but is also the ongoing strategy as to how best to accomplish the goals of the business

1.1 OVERVIEW

A new business requires the preparation of a business plan. In many cases those involved in the preparation of the plan will try to find the right form to put the plan in and neglect the substance of the plan. The result is that form takes presence over substance. In this book we present a form, but we emphasize the substance of the plan to a greater degree Indeed, the form should take a back seat to the articulation of the business, its rewards, and its risks. In this book we convert the plan into a process. That process allows the plan developers to focus on the substance of the plan. The experience with this process has demonstrated that by following it, the plan and its goals can be clearly articulated and rapidly accomplished New businesses may start with either a group of individuals in an entrepreneurial setting or in a corporate setting. A new business is more than a new product. A new product typically takes life in an existing organization or at least in a structure that has the support of an existing organization. A new business as described in this book has no such support system. It is a new life that springs forth with the need to develop the product as well as the infrastructure.

There is a large amount of literature on new product planning but the new business encompasses many more dimensions (see Drucker[2], Liles, and Urban and Hauser). A new product plan typically takes as given constraints on distribution channels, product mixes, existing corporate capabilities, and other fixed environmental factors. The business plan, generally fixes few if any of the constraint variables and is driven by the intention of setting up a new and independent entity

One of the most important developments of the past ten years is the evolution of the service business(See Lovelock or Drucker[2]). These types of businesses have not received the amount of attention that they should in the business planning process. Many of the new business opportunities are in this area and this book pays strong attention to this business segment. Throughout the book we emphasize the similarities between the service and goods businesses, and as the economy of the United States changes, there will be a proliferation of such service business, especially those based upon electronic services

This book deals with both the services and goods areas. As we shall see, any business is characterized by the product that it offers the market. There are two types of products; goods or services. The goods type product is a piece of hardware such as a modem or computer game. The service product is more intangible. It may be an enhanced communications service such as a protocol conversion network or the selling of reservations to rock concerts. We shall see that there are many similarities between the two types of products and there are also drastic differences. We shall focus on both of these as we develop the plan

1.2 THE PROCESS

The development of the business concept from idea to reality is an evolving process. It is not the immediate result of the preparation of the plan. The Business Plan itself is just one of several steps in that process. In this section we discuss the other steps in the implementation of a new business and in that process show where the Business Plan fits

The process of developing the business has the following steps;

1. Business Definition Phase
2. Draft Business Plan
3. Business Plan
4. Detailed Market/Product/Operations Plans
5. Strategic Plan Convergence
6. Implementation and Operation

We shall now consider the elements of each of these steps. We point out that the major focus of this book is to develop the process that results in the final Business Plan, and that that process is but one step in an overall process that is necessary for the business success. The importance of having a process is that it allows the developer to focus on the

information and strategic decisions that must be made in order to fully develop the business

1.2.1 BUSINESS DEFINITION.

The first step in the process, the business definition phase , is usually the most difficult. In this phase the product is defined and the role of the business in the context of an existing industry is identified. This is the most highly iterative part of the development process. The principals who will subsequently manage this business should take a strong role in this effort. Lack of focus is often at the core of business definition problems. Consider the following example A start up company was composed of a group of engineers who had all worked for a large regulated telecommunications company. They recognized the need that would exist for many new telecommunications products as the business became deregulated.

When they first assembled, their thoughts were directed towards a business to develop special purpose software for the telephone companies. When asked by a venture capitalist what their product was, the answer was that they developed software When pressed, the answer became: we will do anything the customer wants

After six months of trying to sell "anything the customer wants", the engineers got back together and decided that they had stronger focus on a hardware product. They focused on systems to perform certain protocol conversions of telecommunications signals. They thought that they could sell this new product idea. After a year they had manufactured products. Unfortunately, none of the new products were purchased. The company was still not certain what business it was in. They still were willing to customize the products at the request of the customer. The customer was uncertain because of lack of consistency or standardization. The company struggled on

In this example, there was a group of talented and motivated people who wanted to start a new business but the focus of the business was never established. The intent was merely to start the business and never on what the product was. There was a market need, a demand, the talent, but a confusion as to what business they were in. This example highlights the need for the clear focus from the beginning. The first step in the business development process is the business definition. It asks what is our product, why are we making it and what business are we in. It is essential to be able to clearly articulate these facts when the entrepreneurs approach potential customers.

As a second example, consider a start up company had recognized the need for a satellite technology to provide for low cost bypass communications to the business community. The company further recognized that there are two business roles that had to be provided in order for the business to succeed. The first was that of the hardware provider who would develop the hardware goods that would interface with the customer’s network The

second role was that of the service provider who would provide the network control, operations, installation and maintenance.

This start up company wanted to be both the provider of the hardware and the operator of the system. They wanted to vertically integrate at the beginning. They faltered at the beginning because the customer was also confused as to what role they were playing. They lacked the basic ingredient of any start up; focus. The key to success is a good product, focus, and of course luck. Without the first two, there will be no amount of luck sufficient to save the company. This company has since developed a strong focus as a hardware provider and is prospering. Thus the business definition must be clear and achievable with the resources available

These two examples depict the needed to have at the earliest stages the clear focus on the business so that all further steps can be accomplished. The first step in this process is the business definition. In the business definition phase the first set of questions that are asked are:

o what is the product the we are to produce; is it a good or service?

o what business are we in; are we manufacturing, OEM ing (e.g. original equipment manufacture, using some one else's equipment and enhancing it) ,or reselling?

o what is our relationship to the end user of our product, are we planning on having a direct sales force or are we planning on using a different distribution channel?

o what will we do and what will we not do?

The last question is the most important in the business definition process. Most important is the issue of what the business will not do. All too often the starting business encompasses more that it should reasonably do. Yet in some cases it does not encompass enough During the Business Definition phase, the following set of issues arise. They address the issues of the product, the business, relationships and the extent. The specific issues discussed relate to the example just presented

PRODUCT:

What is the product? Is it a telecommunications terminal or a data communications system. Who is the customer and what are their needs? If the customer were a communications service company, then the hardware supplier could OEM the equipment to the service company who in turn could provide the full service to the end user

The product description should be brief and to the point. It should describe the product so that the customer should grasp it readily and have an understanding of why it is needed

BUSINESS:

Whereas the product is what the company makes, the business it is in is a reflection on how it relates to the other in its industry and in turn to its customer.

As an example, a company that makes television sets also runs a hospital television rental and leasing business. The business of the company is really the manufacturing and distribution of television sets to retailers and does not really include the service business of the television sets in the hospital. There is typically a serious problem that arises when a service business develops in a manufacturing organization. The manufacturing people have the interest in selling their product and thus tend to induce the service people to exclusively buy their product not necessarily at the market rate. The service company is thus in the position of having to accept the mark-ups of the manufacturer and in addition do not have the flexibility to control the piece of hardware that it is receiving to best match the needs of the service business

In this case the company is really a consumer goods manufacturer with a service business that it is using as a distribution arm rather than a separate service organization Thus this start up venture is crippled at the start because it can never be the business that it must to survive

O RELATIONSHIPS

Understanding what the product is and what business the company is in is only the first set of steps in the business definition. Just as important is the need to define the relationships that the business has within the industry and the relationship to the end user.

Questions such as who is the end user, how does the company relate to the end user, what sort of distribution channel should be employed are essential at this time. The end user of the product is often forgotten. The entrepreneur too frequently thinks of who he is selling the product to and not who the end user will be. It will be critical to understand the end user and thus understand the entire distribution chain

Consider the following example which highlights the issue of how best to identify the end user and in turn target the customer. A database distribution company found that the end user of its business information data base was the business professional but that the professional had no access to the data base because the company had information specialists act as intermediaries in the process. The reason for this was that the data base providers usually had to deal with an intermediate data base distributor such as Knight Ridder's Dialog, who in turn marketed to its traditional market of librarians. The net result was that the end user was denied access to the service. This company recognized this problem and found that through a direct mail approach and using its own computer system, the end users could access the service directly. The company kept better quality control of its product and it could customize the product for its separate market segments

EXTENT

Extent is the issue of what the business will do and what it will not do. While the product and business definition are the definition of what the company will do, extent typically focuses on what the company is not or will not do. It is essential in that it puts bounds on what is to be attempted in the execution of the business

Extent is the issue that typically leads to over reach and in turn disaster. The Atari experience under Warner Communications is an example of a case where extent went wild. Rapid success led to a hubris complex that said that their business world was not just entertainment but any electronic product that could eventually get into the home. This bred Atari Tel, the venture into the telephone business, which was developed in the face of increasing competition on a price alone basis. The home computer division was developing over a dozen different computers, a video division was developing new video creation and production techniques in conjunction with George Lucas, and an educational institute was developing new ways of teaching, new methods of artificial intelligence and other elements of the educational process

As Atari expanded into some many different directions, the company grew from $26 million in 1979 to $2 billion in 1983 The focus of what the company was had become lost. The excursion into the area of manufacturing and marketing telephones resulted in major losses. These losses were due to the fact that foreign competition created a commodity product of low cost phones and that was all the consumer market was interested in. In contrast Atari developed phones designed by Porsche and priced five to ten times above peak market price. The company too rapidly overextended itself. The result was a pretax loss of over $600 million and the near demise of the company

Extent is a statement of what the business is and is not. Its defines the boundaries of the reach of the entrepreneur. It is a focus that must be followed

1.2.2 DRAFT BUSINESS PLAN

The draft business plan is the first effort at placing the business concept on paper and attaching market estimates and financial values to the business. The purpose of the draft business plan is to provide the team that is working on the plan with the a form to work with. The draft plan will contain the following elements;

1. Product and Business Definition
2. Market Size and Description
3. Distribution and Sales Strategy

4. Management and Operations Plan

5. Development Plan

6. Draft Financials

7. Competitive Analysis

These seven elements are generally presented in a presentation format prior to being developed into a formal business plan These elements are discussed and iterated upon until there is an agreement as to what the business is and what the holes are that must be filled in the business plan process

If the draft business plan is drawn together early, as it should be, one of the major hole will be the market size and the target market. This typically is an element of the final business plan

However the financials should be blocked out in considerable detail during this first stage. As we shall see latter, the financial will be a guide post along which we will be developing the business plan

1.2.3 Business Plan

The third step in the process is the development of the business plan, and it is that step of the process on which we shall spend the major portion of this book. It is the most crucial step and requires that the business be well understood and a team assembled to implement the business

The business plan contains the details on the following items;

1. *The product or business definition*

2. *The market including target definition, size, pricing and distribution alternatives*

3. *Competition including competitive strategies and key distinctive competence to succeed in this business*

4. *A development plan indicating what additional items must be accomplished to enter into the business*

5. *The operations and management plan demonstrating who is going to do what in the business*

6. *Financials to indicate the revenue, capital, expenses, income statement, sources and uses and balance sheet*

7. *Finally, a funding statement as to how the funds are to be raised, the amounts and the dilution of equity anticipated*

We shall go into these items in further detail in throughout the book. The business plan is however the cornerstone of the new business. Whether it is a stand alone new business or an internal corporate new business, the same plan must be drawn

1.2.3 DETAILED PLANS

Once the business plan has been developed, there is a need for a follow up set of detailed plans in the areas of operations, marketing, product development and financial/budgeting. These plans may or may not be required at the same time as the business plan. Most entrepreneurs do not prepare these plans and the result becomes an added expenditure during the business growth phase. That added expenditure will result in a need for more capital and a reduction of the owner's equity. Thus, although these plans are not essential to get funding, experience indicates that they are bargaining chips in the business valuation, e.g. how much the new venture is valued at and in turn what it is worth to the investor. We shall seen that the valuation of the company is a critical issue and these plans help to structure the valuation strategy

As an example, consider a group of entrepreneurs who have come upon a unique way to provide bypass communications using a fiber optic system in a large urban area. They devise a business plan and seek financing. The plan does not include any detailed market commitments from customers, nor does it present their key barrier to entry, obtaining a special agreement form the city. The venture capital company looks at the plan in absence of the marketing plan and values the company based solely upon the labor expended up to this point. They value it at $800,000. For $400,000 they want 50%. Had the people developed a detailed market plan with these commitments, the value of the company would have exceeded $4,000,000. Thus the $400,000 would mean only 10%

The venture capitalist tries to mitigate against as many risks as possible. As Silver has stated, there are five types of risks in a start up venture:

1. *Development Risk; can the product be developed*

2. *Manufacturing Risk; can it be made if developed*

3. *Marketing Risk; can it be sold if made*

4. *Management Risk; can it be profitable if sold*

5. *Growth Risk; can it grow if managed*

The detailed plans address each of these risk areas separately and should attempt to provide the venture capitalist with a better feeling towards the company

Detailed plans should be drawn up to address each of the key operational areas of the business. These plans then become a part of the day to day tactics of the business. They are similar to the financial budget that is the watchdog of the day to day financial operations. Typically the plans to be drawn up are as follows:

o Product Operations Plan; this details the development cycle of the new business and it details all the tasks using a Project Management Control System (PMCS) approach and shows the critical paths in the development. It provides also for a reporting system with a means to ensure that the development is monitored as the system grows. It extends itself to the operations phase in which the manufacturing issues are discussed

o Marketing Plan; this addresses the risk of who will buy the product and how the sales force will be targeted to effect the desired level of sales effort. It provides detail on the following;

1. *Target Market segment towards the distribution strategy*

2. *Positioning of the product an the promotional campaign to raise awareness*

3. *Pricing of the product by market segment and a presentation of the unique selling proposition*

4. *Establishing by segment the needs and benefits of the product*

5. *Description of the marketing channel including distribution, fulfillment and other sales functions. This will also include customer service and the billing philosophy*

6. *Customer lists and binding or non binding commitments This is a target list of who the sales force will call on first and it demonstrates that you have been there*

The key element of the market plan is to target and qualify the customer and to provide the pricing and positioning to effect the sale closure. Due diligence by all the entrepreneurs and even an outside consultant are essential as to the market plan This due diligence is performed by direct customer contact during the Business Plan stage and ensures that the selling propositions are correct.

o Product Plan; this is a detailed description of the development of the product. It defines the product in detail and is the basis of the financials that are detailed in the Financial

Development Plan. The detail should be down to the level that, as an incoming team is assembled, they can readily implement the product and have a clear vision as to where the direction of this new company is headed

Again, it is essential to remember that the product and marketing plan have to address the same issues. If the customers say they really want something else then it helps to listen and modify the plan appropriately

o Financial Development Plan: This is the detailed set of operating plans for the company that layout the revenue, expenses, capital requirements as well as all other proforma operating statements (e.g. income statement et al). These plans represent to operating budget for the company as it proceeds through its early stages of development

These four plans that have been discussed represent the day to day operating guides for the company. They easily follow from the business plan and are the responsibility of the appropriate business section heads to prepare, monitor and manage

1.3 BOOK OUTLINE

This book is divided into three sections. The first section is comprised of Chapters 1 and 2. These address the overview of the business plan. Chapter 2 presents the general concept of the plan detailing the outline and the financials that are key to its presentation as a business opportunity

The second section is a detailed look at the business plan and each of its sections. Chapter 3 presents the concept of the business or product. The product definition is the first step in the development of the plan and its careful presentation in a few short words is essential in grasping the attention of the funding sources.

Chapter 4 discusses the market. For technical entrepreneurs this may be the most difficult section. It stresses the need to define who the target market is and how the entrepreneur intends to reach that market. It relies on the gathering of facts concerning the market and the assessment through direct contact with customers to accurately assess the need and demand for the product. Finally, it addresses the distribution strategy which is the means of getting the product effectively to the end user

Chapter 5 is most important. It discusses the competition Porter[1] and [2] discuss the competitive environment in extensive detail and this chapter does not replace such excellent works. Rather it focuses on how the entrepreneur should assess who the competition is, what factors are needed to be successful in this business, and finally how he intends to accomplish this in the way he has developed the business

Chapter 6 presents the development plan. The entrepreneur typically still must develop certain key elements of the business. It may be a new product, service, or some key ingredient that gives them the competitive edge. If this were not so then there would be an ongoing business that could just finance itself through debt or a public offering. This section of the plan addresses how the development will be completed and what the risks still are and how they will be mitigated against.

Chapter 7 presents the ongoing operations and management. This tells the investor what the expenses, capital and management team will look like for the ongoing business. It represents the entrepreneurs understanding of how he intends to accomplish the business

Chapter 8 is a summation in financially directed numbers of the preceding chapters. It is the financial chapter of the business plan. In this book, we take the position that this set of financials are developed as we progress. Chapter 4 develops the revenue, Chapter 7 the capital and expenses. This chapter takes these building block elements and combines them with income statements, sources and uses and balance sheets in preparation for dealing with the sources of capital. In this chapter, the key leverage points from the financial aspect are developed

The third section of the book deals with what to do after the plan is complete.

Chapter 9 may be the most important chapter for the entrepreneur. It describes how to finance the firm. Experience has shown that many entrepreneurs have walked into the venture capitalists with no understanding of the worth of what they have and how the capital could be raised. This chapter starts with a set of techniques for valuing the firm. It then discusses in length the options of financing, including common, preferred, convertible debentures, warrants, options and pure debt. It then shows the entrepreneur the impact of each. It allows him to integrate this into the management of financing the firm. The essential strategy in raising capital is for the entrepreneur is to be in control. That is the entrepreneur should be in control of the sources of funds in suggesting the strategy and counter offering, using information on the impacts of the counter offer

Finally Chapter 10 presents overall conclusions drawing all the elements together.

1.4 SCHEDULES AND TIMING

One of the major concerns that relate to the business development process is what is to happen and when Understanding the sequence of events and the time it will take to see these event come to pass often helps the entrepreneur understand where he may be with respect to the progress expected from the business

A set of key events will occur in the course of the business development. These events are:

1. *Business Concept*
2. *Business Definition*
3. *Draft Business Plan*
4. *Customer Contact*
5. *Customer Preliminary Commitment*
6. *Prototype product*
7. *Business Plan*
8. *Company Valuation*
9. *Financing*
10. *Business Development Effort*
11. *Business Commencement*

These eleven steps are always present in some form and almost always in the same sequence. The first step is the development of the business concept. This starts the business process. Then comes the business definition. It is the first attempt by the entrepreneur to place his ideas on paper. That may take two to three months

Next comes the effort of the Draft Business Plan. This is the first difficult step. It may take weeks to months. It is the first attempt to organize thoughts. The business may end at that point. Most of the failures tend to stop here. However the next steps are customer contact and commitment. The contact phase may take two to six months. The entrepreneur will find that the phones that were answered when he may have been with an existing company do not get answered.

The customer commitment may mean a three to six month further effort.

The next step is the prototype development. This may vary from a simple concept model to a full working system. This should take three to six months. This is not the development phase, just the concept prototype. This also goes in parallel with the other efforts.

At this point the business plan and the company valuation can be prepared. This may take up to six weeks. Thereafter, this the company can proceed to seek financing. It will have

a plan, a prototype concept, and a market commitment. These will all play a role in the valuation of the company and the equity that will be retained by the owners

The financing of the company often takes from six to twelve months. It is not a short process and any entrepreneur must understand this process. He will be forced to visit many potential sources of funds and will be referred to many more The process is iterative and does not always converge rapidly The process rarely takes less than six months. Thus the entrepreneur must be willing and able to hold out financially for that period. There may be interim sources of financing that may help, but they may slowly eat away at the equity base This will be the most difficult phase in the start up

The final step is the commencement of the development process and the beginning of the business. The development effort will take from twelve to twenty four months. Day one of the real business starts at its completion. Table 1.1 depicts these key steps ad the time schedule.

Table 1.1 Key Event Schedule

Event Duration	*(months)*
Business Concept	0
Business Definition	3-6
Draft Business Plan	2-4
Customer Contact	2-6
Customer Commitment	2-6
Prototype	3-9
Business Plan	1-3
Valuation	1/2-1
Financing	6-12
Development	12-24
Commencement	----------

CHAPTER 2 BUSINESS PLAN OVERVIEW.

In this chapter we present the overall structure of the business plan. The purpose of developing the structure in detail is to provide a framework for addressing all of the key questions that may be asked as part of the development of the business. This chapter is a prelude to the details of Part II of this book, which provides the detail for each of the chapters of the detailed business plan. The overview of the business plan in this chapter provides a structure that the plan will follow. It is important to understand that structure of the plan at the beginning and to understand that the plan addresses questions, questions asked by investors, managers, and the customer. There are three key elements of a business plan:

- The Business Concept.
- The Environment.
- The Financial Factor.

The first describes what the business is. As discussed in detail in the last chapter, it is important to remember that the plan must have a clear thread of what the product is. The second factor, the environment, includes the market, the competition and the general conditions in the related market place. The essential ingredient of this element is information. The entrepreneur must have sources of information to ascertain the environmental factors. These sources are best obtained first hand, if at all possible. This means speaking to potential customers, speaking to the competition and being generally aware as to the business factors in this business.

Such factors may be the financial communities acceptance of financing business of the type that is being proposed in this area. The third element is the set of financial factors that describe the business and its financing, as well as its return to the investors. The entrepreneur typically has been intimidated by the financial factors and has tried to avoid them, relegating their preparation to a third party.

It is essential that the entrepreneur have these factors well understood. With the advent of automated spreadsheet software, such as Lotus 1-2-3 and other Personal Computer based products, the entrepreneur can now play a direct role in the development of detailed financials. This chapter presents the framework for these financials and further develops the key elements in a spreadsheet format.

2.1 OUTLINE OF THE BUSINESS PLAN.

The business plan document should be as compact as possible and should state clearly all the salient facts. The first page should be an executive summary that gives the key facts of the proposed business and what is being requested. There have been many works describing how to develop the plan. Example are those of Wilson, Gladstone, and Kravitt.

We have expanded upon their efforts by including not only the questions but the form, the process and the description on how to accomplish that process. The plan is not to be a long dissertation on the business nor is it to be an all inclusive consultants report. The better plans are direct and the facts presented in a concise bulleted format with the prose kept to a minimum. Many plans are exceedingly verbose and the entrepreneur has the intent of keeping the business on paper where it is safe and secure rather than in the market where it can be tested.

The plan should contain the following sections.

Executive Summary (one page)

This is a brief summary of the key business and market factors and a highlighting of the financial factors that make the business attractive.

Section 1: Business Definition.

The business definition is a detailed statement of the business and the product. It clearly and concisely leaves the reader with an understanding of what it is that is to be made or serviced and what the role of the proposed company is in providing the goods or service.

Section 2: Market

The market section presents all of the necessary information regarding the target market, with adequate reference to how that was determined. It also allows the reader to assess the total revenue potential for the business based on the market size, the sales effort and the pricing of the product.

Section 3: Competition.

The competition is the critical factor that allows the entrepreneur to show why the proposed concept differs significantly in such a way as to be successful and generate the revenue and profit proposed. This section identifies all of the competitors, direct and indirect, and shows why the proposed business is a major improvement on existing methods of providing the product.

Section 4: Development Effort.

The development efforts associated with the new product are all too often given little emphasis in the development of the business plan. In this section, the full development efforts must be detailed and should indicated what has been accomplished and what is still left to be completed. The detail should be concise but adequate to indicated that management has envisioned all of the major delays.

Section 5: Operations and Management Plan.

The operations and management of the business is key to understanding its ultimate success and profitability. In this section, the plan should include how the business is to be managed, and what resources, labor and capital, are required. This section also sets the pace for the expense and capital requirements of the business.

Section 6: Financial.

Having developed the revenue in Section 2 and the expense and capital in Section 5, this section of the plan expresses the details of the overall financial of the business. For investment and valuation purposes, this is the most important section.

Throughout this book, we provide significant detail as to how to develop the information in this section and also how to use this information in strengthening the business. The total length of the plan should be kept to 25 to 45 pages, depending on how much depth is considered necessary for the financials. It is recommended that there be a separate document for the financing alternatives. We shall discuss the structure of that document latter. It is a negotiating tool and should not be given away at the outset.

Table 2.1 presents the detailed outline of the business plan that will be developed in this book. The outline is a set of questions. These are the questions that the venture capitalist will be asking when the entrepreneur presents the business plan. In Table 2.1 we provide a section by section approach to the business plan. In Part II of this book, we develop all of the detail necessary to assist the entrepreneur in answering those questions. Yet the key fact to present in Table 2.1 is that the questions are those that have been the most frequently asked and answered by those that have succeeded and those also most frequently avoided by entrepreneurs that have failed.

Table 2.1 Business Plan Outline Business Plan.

1.0 Business Definition.

1.1 Nature of the Business.

- what is the business
- what are its functions
- what does it do and to who.

1.2 Product.

- what is the good or service provided by the business
- why is it needed
- what it is the product and it is no.

1.3 Industry Role.

- what industry is this business in
- what are the normal roles in this industry
- what role does this business play
- is it a standard role
- if it is a new role why is it needed
- who does what to whom and why
- why are these roles needed
- what is the product distribution channel
- how does pricing change in the distribution channel.

1.4 Distribution Channel.

- what is the flow of product from source to end user
- position of the business in the channel
- what are the existing and new channels
- how does the benefit statement relate to positioning of product.

1.5 Product Need.

- why is this product needed
- what does it enhance or displace
- what benefit does it provide
- is there an un-met need.

2.0 Market Plan.

2.1 Definition of the Market.

- who is to buy the product
- what need are you satisfying
- why are they buying it
- what is the size of the market
- are there multiple market players
- where are they getting the money to pay for it
- is this an enhancement or displacement
- how rapidly will the market grow
- at whose expense will the market grow
- what is the initial market size
- what is its final size
- what is the total market
- what is the projected market share
- who has the other share.

2.2 Positioning.

- how do you want your product perceived
- why is your product different
- what are the product benefits
- how do you inform your customer of the product
- how are you signaling your competitor
- are you going head to head or is this a niche
- are you delimiting your product
- what makes you unique as a company.

2.3 Pricing.

- what is your unit sale
- what is your unit sale price
- what is the basis of your pricing
- what pricing flexibility do you have
- how do you price across market segments
- how do you price across business segments
- how does the price compare with competitors
- what are the margins in the distribution channel.

2.4 Distribution Strategy.

- what are the distribution channels
- what are the interdependencies in the channels
- who are the players in the channels
- how is the product to be distributed
- what are the costs of distribution
- are there alternative channels
- is there a separate fulfillment channel
- how is brand recognition preserve.

2.5 Sales Plan.

- what is your sales strategy
- what is your promotional plan
- what is the timing of the plan
- what is the sales organization
- is retention marketing essential.

2.6 Barriers to Entry.

- what makes the product unique
- how long would it take to copy and market
- what are the success factors in this business
- is there a barrier to exit on the consumer side
- what are the barriers to entry for competition
- how long is there a competitive edge
- what is the product life cycle.

2.7 Revenue Potential.

- what are the market size, penetration and price assumptions
- what are the churn assumptions
- what are the revenue by product assumptions
- what are the total revenue assumptions
- what are the key revenue assumptions
- provide a detailed revenue model
- segment revenue by product and market.

3.0 Competitive Analysis.

3.1 Key Success Factor.

- what are the key success factors in this business
- how do they differ in the technical and market areas

- what are their weights of importance.

3.2 Competing Industries.

- who are the competitors
- are there similar or displaceable products
- what does this product enhance or displace
- list the competing industries and companies
- how much revenue is there in the market now
- what is the present distribution of market share
- what are the key competitive product benefits
- what are the markets serve.

3.3 Business Success Factor.

- what are the key factors to be successful in this business
- correlate these factors with each of the competitors
- consider possible coalitions
- list strengths and weaknesses of company and competitors
- position competition in terms of operational vs. marketing strength
- position this business in that matrix
- specify the competitive strengths and weaknesses.

3.4 Competitive Strategies.

- what are the strategies of the key competitors
- how can they be combated
- how is your product positioned against the competitor.

4.0 Development Plan.

4.1 Technical Description.

- how is the product to be developed
- what is the architecture
- what are the key hardware and software factors
- what is the required elements to be developed
- what are the technical risk areas
- is there an established technical base upon which the product is built
- what is the basis of the technical development
- what is the development organization
- what is the size and scope of the development.

4.2 Schedule.

- what has to be done to develop the product
- what is the breakdown of the development tasks
- what is the schedule
- what is the key development path
- what is the development organization
- what materials are required
- how do you intend to control and monitor development.

4.3 Development Milestone.

- what are the key milestones
- what are the design reviews
- what is the review procedure
- what control procedures are used to manage the development.

5.0 Operations and Management Plan.

5.1 Organization Char.

- who does what and why
- what is the chain of command
- who are the key people
- what is the review procedure
- how does the organization grow with the business
  o what are the personnel cost.

5.2 Operation.

- how is the developed product deployed
- how is transition from development to operations handled
- who does the manufacturing and what are the costs
- are there any subcontractors
- how are operations goals measured
- is there an operations management control system
- how are personnel requirements related to operations
- what are the personnel growth requirements
- what are the personnel ratios of sales per employee, revenue per employee, profit per employee etc. how do these ratios compare to industry standards
- what are the capital requirement.

6.0 Financial Plan.

6.1 Development Cost.

- schedule and detailed cost breakout
- capital requirements
- cost by development task element
- cost by organizational element
- summary of costs
- salaries, overheads etc.

6.2 Revenue.

- detailed revenue model
- revenue by segment and market
- sensitivity to key variables
- variability of revenue to pricing
- high, medium and low scenario.

6.3 Capital.

- capital requirements by segment
- schedule of capital asset introduction
- depreciation schedule.

6.4 Expense.

- full list and model of operating expenses
- breakout by organization
- breakout by function
- relationship to revenue model with fixed and variable factors
- direct and indirect expenses
- what are the key ratios of expense including overhead.

6.5 Pro Forma.

- summary of revenue, expenses, depreciation and net operating income
- treatment of taxes to determine profit
- balance sheet to present asset/liability flow
- analysis of equity vs. debt funding
- cash flow analysis, incremental and cumulative
- sources and uses statements showing funding impacts
- key ratio analysis and comparison to industry standard.

6.6 Summary.

- present key ratios such as IRR, ROI, ROA, ROE etc. analysis of cash flows for public offering
- structure of funding deals and implications
- working capital requirements and plan to meet the.

Part II of this book goes into the detail necessary to develop answers to all of the questions asked in the outline in Table 2.1. Some of the questions that are asked may not have to be answered, depending on the business and the state of the business in the mind of the investment community. In addition, many of the questions can be answered in a combined fashion, ensuring that the plan remains a manageable size.

2.2 THE EXECUTIVE SUMMARY.

The Business Plan as outlined in the Section 2.1 depicts the total set of questions that must be answered in order to adequately defend the business during the funding and development phases. However there is another element of the plan that carries the most weight, it is the Executive Summary attached to the plan. It is the part of the Business Plan that will be read by potential investors and will be the basis for reading on further in the plan. As a point of reference, most investors receive from 10 to 50 plans per week and a detailed reading of all is impossible.

Thus a carefully prepared Executive Summary is essential. This summary contains the following elements in as brief a form as follows.

1. *Business Overview.*
2. *Financial Highlight.*
3. *Financial Need.*
4. *Present Business Status.*
5. *Key Achievement.*
6. *Key Personnel.*

1. Business Overview: This is a brief statement of the business, the product and the market. It must readily convey what is to be sold to whom and why. Also it is the point in the document to succinctly state the uniqueness of the product.
For example the business may be described:

The business is the provision of both customer premise equipment and central office equipment to support a switched 56 Kbps transmission service to users of data circuits. The product has a patent applied for and will be distributed through OEM relationships with the top three PBX manufacturers as well as with agreements with the top three RBOCs.

Note that there is significant use of jargon in this statement. Such words as, OEM for Original Equipment Manufacture, PBX for Public Branch Exchange or local, telephone switch, and RBOC for Regional Bell Operating Company such as Bell Atlantic are used freely. The entrepreneur may want to decide to explain these terms in more detail depending on the sophistication of the investor.

2. Financial Highlights: These are the major parameters that make for the business success. They may include revenue, profits, margins, cash flows and return on investment. As example:

The business reaches a $50 million revenue base in five years with a 24% pretax profit margin. The peak negative cumulative cash flow is $3.5 million in year two and the business has an IRR of 27% and NPV at a cost of capital of 25% of $12 million." Again there is use of standard terminology for the investor in such terms as IRR for internal rate of return and NPV for net present value. It is generally not necessary to expand on the abbreviations for the typical sophisticated investor is familiar with them.

3. Financial Needs: These describe the needs of the business to get capital to grow and the desire of the company to, part with equity to support these needs. It may present a strawman financing schedule which acts as a baseline for financing. For Example.

The company is valued at $6 million using an NPV approach. The first round financing is needed at $1.5 million and the company is willing to provide 25% equity for the funds. The company has secured agreements from several RBOCs to purchase the Beta test equipment for a total of $1 million which will assist the financing through the Beta test phase. Subsequent second round financing is required and will be sought in 18 months.

4. Present Business Status: This includes a brief description of the incorporation and major employees and shareholders.

5. Key Achievements: This is a listing of the achievements of the company. This may include patents, contracts, prototypes, or development facilities. A simple statement may be:

The company has applied for a patent on its three key technologies. It has a predevelopment contract with three telephone companies for 35 units valued at $1 million. The company has hired the engineer who holds the patent as well as the key marketing and sales vice president. The company is presently funded by $100,000 of equity from the principals, and has working capital generated from three contracts for consulting from two telephone companies.

6. Key Personnel: This should include the management, and the Board of Directors. The management must be experienced for the tasks required and the Board should show a level of business breath to support the company.

The Executive Summary is the most important and it is oftentimes the only one read by those financing the business. It must be clear and crisp.

2.3 THE BUSINESS MATRIX.

We have discussed the fact that business are divided between goods and services types. In addition to these two differentiators, there are two others that lead to the definition of the business matrix concept that we shall build upon in the other business examples in this book. The other two dimensions are the capital and labor intensiveness of the business. These two dimensions help to characterize the business and allow the entrepreneur to determine where the business he is developing fits into the overall spectrum of businesses. The capital intensiveness is a measure of how much capital is required to develop and operate the business.

This is measured by the ratio of revenue per asset dollar or the asset dollar per employee. For high capital intensiveness, the revenue per asset dollar is small as it is in the cable Television (CATV) business or the telecommunications business. The intensiveness on the capital side is strongly affected when financing is considered by the tax policy that may be in place at that time. CATV for example relies upon limited partnership financing to support its growth. Without favorable tax advantages, there is less incentive for investment in these ventures.

Labor intensity is a measure of how many people are required to operate the business and to generate revenue. The measure of labor intensity is the ratio of revenue per employee, expense per employee, and income per employee. Fortune presents a detailed set of ratios for these types of companies on an annual basis and gives these numbers in detail.

Thus, we can consider the business matrix as taking the goods or service businesses and ranking them by the labor/capital intensiveness on a scale of low to high. For example we can have a labor/capital mix of H/H (High Labor/High Capital), H/L (High Labor/Low Capital) ,L/H(Low Labor/High Capital) , and L/L (Low Labor/Low Capital). The following are examples of companies that fit these categories:

o H/H: Satellite Communications Company.

This company has developed a satellite communications service that provides for the interconnection of computers through a small satellite terminal and a proprietary protocol converter. The company will modify the software so as to accommodate any user and allows the user to access the network at a rate that is 15% less than the comparable AT&T rate. The company has a revenue per employee of $100,000 and a revenue per asset dollar of $0.85. This is an example of a high intensity of both labor and capital. The company needs both people and capital. Such a company has a high risk since it must balance both of these limited resources.

o H/L: Turnkey Communications Company.

This company takes standard off the shelf computers and adds software to them so that they may act as message switches and packet assemblers and dissassemblers. The company has little capital since it is all purchased for a specific client and is considered inventory rather than capital. It does have significant labor for assembly and software development.

In this case the revenue per asset dollar is $25.50 and the revenue per employee is $98,000. This shows the range for labor intensiveness is a revenue per employee that is two to three time the average employee salary.

o L/H: Fiber Optic Network This company has been described before. It provides a telecommunications service to bypass the local communications carrier.

It has to establish itself with a significant capital base but once established it needs limited people resources to operate. This example has a revenue per asset dollar of $0.95 and a revenue per employee of $400,000.

o L/L: Bed and Breakfast Reservation

In this example the company has established a reservations service for the bed and breakfast industry. It uses a pyramid sales force which is all on commission and are not employees. Thus the revenue per employee is very high. It is $550,000.

The capital requirements are also very low thus having a revenue per asset dollar of $150.00. The company however has a limited barrier to entry. As we shall discuss latter in Chapter 5, such business are readily entered by competition who will need little capital and can do it with low cost labor.

Table 2.11 depicts the key facts about the basic elements of the business matrix concept. In the Table we depict the four types of businesses and the typical ratios that apply to the Revenue/Employee and Revenue/Asset. For example the H/H case shows that typically if these ratios are $200,000 per employee and $1 per asset are achieved, then this is a highly capital intensive business that requires highly professional staff. The businesses that fall within this category are typically difficult to finance since the overall risk may be too high for the typical venture capitalist.
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Table 2.11 The Business Matrix

Labor Intensiveness

Capital Intensiveness	Low	High
Low	Rev/Emp < $150K Rev/Asset > $3	Rev/Emp > $200K Rev/Asset > $3
High	Rev/Emp < $150K Rev/Asset < $1	Rev/Emp > $200K Rev/Asset < $1

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2.4 CONCLUSIONS.

This chapter presented a summary overview of the business plan structure. The key fact to remember is that the plan has a form that is oftentimes as important as its contents. The plan must clearly present the concept and must articulate the business objectives and the financial returns. It represents the people as well as the business. The plan is the description of how the business is to be operated. The executive summary is the most important part of that plan. It is the authors experience that the summary must be carefully executed so as to attract the attention of the investor. The plan must also be prepared so as to position the offering to the proper investor type.

As we shall see latter, the plan may be written differently in order to attract a venture investor as compared to a private corporate placement. In the latter case the investor may be interested in a strategic fit of the new business within their overall corporate strategy. The venture capital investor is interested in a shorter term financial gain. The implementation strategy of the business may differ in these two areas. This completes the business overview phase. The next Chapter we begin the discussion of the plan itself.

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PART II

CHAPTER 3 BUSINESS DEFINITION

The Business Definition Section of the Business Plan is the first formal section. It has been preceded by the Executive Summary which has provided the overview of the business. The objective of the Business Definition Section is to provide the reader of the Plan with an overview of what the business is and what the product is in some detail. In particular this section sets the pace for the remaining sections which build on the business and product concept, explaining in detail the customers, competition, operations and financials. In this chapter, we shall present the key elements of the Business Definition as viewed by the potential investor as well as by the entrepreneur.

The first chapter of the business plan is the most important since it presents the business, the product and should quickly convey why it is a good business. The need for a business and product definition statement is based upon the observation that many entrepreneurs focus too closely upon the product and fail to fully understand the business that they are in and thus miss many of the subtleties that are essential for success in that business. As we shall see, two entrepreneurs with the same product may however find themselves with two different businesses. Their resulting strategies for marketing and meeting the competition may be drastically different.

3.1 NATURE OF THE BUSINESS AND PRODUCT.

To understand the business, it is necessary to understand the relationship between the industry, business and product. For example the company may be in the telecommunications industry, in the bypass communications business, with a high speed data modem product. In contrast another company may be in the telecommunications industry, with a position in the bypass communications business, and provides an end to end communications service with network management.

The product is that which you intend to have as the focal point of the business. It may be a computer board, a database, a fiber optic network, or a public access terminal. You have to have a product before having a business. Andrews discusses this difference between product and business in his development of the concept of corporate strategy.

We shall see how this also fits into the concept of the competitive strategy as discussed in Porter[2].

The business describes what is to be done with the product. For example, if the product is a business data base that resides on magnetic memory, then there may be several business that you may want to pursue with that product.

The first is to sell that product to a data base distributor such as Dialog and let them do the rest.

The second business is one where you deal with a broker such as NewsNet or MCI Mail and have them allow access to any end user who you will develop a sales and marketing scheme to attract a potential customer base.

The third business takes the data base and puts it on your own computer using CD ROM technology and then has you also doing the sales and marketing.

In the latter case, you have vertically integrated all of your product in the distribution channel. In particular the product is what you intend to sell and the business is how you intend to sell it. Often the means by which the business is structured is determined by the product potential. The entrepreneur may have a new product and intends to establish a business that is standard. For example, the new company may have a more efficient data concentrator switch for high speed data. The business then is to manufacture and direct sale them to OEM or end users.

The industry, on the other hand, represents a standard broad classification of where the business is with respect to other businesses in the United States and elsewhere. One typical classification is the Standard Industrial Codes (SIC codes) used for classifying industry segments As another example, consider a business with a standard product but with a new business flair.

A more recent example is the publishing of financial data on companies and stock quotations. The product is well known and has a high market acceptance. The business is to electronically distribute the product rather than doing it through a paper means. This is the business that Dow Jones and Quotron are in. A new version using radio transmission rather than telephone has been developed by Lotus to add to its spreadsheet products.

Example 1: Telmation is a start up company that has developed a data communications interface board that provides for the access to local telephone lines by high speed data terminals. The access permits dramatically lower costs of operations for service to the end user. Using the service, the end user is charged $0.10 per minute access as compared to a dedicated line that is charged at the rate of $400 per month. Telmation has a product that is a data communications board. It is a simple piece of hardware.

Telmation can decide to be in either of two businesses. The first business is that of a board manufacturer to the local operating companies. In that case it may develop the board and sell them to the operating companies and the BOCs (local Bell Telephone Operating Companies such as New England Telephone) will the have the responsibility to market the service and the hardware. The second business is that of a service provider. Telmation may decide to develop a local switching center and allow the customers to dial

into them and get the service directly, as did MCI in the voice telephone business. There are two strategically different businesses. The first is a simple hardware manufacturer. In that case, the risk is limited and the competition may find it easy to enter the market. The product may have a short life cycle. In the second case, the business is that of a service provider and the cash needs are great and the customer is locked in. The revenue stream from the second is larger and the service has a much longer life cycle. This example portrays the essential difference in the nature of the business with the same product. The entrepreneur must carefully position the business to meet the needs of the market and as well as the ability to finance the venture.

3.2 PRODUCT DEFINITION.

The first step in developing the business plan was the need for a product and the determination of the business. Once this is complete, the plan must include a detailed description of the product. This description must be detailed enough so that the investor can visualize its development risks in some detail as well as envision what its market potential and competitive advantages are.

Thus the product description must have detail but not to the extent that it is a full technical description of the product. If the product is a computer board, then the description should include its functionality, the type of hardware employed and the extent of the software that will make this a unique product with a large market. If the product is a service, the description should include a high level view of the architecture of the system and specify what is expected of the user interfaces as well as the overall service features and functions. In the case of both a good and service product, the product definition should include all features and functions that make this a unique product. For example consider a new online data access service that a company wishes to develop.

The features and functions may be described as follows.

1. *Ease of direct access to the system by and automatic logon procedure for the user.*

2. *An artificial intelligence front end support service to assist the user in selecting data bases and in searching the database for the desired reference. This AI based front end system allows for simple user dialog to the system and supports a natural language query and response.*

3. *Automatic logging of information into local reference files are provided to the user so that usage of local PCs may be supported. In contrast to the features and functions the product description should include a high level architecture. This may include a description of the elements of the system and the major parts of the*

software. To continue with the example: The system architecture has the following key elements.

4. *The system uses a VAX 9200 machine with 25 GB of direct access memory and is supported by disk drives for full data storage o The system uses an AI Expert System Shell developed by the company especially for the "naive" user and it has been tested in an academic environment as part of one of the founder's doctoral thesis.*

5. *The system is networked together using an X.25 packet network. There should not be extensive details about the system in the Plan, since the investors will follow up on these issues during the due diligence process.*

In addition the detail will be provided in the full system architecture document as described in Chapter 1. Thus the product, whether it be a good or service , is characterized by two elements; its features and functions and its architecture.

Consider a second example of the product definition. A company has been founded to develop protocol conversion devices that allow for any word processor to talk to any other.

In the product definition the features and functions may be described as follows.

1. *The system has the capability to translate document editable files between the IBM, Wang, DEC, IBM PC/PS systems in real time.*

2. *The system interface acts as a files server to the systems and can be addressed directly as would any files server via a local area network.*

3. *The system uses a windowing server that allows for the direct access to the server and for real time transfer of the editable document. The architecture description may read as follows.*

4. *The system uses a Motorola's 68030 chip for the main processor and has direct access to both Ethernet and Token Ring systems.*

5. *The system software runs on UNIX in C language and can be modified by I/O drivers whose source code will be provided to the end user on request.*

6. *The system can be addressed by remote access via a dial up modem port and this allows for real time updates of software modifications as is desired. It also allows for remote diagnostics on the system for improved customer support.*

It should be noted that the description for both the service and the goods may be developed without significant detail but that both are heavily filled with technical jargon. This is unavoidable and if the potential investor insists on simple explanations, one must consider what help that investor may give in latter stages.

3.3 INDUSTRY ROLE.

Having established the business and the product in some detail, the Business Plan in this section should include a discussion of the industry roles. This concept is frequently left out of many business concepts. In essence the industry role concepts focuses on the what roles various players in the business must act out for the business to be effective. That is for a product to get from one point to the end user who is paying for the product, there will be several player in the chain whose roles are assumed. If they do not act according to their roles then the effectiveness of reaching the end user and in turn reaching the desired business goal is in doubt.

Consider the following example.

A reservation service has been conceived that will provide Bed and Breakfast establishments with an online reservation service and assist them in reaching a much larger market than they presently do. This service uses a small computer in each B&B location and relies upon the telephone company to provide the high speed data lines that are necessary. In order to provide an effective service the company must be able to assure the B&B establishments that their payment will be guaranteed.

Thus in this simple example there are many assumed relationships.

1. *First the company is providing a service that will reach potential customers through direct mail and advertising.*

2. *Second, the company is expecting that the telephone company will be able to provide high speed data lines. However, in many locations the telephone companies are small independents and such technical capability may be very limited.*

3. *Third, the company assumed that a credit card company would allow them to become one of their service establishments. Since the company has no track record in the business, there was a required bond to be established.*

Thus the simple assumptions could lead to a business that may not be successful. The company does not only have to look at its role but the capabilities and assumed roles of those on whom they rely.

3.4 UNIQUENESS AND TIMING.

The reader of the plan must develop an understanding of the business, product, market, segments and ask , what is unique that makes this opportunity worthy of the financial risk. This fact must be carefully highlighted.

Typical reasons are as follows.

1. *We are first in the market.*
2. *Our product is cheaper.*
3. *Our product has better features.*
4. *The other products don't work.*
5. *We have a better technical team.*
6. *We know how to market better than the others.*

The list can be continued but what is necessary is to be specific and not to generalize. In the case of a fiber optic bypass company, their competitive edge was three contracts with carriers, a ten year right of way to the city's subway ducts to lay their fiber, and a management team experienced in the business. They had revenue, expenses controlled, and people. That is what gives the leading edge to he business.

The issue of people is key at the beginning of the plan. Not how you are organized but the assets that you have in the people, the uniqueness that you bring with the people. This must be emphasized in this section.

Timing is also an important element in this first section of the plan. As we have defined the business, we must also provide for the reasons why it is important to do it at this moment.

Timing is driven by four major factors.

1. *Product Lifetime Limited A product may meet a need and that window of need is limited. The limit may be a market imposed limit or and externally defined technological limit. For example just before telephone deregulation, there was a need for autodialers to dial all the access numbers needed for an MCI service. A company was founded to provide the product to MCI. It grew from an annualized sales of $1 million to $76 million in three years. Then it collapsed. This was an external market window since the need disappeared when equal access came on.*

2. *Competition Directly Active The company may have a good idea but it is known that the competition will not be far behind. The example is that of Apple and the continues competitive thrusts IBM. This is a typical IBM strategy and a small company may find a niche but the lifetime and timing must be considered carefully.*

3. *Price Pressure There may be price pressure that allows for immediate entry into the market. However that may be a limited draw that also will disappear. RCA had a company called Cylix. It was developed based upon the fact that local calls were being subsidized by long distance. Using satellites they could provide cheaper long distance. They then had an arbitrage advantage. However with deregulation the equation changed and the business tumbled until it was repositioned by a new management apart from RCA.*

4. *Window of Opportunity In 1977 Scientific Atlanta(SA) found that it had a chance to develop satellite antennas for the cable TV business to broadcast signals from a company called HBO. Within a four month period HBOs subscribers grew from 45,000 to over one million. SA decided that it was profitable to provide low cost satellite dishes and the rest is history. Had the chairman of SA not perceived the market and responded quickly it may have been lost to another company. Clearly, it is essential to describe why timing is important and why it has to be developed now.*

3.5 CONCLUSION.

The business and product definition provides the reader of the plan with the clear understanding of what the business will do and in what business it intends to compete for the overall market. The statement of this set of factors must provide the reader with a clear and unambiguous understanding of these facts. The set of examples developed in this chapter will be developed further in latter chapter of the book.

CHAPTER 4 MARKET

The market section of the Business Plan, describes what the entrepreneur has learned as a result of the exposure to the potential user of the product in the context in which he wishes to execute the business. This section of the Business Plan combines a set of strategies with very solid names and numbers of customers. The target market must be targeted to such a degree so as to ascertain if it truly exists, and if it does, how best to sell to that market. All too often the market does not materialize and the entrepreneur will wonder what went wrong. This is the area that is the most critical. The financials can be predicted fairly well on the basis of capital and expenses, but the business hinges on the market and its accompanying revenue.

In this section we shall not only develop the formal methodology, but shall also stress the importance of getting commitments from potential customers to validate the existence of the market. This chapter is an overview of the many issues that are covered in the more classic marketing texts such as those by Kotler and McCarthy. In specific we will discuss many of the elements of market research without giving the details. These are contained in the texts by Bellenger and Greenberg, Boyd et. al. and Luck et. al.

4.1 TARGET MARKET.

The first step in developing the marketing presentation is a description of the target market. The target market is characterized by a defining who is going to buy the product. The definition has to be specific enough so as to not encompass too diffuse a base but broad enough so as to reach the total market. The definition of the target market is a result of a lengthy process of talking with potential customers, surveying, performing market research, and getting letters of intent from the potential customer base.

The Business Plan reports on the results of this process and does not detail all of the steps in this process. Thus in the Plan, the target market definition is succinct and to the point. In a subsequent due diligence process, the results of the studies performed may be investigated. We first present an overview of the market and then develop the process that leads towards the resulting target market. This approach will be the same for both the consumer and commercial markets. The approach developed uses a set of filters to delimit the target market along very specific lines, starting with a total potential customer base which is very broad.

The market is developed along the following lines.

First the total potential market is developed. This is characterized by all those users who may have the slightest interest in the product.

Second, using a limitation called the demographic filter, we obtain the addressable market. The demographic filter delimits the total market by using measurable elements such as age, computer type or other definable limits.

Third, using psychographic or interest factors, a feasible market is developed. This is based on an interest to buy, a willingness to change or other softer questions.

Fourth, we use a conversion rate to develop the convertible or TARGET market. The conversion rate is based upon the theory that any new or existing product has a life cycle and that only a portion of the feasible market may have an interest in a particular year. These are those who actually will buy in that specific year. The conversion rate is based the adoption theory to be discussed (see Kotler).

Fifth, using the market share number or that percent of the target market that the company hopes to attain, the actual number of customers or units are determined on a year by year basis.

The key to developing the target market is to understand this process and to ensure that all limits (e.g. the five steps described above) are applied. We show this process in Figure 4.1.

Figure 4.1 demonstrates the target market development process in detail, showing the five steps and four filters that are applied.

To summarize.

1. *Step 1: Total Potential Base: Knowing the product and business as developed in Section 1 of the Plan, the overall set of possible users is developed. For example, if the product is a consumer market, the total base may be the number of consumers, the number of households or the number of women in households. In the case of a commercial business the total potential may be the number of banks and financial institutions.*

2. *Step 2: Addressable Market: Using the appropriate market research tools, to be described in this section, limiting factors such as age, and sex, or computer type and location may be used to delimit the total potential market and derive the addressable market.*

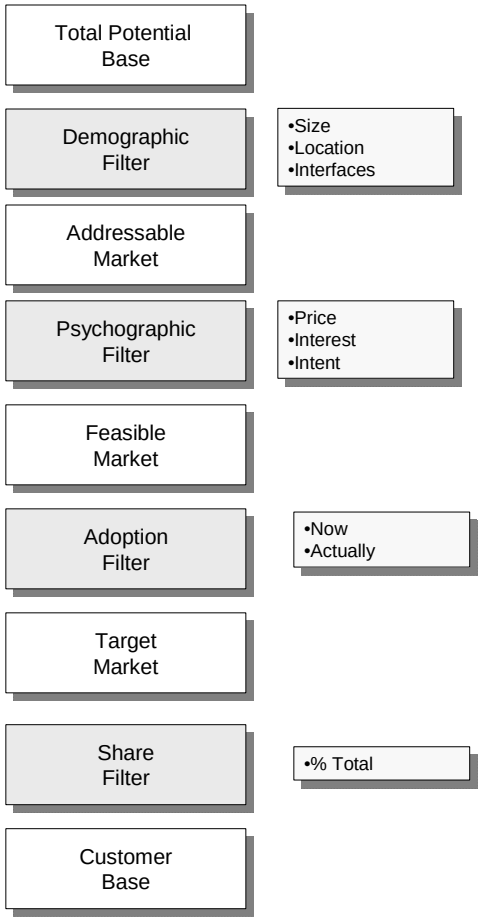
3. *Step 3: Feasible Market: User preference based on highly subjective factors such as price, interest in the product, intent, and even political orientation is used to further delimit the market size.*

4. *Step 4: Target Market: Having determined the set of users that are both demographically and psychographically acceptable, it is then necessary to*

determine which of those are interested at what time. That is the basis of adoption rate theory. It is similar to the concept of diffusion rate theory in the engineering literature and describes how new products diffuse their way into the marketplace. The results of this process give a year by year estimate in the target market, that is those users in each year who would actually be interested in purchasing the product. At this point, we now know who, where, when and how many.

5. *Step 5: Market Share: Up until this point, the numbers have all been fairly quantitatively derived. The target market is the totality of the customer base. The market share is that portion of the base that the company believes that it can capture. We shall see that this number is dependent upon the strategy the company takes, the competitors that are present already in the market and the cost of gaining the market share. In this section, we shall develop the methodology to support the above process and allow the entrepreneur to determine the target market and in turn the customer base.*

Figure 4.1 Market Breakout.



To fully understand the target market, it is essential to understand the elements of the players in the market equation. At one end is the supplier of the goods and services to the company who is developing the product. Thus, if the company is making a modem device, it has a supplier in the company who supplies LSI (Large Scale Integration) circuits. At the other extreme is the end user. This is the person who will actually use the product. This may be a secretary who uses the device for transmission of data from her desk. In between there are several key players.

Figure 4.2 depicts the players from the supplier, the company and down to the end user. The company must deal with a distributor, who in turn deals with the buyer on behalf of the company. In addition there is a company decision maker who may or may not be the buyer of the product. Thus the typical set of players are.

o Supplier: The provider of the primary inputs to the product. These inputs are not necessarily essential to the product and the company may have alternative sources of

such inputs. As indicated, these products could be telecommunications services, computer chips, or cabinets.

However, the company must recognize that its competitive strategy will depend on how the competition uses the supplier relationships and if the competitive can obtain cost or price advantages.

o Company: This is the company itself.

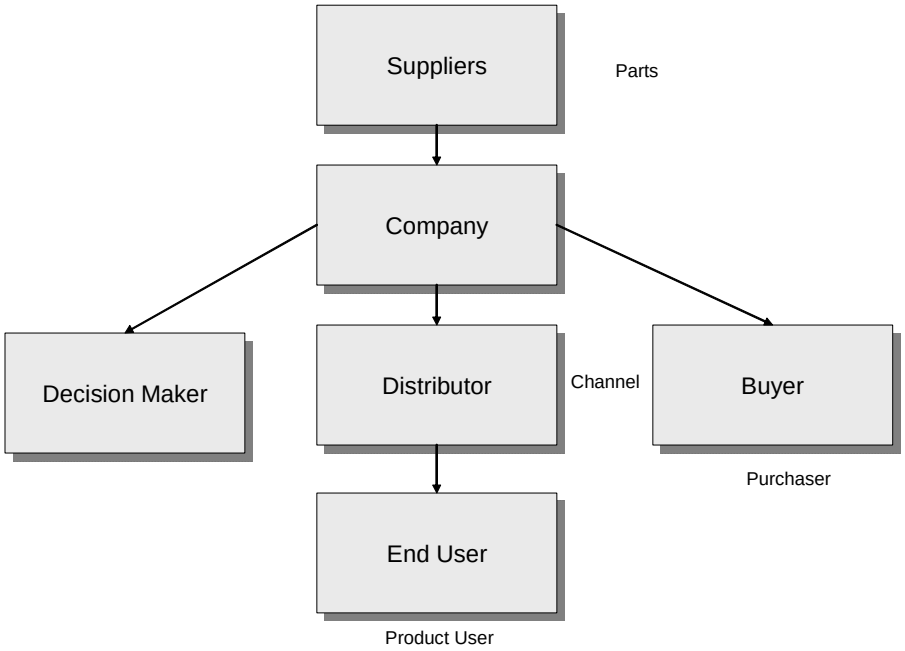
o Distributor: This may be one or several players whose role is that of acting as the representative of the company in the distribution process. The distributor may take the role of integrator of the company's product, salesperson for the company, or merely act as physical distributor.

o Decision Maker: This is the person or entity that decides on the product. It is the person who has the responsibility and authority for signing the purchase order and ensuring that the product is used.

o End User: This is the person who will actually use the product. This persons will not necessarily be the decision maker but may eventually have a significant role in influencing the decision maker.

This chain of individuals in the target market is essential to the understanding of the overall target market. In the development of any questionnaire and target market definition, the first step is the determination of this target market chain. That is, the target market definition must include not only the number of end users, who will determine the market size, but a description of the decision maker, who will determine the effort associated with the sales effort. For example, consider on online data base, the decision maker may be the company's information specialist, whereas the end user may be all of the marketing and engineering staff. There may be in that case, 100 to 1000 end users per decision maker. This factor may drive the overall
marketing strategy.

Figure 4.2 Target Market Chain



Consider the example of the modem company, the distributor may be the local telephone company business systems sales office. The buyer may be the procurement officer for the company or the Office Automation executive. The decision maker may however be the Chief Financial Officer of the company. It will be essential that in developing the target market that the entrepreneur understand this chain so as to most effectively characterize the target market.

This chain may also be broken in a different fashion by repositioning or repricing the product. The classic case is Federal Express who by pricing the product properly allowed the secretary to be the decision maker, while the secretary's manager was the actual end user. Federal Express changed the channel of decision makers and made for rapid expansion of their total market volume and sales. The target market will allow for the estimation of the total number of units that may be sold. The number of units will be limited by the total end users, their unit consumption, as well as the impact of the decision maker on the consumption.

The definition of the target market will vary from a commercial application to a consumer application. In this section we shall investigate both applications (consumer and commercial), as well as the techniques used to validate the target market.

4.1.1 CONSUMER MARKET.

In a consumer application, the target market is defined in terms of the number of people who would buy the product and this group in turn is defined by their demographics and psychographics. Typically one starts with the entire population on an annual basis and then begins to delimit the numbers by the factors discussed. Let us begin the filter process with the demographic factors that are typically used. The demographic factors are the following.

1. *Age.*
2. *Geographic Location.*
3. *Sex.*
4. *Education.*
5. *Occupation.*
6. *Marital Status.*
7. *Age of Children.*
8. *Profession*

A typical demographic profile could likely be as follows; male, 25-40 years of age, with income in excess of $50,000 per year, college educated, in a managerial position. With this profile it is then relatively easy to target that consumer. You have an understanding of their external characteristics.

The psychographics are the less quantifiable by external observations and other external characterizations of the potential purchaser. They describe the buyer's likes and dislikes, their interests and activities. They are used for the eventual positioning of the product in the mind of the consumer.

In a demographic segment, it is possible to further segment the target on the demographics combined with the psychographics. A typical demographic profile might read as follows. The customer is an active, community involved person, with an interest in outdoor sports. They also tend to be highly competitive and goal oriented and think in non traditional modes.

The above demographic and psychographic description can be used to target the potential buyer through a direct mail campaign, through media advertising, and can be used to establish the most effective distribution. This is accomplished by comparing the demographics of the readership lists with the target market. Such comparisons of demographic factors can be used throughout the distribution chain. As an example, if this

target market characterization is for a new financial product offered by a large bank, then it suggests that the following actions be taken.

o Advertise in publications such as, Airline Magazines, Business Week, Wall Street Journal, and INC.

o Provide an 800 number in-WATs access to sophisticated service representatives to transact the process.

o Use the American Express mailing list for a direct mail campaign. The process used to determine the demographic and psychographic filters and the corresponding market elements have been developed significantly over the past decades. In the consumer case, the process is usually through direct or primary market research, which is done by a firm which has the resources to perform the tests, and analyze the results. The types of market research vary widely but the process is somewhat consistent.

The product is presented to the consumer and the consumer is then asked to evaluate the product. The consumer is asked questions that provide the demographic and psychographic data as well as questions that are of interest to the product, such as purchase intent, benefits, needs, and price information.

These questions will take on a variety of forms. The key question imbedded in all of the research is the intent to purchase. Along with that question are other questions that relate to age, sex, marital status, income, as well as questions as regards to interest in travel, family closeness, and job related questions. The research then collects the responses to all of the questions and the results are cross tabulated along several lines. For example, the demographics may be tabulated with purchase intent (given as very high, high, moderate, low, no interest) and the age of the questionnaires. Table 4.1 depicts the result of a questionnaire on a new product that was presented to a sample cross section of consumers.

There were a total of 700 people questioned and it was assumed that they were randomly chosen and represent a typical cross section of the U.S population. The Table shows the results of a cross tabulation (cross-tab) of the interest (Very High, High, Moderate, Low, and Not Interested), versus the age of the respondent.

Table 4.1 Sample Cross Tab (Number of Respondents.

Age	*No.*	*VH*	*High*	*Mod*	*Low*	*NI*
18-25	250	5	55	65	75	50
26-38	110	30	25	25	25	5
39-48	120	10	30	40	30	10
49-64	110	5	10	45	35	15
65+	110	0	0	35	55	20
Total	700	50	120	210	220	100

By observing the results of the survey in Table 4.1, several important observations can be made. First only 50 out of 700 said that they were very interested in the product. However, the market researcher will focus on those who indicate not only a very high interest but also a high interest.

Thus 170 out of 700 appear to be available. Of those in that category, they appear to be most likely in the two age groups, 26-38 and 39-48. This is despite the large number in the earlier age group, since their percentage is lower. This is the target market. It does not say that the target market , so defined, is the only market. What it does say is that the target market, so defined, is the most likely market. The process of market research is quite extensive. Here are some of the ways the data discussed above is obtained.

o Focus Groups or meetings or large groups of randomly selected consumers.

o Mall Intercepts where consumers are intercepted in shopping malls and other areas.

o Mail questionnaires with the questionnaires sent to a large group.

o Telephone interviews.

o Baseline group of standardized and projectable sample of average consumers. This is done by large firms who use a set group for testing. The major factors in such testing are the sample size of the group and its projectability. The larger the sample the better the results, as far as market research can go as an uncertain art. Sample sizes of 300-900 are typical. The typical testing using these described test procedures help to determine the demographic and psychographic factors. Latter in this chapter we shall present a set of typical questionnaires that contain detailed questions that address all of these factors, in addition to those other factors that help to ascertain need and benefit.

4.1.2 COMMERCIAL TARGET MARKET.

The same set of demographic and psychographic filters can be applied to the commercial market. However, the difference is that the consumer market usually starts with all customers and then filters down on more standard demographic and psychographic factors. In the commercial area, the starting point is not that broad. It usually does not start with all companies, but with some segment of industries that are addressed by the product. In addition, there is further customizing of the industry base that is performed by direct potential customer contact. On the commercial side the same approach is applied but in a slightly different fashion. There is a three step market research effort.

Step 1 Preliminary possible customer calls to assess rough guess responses. These allow for direct access to the customer and are typically directed by a process of open ended questionnaires. Such questionnaires ask questions that may be used in a latter stage to develop closed end questionnaires to help sharpen the target market.

Step 2 Quantitative/qualitative market research through focus groups and telephone interviews. This step provides for more detailed questions of the potential customer base. It sharpens the focus and helps to determine the end user, the decision maker, and what factors are necessary to determine who they are and how many of them are in the total universe of samples.

Step 3 In depth customer marketing calls and presentations of the product. This helps to refine the focus and the product. It will assist in the positioning of the product as it is introduced into the market. This process is best described by example.

A large company, which had been a major manufacturer for many years, decided to get into the communications network service business. The service concept was conceived and it was brought around for informal discussions to friendly customers. The response led to an understanding that the real product in a service business was not their terminal but the computer software and customer service that was required to provide ease of access and high availability.

This resulted in a redefinition of the service. The company hired a market research firm to contact a large number of companies to find out what type of industries, what functions in the companies and how large a company would have interest in the service. That is they went about finding out the demographics of their consumer base. This was to be the target market. In a parallel effort, the company sent a group of managers to deal with a broader base of potential customers in one on one marketing calls. A marketing call is not a sales call but is more that a focus group session. It dealt with the customer as a customer who would be a sales contact, and attempted to sell the service although there was no service as yet to sell. The results of this was the ability to put together a sales presentation for the marketing and sales staff. Thus for a commercial application, the demographics that result from the above process might be the following.

o Industry Segment: What are the type of industries that are appropriate. These may include the financial services industry, the transportation industry, the manufacturing industry. It is suggested that typical SIC classifications be used. This will assist in the post processing of data and the utilization of on-line data bases.

o Company Size: Within the industry, what size the company is in terms of its total revenue is oftentimes a key factor in determining whether it may be an appropriate candidate. Thus the market research factors segment the questions so as to allow for interest and cross-tabs on revenue.

o Location: The company may be national or international. In addition it may be regional or even just local. These factors typically useful for such applications wherein networking of various elements are considered.

In addition, the issue of location may have to be subdivided into areas of how the decisions are made amongst the different locations. For multi-location companies, the decisions may be local or centralized at corporate. The answer to these types of questions will have a significant role to play in the development of the sales strategy and the distribution channel.

o Number of Employees: The research on the company should also include the number of employees. As we have discussed in evaluating our own businesses by high labor or capital content, we should also be able to evaluate our customer in a similar fashion. Thus if we are proposing a product that improves productivity, we should know what the number of employees are as well as knowing what they do as part of their day to day operations.

o Number of Plants: Knowing the location of the companies is the first step in evaluating the needed for coverage. We also must know the number of plants and their operations. As with the employee productivity factors, we should also understand our customer's capital plant productivity and as to how the product may better enhance that productivity.

o Functional Area in Company: The type of companies should be studied in further detail to understand their organizational charts and how the different elements of the organization function. This will assist latter when we develop a understanding of need and benefits. In the opening example of this section, the target market was characterized as follows.

o $500 million per year or more in annual sale.

o 20 or more location.

o 5,000 or more employee.

o Computer, Service, Communications and Distribution Industries.

o Sales, Customer Service and Field Service functions.

Using this information, it was then possible to determine the size of the market in terms of end users and its growth. This determination can be performed using many of the online data base system, such as the Dialog system. This type of information may be fed into those online systems and they will provide the researcher with details on the companies, their revenues, locations and employees. In addition, such services as Dialog may even provide the researcher with preformatted labels to be used in more detailed customer contact.

One of the more classic mistakes in estimating the market is in the case of Satellite Business Systems, originally a joint venture between IBM, Aetna, and COMSAT. In the early days of the business (1974), there were dramatic projections of the growth of data communications, with over 50% of all communications being data by 1985. In 1985 the actual number was 4%. The result was a system which did not foresee the PC, the expansion of data speeds on twisted pair, the breakup of AT&T. It was designed as a network optimized for bypassing the old AT&T using an all data mode and for the most part neglecting voice(96% of the business).

To date it has been almost a $1 billion dollar error and was sold off to MCI. This was a market driven by a dream rather than the harsh realities that for the most part people do not change large investments quickly. The second part of the commercial market characterization is what we call the psychographics. This involves describing the type of personality that the company has. The company's personality may be characterized by the way it approaches its computer systems, its personnel policy, of the general character of its executive decision process. The latter may be the key to understanding the customer and his needs, and in turn making the sale. For example the decision maker and buyer in a company may not be the end user. In fact there may be three people, or three committees. These factors are psychographic characterizations that are important qualifiers.

As an example, in a new communications service business, the data was to enter the company through its MIS center. The center was an IBM "shop" and the MIS director was thoroughly trained by IBM. The new system required a new communications front end that was not an IBM product, but was IBM compatible. The decision maker was the Group executive, the Buyer was the VP of sales, and the end user was the sales force. The MIS director was the stumbling block. The system did not go in. This was a psychographic factor that further delimits the market. As we have seen, the target market is described in both psychographic and demographic terms. It can be then sized using these terms against the universe of all companies.

This then yields the target market size. Another approach in determining the market size for the overall business is to start with the major drivers of the business and then to segment down from there on the sub groups that would represent the target market. Let us take as an example a company that wants to make a modem replacement for medium speed data communications. The product requires that both the customer as well as the phone company obtain the hardware to operate the system. The overall driver for this market is the set of all companies and users that have modems at this time. In addition the growth of the market can be measured against the growth of the modem market. This second approach to market size estimates is described in the following manner.

o First: Start with the total market driver such as the known modem market. This is called the gross or total potential market. This information may be determined from the open market research literature.

o Second: Determine the addressable market. This is that fraction of the gross market that would have the product available based upon certain demographic factors. The availability would be limited by such factors as phone company availability, and availability of circuits. This yields the addressable market. Note that the approach take here is identical to that taken in the company driven approach that we have developed.

o Third: From the addressable market determine the feasible market. This represents the fraction of the addressable market that would first find the service appropriate based upon the set of psychographic factors . Again this requires that we develop the profiled of the customer from the research efforts that we have described.

o Fourth: Using the feasible market, use the adoption curve to determine the convertible or TARGET market. The adoption curve is shown in Figure 4.3 (see Kotler or Urban and Hauser). It is broken into five major segments.

o Innovators: 2.5% of the total.

o Early Adoptors: 13.5.

o Early Majority: 34.

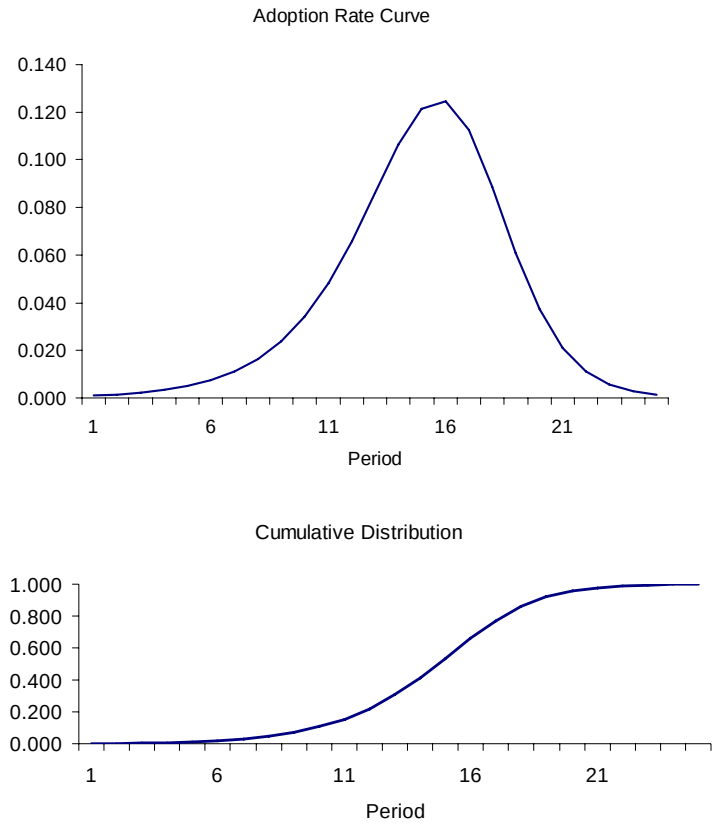
o Late Majority: 34.

o Laggards: 16.

The horizontal axis can be plotted in time, and the rate of adoption developed. In a five year adoption curve, the median point is at 2.5 years and the other points follow directly. Figure 4.3 depicts the adoption curve for the typical market. In 4.3.a we depict the curve as a function of time. The area under the curve from one period to another will depict the percent of the users who will adopt the product in that interval. Thus the interval of

maximum adoption rate is in the center of the curve. Curve 4.3.b is the cumulative of the curve in 4.3.a. It shows the effect over time to total adoption. Using the equation for this curve as depicted in Urban and Hauser, the details of the adoption rate and adoption cycle time can be included in the development of the target market.

Figure 4.3 Adoption Rate Theory.



o Fifth: Using the target market, a market share number is used to determine the actual size of the market. This is often a subjective number based upon the goals of the business as well as estimating the impact of the potential competition.

The result of applying this approach to determining the market size is that we now have a dynamic market profile that include a generally verifiable and measurable profile of users. This will be useful both in the due diligence process as well as in the operations of

the business. It allows for continual cross validation of the assumptions made as to who was the target market and as to how effectively the market is evolving and market share obtained. Example: Consider a modem company that will develop a high speed (9.6-64 Kbps) bypass device (one that allows for service without the support of the local telephone company). This device will be used by companies who have IBM type computer systems and have many data entry devices.

A typical example would be the companies that dominate the overnight delivery services such as Federal Express, Purolator, Emery and United Parcel. The end user is the entry clerk, and the decision maker is the MIS Director. The device will be used to replace the existing dedicated high speed data lines, and they will show a significant reduction in cost for the system. Thus, the individuals who are the decision makers are well known and the total market is the set of all data communications users. Then using the above logic we obtain.

o Total Market: This is the base of all modems in the US. This total number of modems may be determined from the data bases described in Chapter 2.

o Addressable: The appropriate set is determined by the need for the data rates specified, or whether the price is appropriate. The appropriate percentage is determined from the available base by asking such questions as.

o Do you need 56 Kbps or greater.

o Do you use your data circuits 25% of the time or les.

o Do you have an IBM compatible system.

o Feasible: This is the fraction of the addressable market that would be interested in using the terminals. They would be determined by asking questions such as.
o Would you buy the terminal no.

o Would you change-out your old terminal.

o Would you change terminal manufacturer.

o Would you save money with this service If the answers are positive then we have the penetratable market. These are the potential customers that have a need, a clear benefit, and a willingness to consider the product.

o Target: In this business example we assume a five year adoption curves as described. This follows typical market characteristics from past modem experience.

o Market Size: We further assume in this example a 20% market share based upon the fact that we know our four major competitors, and based on that knowledge we believe that such a share is achievable. The total market used for sales projections is then a product of these segments. It can be given as follows. Let M represent the market size in units. Then let.

o T represent the total market drive.

o PAD represent the fraction addressable.

o PAF represent the fraction addressable of those feasible.

o PP represent the fraction convertible of those addressable.

o S represent the fraction obtainable based upon share.

o TAR the target market size.

Then we have.

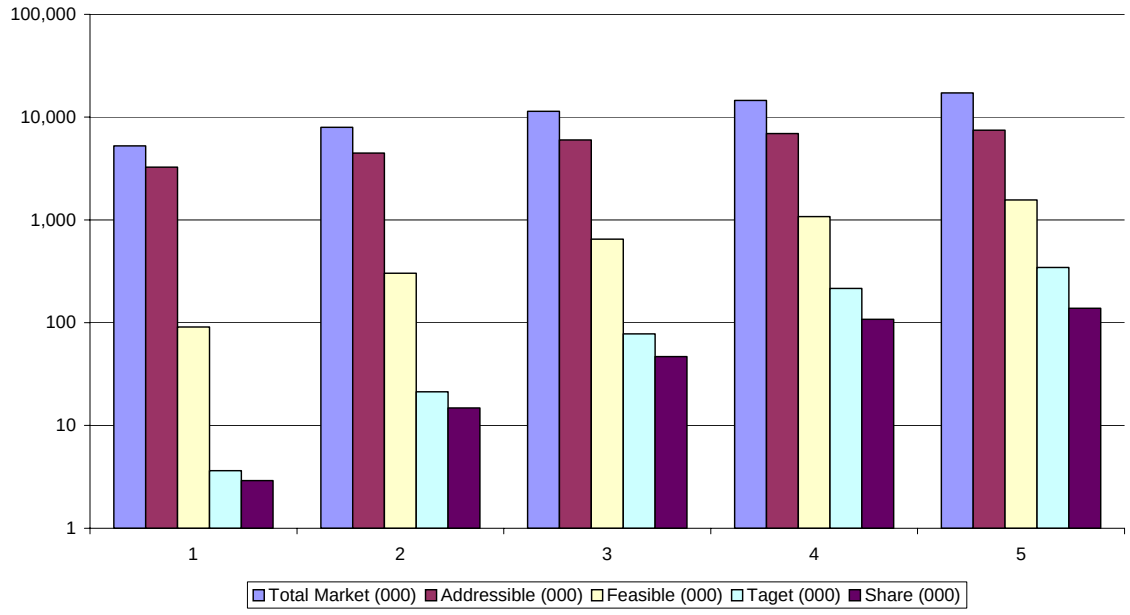
M = T*PAD*PAF*PP*S

and

TAR = T*PAD*PAF*P.

For example Figure 4.4 depicts the market numbers for the described modem business. Notice that in year 10 we have a total market of 377,000 units. However the target market is only 22,000 units and a 50% share yields only 11,000 units. The key marketing questions than become, how if at all we can change the percentages that delimit the target market.

Figure 4.4 Market Size Development (Modem Market).



This table depicts the dynamic nature of the five elements of the market and how they develop over the lifetime of the product.

The major problem that many new business developers have is that they fail to understand the market delimiters that we have just developed. Market research done by industry watchers rather than professional market researchers often fails to predict these factors. A classic example is the multi tenant unit communications business which tried to sell integrated communications services to large building owners. The failure of the industry watchers to understand these factors resulted in a target market 100 times the actual number. Those who performed much more detailed market research determined that there were significant factors that showed that the business did not truly exist.

4.1.3 SEGMENTATION.

We have discussed the characterization of the target market in multiple terms. A less detailed division of the market into natural elements is called market segmentation. The segments of a market are the naturally separate divisions of the customer base. For example in the service business example discussed above, the segments are the large companies($4 billion +), the medium companies ($ 1-4 billion) and the small companies. Segmentation is driven by how the company intends to market and sell the product, not by some purely analytic breakout. There should be strategic as well as demographic reasons to segment in a particular fashion. A small computer company makes a special purpose microcomputer that is used in image processing. It uses a LISP compiler and can be operated as an AI type device.

The market for this unit is first segmented into the government and non government areas. The non government area is divided into direct sales and OEM sales. Thus the business has three segments, each selected as a result of the way the company wants to strategically market the product as well as quantitatively how the market is divided.

4.2 NEEDS, USES AND BENEFIT.

The main issues associated with selling the product are why the end user of the product has a need for the product, what use it will be put to, and what the benefits are. These all lead to positioning the product and pricing it, and in turn creating in the mind of the customer the reason for why it is essential that they obtain the product being offered.

There is a quote in Steven Birmingham's book "Our Crowd" that says that the true salesman is one "who sells something that they don't have to someone who doesn't need it". The reference is to the investment bankers who sold parts of companies such as railroads to wealthy individuals who purchased the stock. They neither owned the railroad nor did the buyer of the stock want a railroad.

Yet they received 5% of all their placements and it was this 5% deal that built the empires of investment banking. Yet the truth of this statement is that what the stock buyers wanted was further wealth and the illusion of that is what is sold. From this comes the needs, uses and benefits. We discussed the concepts of needs, benefits and uses in brief detail in Chapter 3.

The same concepts will hold here. They are.

o Needs The internal requirements of a customer to have and utilize the product.

o Benefits The advantages that accrue from the product.

o Uses Those things that an end user does with the product to elicit the benefits.

The business and product concept are initiated as a result of the entrepreneur having an understanding of the possible use for a product. This may come from exposure to he business or personal activities of the end user. For example, the video game came about from observing that students at MIT were spending great amounts of time playing computer games on the large mainframe computer.

What was understood was that there could be non consumer product if the delivery mechanism was via a large scale computer such as the one at the Institute. Thus the need for this for of entertainment was recognized, the use being entertainment. The benefits were few in view of the delivery mechanism. This was overcome by the low cost Intel

6502 microprocessor chip that permitted the game to be put into what became the Atari 2600 video game. This allowed for a new distribution channel for the games to be developed. The method of validating the three elements of need , benefit, and use are the same as those of the other market elements.

Testing with sample end user in focus groups is essential. Listening to what the customer wants and interpreting that along the lines of the business and the product leads to a better chance of survival and growth. Table 4.3 and Table 4.4 depict the questions in a market research effort in a consumer area and a commercial area separately wherein the test was for these three elements.

4.2.1 MARKET RESEARCH QUESTIONNAIRE.

Commercial The typical market research questionnaire for commercial applications is shown in Table 4.2. This first questionnaire is called the open ended questionnaire since it asks questions in an open ended fashion, allowing the Interviewee to provide the answer in whatever form is appropriate.

This type of questionnaire allow for investigations of new products during the early stages, and in such a fashion so as to address many issues of interest that may not be thought of in the minds of the researcher. There are five major issues that must be addresses by the market researcher when developing such a set of questionnaires. These are.

o What are the objectives of the research. For example, in this questionnaire, the researchers are investigating the feasibility of the concept and how best to develop follow-on research to more clearly determine the target market. This questionnaire is not developed for the final market targeting.

o What are the key issues. Are the issues those of functionality of the device, price versus performance of the service, or who best to sell the service to.

o How best to structure the questions. This issue is one of where in the questionnaire do you ask questions. For example, do you ask about price at the beginning and then ask about needs and benefits, or do you reverse the order. In addition, where do you describe the potential product.

o How is the questionnaire to be administered. This is a key issue. The questionnaire discussed in this section is administered in a focus group, where significant interactivity can occur. Other questionnaires can be administered by phone or by mail.

o How are the results to be processed. If the results are to be just summarized in a rewritten format, then the questionnaire can be very free flowing. If, on the other hand,

the results are to be tabulated, then the questionnaires are to be much more specific. In the questionnaire discussed in this section, the results are to be left in a free format, to be used for the development of a more detailed closed-end format.

Example.

This company is desiring to offer a new data bypass solution via a fiber optic cable system around New York City. The company has selected a set of 150 company locations to ask questions about their data usage as well as their voice usage. The questionnaire is shown in Table 4.2. It is structured along four areas; data use, voice use, computer use and the competition.

he results from the questionnaire will be used to obtain the market size, its growth, and the pricing information as we have outlined in the previous sections. Let us consider this questionnaire in some detail. First the questionnaire is called an open end questionnaire. This is the most difficult type to reduce in an analysis case. All of the questions are open ended questions. The Interviewee may give any answer that comes to mind. Thus there are no limited set of responses. The results from the questionnaire may be reduced to statistical data but it will require considerable effort. The questionnaire is implemented through direct customer contact.

The questionnaire is given to a market researcher who sets up an appointment with the potential customer and then proceeds to ask questions and record the answers in a free flowing fashion. The market researcher can then assess the results and may then use these to fashion a closed end questionnaire for a more detailed follow up.

The plan at this point must be able to state carefully the three elements and to validate them through the research efforts that have been discussed. It may be possible for a business that is developing a repositioning of an existing product to utilize prior research results in this area. Let us consider the questionnaire in Table 4.2 in some detail. Its objective was to understand the target market in some detail, but it did not assume a priori what the market segmentation factors may be. Thus the questionnaire is divided into five sections. The first provides information on who is being interviewed. This will be useful for follow up contact. The other sections are as follows.

o Usage: This section allows for a free flowing dialog on both data and voice usage. Note that the questionnaire starts on data usage, since that is the driver of the business. It asks about local and long distance (intrastate and interstate) usage.

o Internal Switch Capabilities: This section further qualifies the potential customer on what capabilities he may have in advanced switching. In the actual administration of this questionnaire, it was found that many of the questions could not be answered by the appropriate person. This indicated that the product assumed a sophistication that

exceeded the capabilities of the customer. This was a key observation that results from such an open ended questionnaire.

o Computer Systems: Since the service is for computer users, further research may require segmentation on the type or model. This is first surfaced in this section.

o Competition: The final section addresses the issue of who else in the mind of the customer could provide the service.

Table 4.2 Questionnaire Commercial

BACKGROUND INFORMATION.

1.0 USAGE INFORMATION.

1.1 DATA.

1. What are the use.
2. What are the to/from location.
3. What are the data speeds and how are they related to total us.
4. How much use is there in min/month/speed.
5. What are the interface requirement.
6. What carriers are use.
7. What is the expected annual growth rat.
8. What type of data equipment is use.

1.2 VOICE.

1. What is the monthly usage in minute.
2. What is the monthly cos.
3. How many trunks are there.
4. What are the number of employee.
5. What are the to/from location.
6. What is the expected annual growth rat.

2.0 COMPUTER SYSTEM.

1. Type.
2. Locations
3. Database size
4. Expected annual growth rate.
5. Packet communications use.
6. How much use per month What is it used for.
7. Number of PC per location.
8. Data speed on terminal.
9. Data terminal usage per month.

3.0 COMPETITION.

1. What Long Distance Companies do they us.
2. What is the amount of traffic and the expense.
3. Why was it chose.
4. Who chose it.
5. How long did it take them to decide.
6. What was the deciding factor.

4.2.2 MARKET RESEARCH QUESTIONNAIRE: CLOSED END.

We can now consider a second example of a questionnaire, but in this case it is a closed end type. This questionnaire was developed to address the needs of a specific market and also to help in further refining the target market for the product. As with the previous questionnaire, it addressed the five key questions.

o What are the goals. The goals of this research will be much more quantitative. They will be used to target the market, position the product and determine the price. It will also be used in developing the overall promotional strategy for the business.

o What are the key issues The major issue is who is the customer and who is the customer's customer. The qualifications here are determined by the demographics of the ultimate end user of the product.

o How to structure the questions The questions should be as unambiguous as possible and should be administered by as simplest a means as possible. The answers should be all multiple choice or fill in of specific data.

o How is it to be administered The choice of administration is based on cost and size of the sample. In this case a telephone approach was used.

o How are the results to be processed and evaluated The results will be the basis of market estimates, thus it is essential that they be as accurate as possible and contain little anecdotal material.

Example.

Let us now consider the example of the business that this questionnaire was administered. In this example of a questionnaire shown in Table 4.3, we are using a closed ended approach where all the questions are multiple choice. This questionnaire is directly reduced to a statistical analysis of the market and its sizing. It is important to remember however that this questionnaire is a result of the open ended approach wherein the sets of choices have been carefully selected. If this were no the case, then the answers may not be appropriate.

The company being investigated in this questionnaire is considering developing a Bed and Breakfast reservation service. Their end users are the B&B operators but they must also understand the nature of the decision makers, the consumer. Thus many of the questions address the demographics of the end user as well as the consumer.

This questionnaire was administered through the mail using a set of mailing lists for the B&B industry. These lists were obtained through books on these locations. There were

750 questionnaires mailed and the response was 10%, or 76. This was a very high response rate for the B&B business. A selected set of 252 were called on a random basis with a 50% response rate to a phone interview. Thus the total response was 126. This was sufficient to obtain a sampling of the total base of 10,000 B&B establishments.

Table 4.3 Questionnaire Consume.

QUESTIONNAIRE BED AND BREAKFAST INTERNATIONAL INC.

Instructions: This questionnaire will be used to develop a new service business concept and we at BBI would appreciate your assistance. You do NOT have to identify yourself if you rather not. Please answer all the questions as best as you can as they will help many in the B&B industry. Thank you for your help.

PART I: Please indicate where you are located.

1.1 State.
1.2 Zip Code.
1.3 Number of Rooms.
1.4 Average Rate per Room per Night.
1.5 Average Occupancy Rate (%).
1.6 Occupancy Rate by Season.
    1.6.1 Summer.
    1.6.2 Fall.
    1.6.3 Winter.
    1.6.4 Sprint.

1.7 Average Number of Nights per stay.
1.8 Method of Payment:(%.
1.8.1 Cash.
1.8.2 MasterCard.
1.8.3 Visa.
1.8.4 American Express.
1.8.5 Other.

1.9 Method of Reservation:(%.
1.9.1 Letter.
1.9.2 Phone.
1.9.3 Reservation Service:
1.9.4 Other.

1.10 Method of Finding B&B: (%.
1.10.1 Advertising.
1.10.2 Personal Referral.
1.10.3 B&B Guide Book.
1.10.4 Referral Service.
1.10.5 State or Local Chamber of Commerce.
1.10.6 Drop Ins.
1.10.7 Other.

1.11 Type of Customer.

1.11.1 Age (%) Enter % in each group.
1.11.1.1 20-30.
1.11.1.2 30-40.
1.11.1.3 40-50.
1.11.1.4 50-60.
1.11.1.5 over 60.
1.11.2 Type of Profession.

Enter % in each group.

1.11.2.1 Professional.
1.11.2.1 Self Employed.
1.11.2.3 Retired.
1.11.2.4 Managerial.
1.11.2.5 Other.
1.11.3 Estimated Level of Income.

Enter % in each group.
1.11.3.1 Under $30,000.
1.11.3.2 $30,000 to $50,000.
1.11.3.3 $50,000 to $100,000.
1.11.3.4 Over $100,000.

1.11.4 Marital Status: Enter % in each group.

1.11.4.1 Married, no children.
1.11.4.2 Un Married.
1.11.4.3 Married, one or two children.
1.11.4.5 Married, more than two children.
1.11.5 Employment Status.

Enter % of those married.
1 1.11.5.1 One employed.
1.11.5.2 Both employed.

1.12 Returns: What % of customers are returns.
1.13 Growth: What is your growth rate per year.
1.14 What year were you started.
1.15 How long has the present management been here.

PART II Please answer all of these questions based on your personal opinion. The questions are statements that you will select one of five levels of answers. These will be used to determine how best to develop a service to meet your needs.

2.1 If a national reservation service was developed, would you be join it? [ ] Extremely Interested [ ] Very Interested [ ] Interested [ ] Not interested.

2.2 If the service had a computer terminal as part of it operations, would you like to use it? [ ] Extremely Interested [ ] Very Interested [ ] Interested [ ] Not Interested.

2.3 Please Rank the reasons why you would use a reservation service. (1 is the most important): [ ] Increase Occupancy [ ] Obtain Better Clientele [ ] Guarantee Rooms [ ] Pre Screen [ ] Raise Rates [ ] Automate Accounting [ ] Guarantee Payments [ ] Provide Better Control over long term occupancy.

2.4 If the reservation service had a rating service accompanying it, would you be interested? [ ] Extremely Interested [ ] Very Interested [ ] Interested [ ] Not Interested.

PART III If you are interested in receiving a summary of the results, please include you name and address.

Name.
B&B Name.
Address.
City/State/Zip.
Phone.
Please Include any Comments.

The questionnaire in Table 4.3 has three parts. The first part sets out to identify the user of the B&B as well as the revenue potential from the typical B&B. In addition it addresses the needs for such a service as the one proposed. Part 2 of the questionnaire gets more deeply into the needs and ranks them. The most important question is 2.1, which determines the interest. As we described in Section 4.1, all the cross tabs can be done on this question. It allows for a determination of the target market as well as the need and benefits.

4.2.3 STATISTICAL VALIDITY.

The typical market researcher will not only focus on the questions, but will also look more closely at the sample size and quantify the validity of the answers. That is, using a base if 126 sample out of 10,000, the typical researcher will then give limits as to what level of reliability will be attached to the answers given the sample size. That level of detail is adequately covered in the aforementioned references and will not be part of this book. The reader is cautioned, however, to review that literature in detail, before relying too heavily on the quantitative results.

4.3 POSITIONING.

Positioning is a term that is discussed at length in marketing texts and has it genesis in the works of Levitt and Ries and Trout . Simply put, the concept of positioning is a statement of how the company wants the purchaser to view both the company and the product. It will become a pervasive concept in the promotional campaign of the company.

A typical positioning statement for a communications service company might read as follows.

" THE MOST ADVANCED AND RELIABLE HIGH SPEED PORTABLE COMMUNICATIONS NETWORK SERVICE PROVIDING NATIONAL SERVICE AT COMPETITIVE PRICES.

Let us analyze this positioning statement.

o First: The company is providing a communications network service. This means that there is more than just an end to end transmission of data. It is a service company providing communications.

o Second: The communications is delimited to high speed data communications. The system addressees the portable communications user marketplace. This means that the need addressed is that of portability and of having to provide high speed data channels. This delimits the business.

n contrast to the first observation which is expansive, this is a limiting factor.

o Third: The company wants to make themselves unique by stating that they are the most advanced and reliable. This may mean that there is competition and that they intend to position themselves against the competition on the basis of these features.

o Fourth: The business is national. This is a description of the scope and the total market that is potentially served. It may delimit the business to those companies that want international service. However, that need may not be very high.

o Fifth: The price is called competitive. The statement stresses the other features and the issue of price is one that is competitive with the competition. The business will not try to undercut the prices of the competition. This means that to provide the other features, the company has not found a way to reduce the prices and compete on price. It also says that the alternatives to this service, such as telephone lines will not be cheaper but may be comparable. From this positioning statement, these five observations say a great deal about the business. The business plan must contain the positioning statement. It says how you view you business in the context of the market and the competition.

4.4 PRICING.

Pricing of the product can be based upon one or a combination of three factors; competition, cost, or use.

o Competitive Pricing In this case, there may be a set of competitors in the market. The business may look at the prices of the competitors and their offerings and then price the product at a point that it fells will balance value with price. In markets of this type, the price may rapidly degenerate into a commodity pricing war. For example, in the long distance communications area, a fiber optic company started in a region which had limited high speed data facilities and was rapidly growing. At first they could price at the going rate of the telephone company less a suitable discount. As other competitors came into the market because of this potential for high profits the result was commodity pricing.

The product, T1 (e.g. 1.544 Mbps) data carriers could not be distinguished from one company to another. The result was that they all as a commodity. That is, the services looked like oats. The result is the consumer buys the cheapest oats.

One of the other factors to be considered by a new company entering a market and using competitive pricing is that there are two discounts that the buyer expects. The first discount is based upon the buyer's need to change to your service or even to buy it if a safer and more routine alternative exists. This may be a 10% reduction from the price of the existing alternative service.

This is called the switching discount factor. The second discount factor is the risk factor cost on a buyer if he buys your product and you do not survive. This may be the greater cost discount factor of 12%. Thus you may have to price 22% or more below the going rate if you cannot distinguish you product well enough.

o Cost Pricing This approach is based upon your desire to maintain a margin on your product above cost. Hardware manufacturers try to follow this trend although it can be quite difficult to do. This is particularly difficult to do at the early stages where your costs are high due to low volume . You may be forced to price to market (e.g. what the customer is willing to pay) or to the competition or to the displacement level (e.g. what it costs to displace the present provider of the product).

o Use Pricing This pricing scheme is most favored by service companies who can position the service with regard to benefits, and in turn can tell the customer how much they are saving using the service. The service must avoid the commodity position for this to work effectively. As with the other market factors, the pricing issue must be tested with the purchasers.

The other dimension of the price is the elements of the price itself. This is called the pricing structure and includes the way the customer pays. Consider the following example. A communications service company will provide a portable data communications service that will help the end user communication from any location using an RF modem. There are several ways to get $100 per month per user on average, which is the use pricing level. These schemes are.

o Fixed Price In this case, the end user is charged $100 per month. The advantage is that billing is simple and the user knows what he is charged. The disadvantage is that not all users use the same amount of data. Some may have incentives to hog or jam the network. Under this scheme they may be incentivized to do so. Some may decide to resell excess capacity.

o Fully Variable Pricing In this case the user pays for every system variable; the number of messages, the geographical coverage, the priority level, the time of day usage, and the size of the network interconnect.

o Discount Pricing For large users there may be a need to discount the price. This works with hardware as well as service businesses. The discount price is based upon the

customer's commitment to purchase large volumes, over long periods of time, or on some exclusive basis.

o OEM (original Equipment Manufacturer) Pricing This works where there is a middle men who adds value to your product. OEM pricing is like discount pricing but is has lower distribution costs. For example, the company can sell its computer terminal at one price directly to an end user and at a lower price to and OEM company who may add software to the machine and sell it with some value added service.

The reason for the two price levels, is that the OEM reseller provides for their own distribution to the end-user, thus saving the company added expenses. Thus pricing has two dimensions, the type and the structure. One can imagine fully variable use pricing as well as fixed cost pricing. The pricing schemes also may vary by business segment. The pricing will be important as we develop the revenue model. The price along with the market segments and size determine the overall revenue potential for the business.

4.5 DISTRIBUTION.

One of the most difficult issues for a start up company is distribution, or how the product will reach the end user. The simplest distribution is direct sales. In that case the company has its own sales force that makes door to door sales to the end user. This requires that the company develop the sales force and target the buyers, decision makers and end users in the target companies. This is often a very expensive process. Alternative distribution channels are then sought. Distribution encompasses the entire process of getting the product from the factory to the end user. It is comprised of the following elements.
o Marketing : Determining the need and targeting the customer.

o Sales : Presenting the product, the price and getting closure.

o Promotion : Raising awareness of the product and its benefits.

o Fulfillment : Delivering the product and following through with the sale. There are multiple distribution alternatives that present themselves to the entrepreneur. These alternatives depend upon the type and size of the market as well as the interplay between the three key players; the end user, the buyer, and the decision maker. Take the simple example of two extremes; a commercial product and a consumer product. In the first case, the company has a new communications processor that can be used by the telephone companies. There are five of these companies that represent 90% of the market.

In each there is a single point of contact for new network equipment. Thus, it is possible to deal with five people as the total set of decision makers. In this case a direct sales effort is the only alternative. In the second case, the company has made a new computer

terminal for the consumer to access many of the videotex databases that are available and to do home banking. The estimated market is 2 million terminals in the first three years. Clearly, direct sales is not feasible.

Further, the market is delimited by two factors, that target market of those interested and the set of those who are interested who can have access. The market recognizes the service and not the product of the terminal. Thus distribution could occur through retail stores, in conjunction with the data base suppliers, or even by direct mail. In this case there are several alternatives, each with their associated costs of distribution.

Details on distribution channels alternatives are presented in the works of Stern and of Nash. To understand the distribution issue, we must first understand the nature of the distribution or marketing channels. The distribution channel describes the element that takes the basic raw materials and shows how then end up at the end user of those materials. The distribution channels is composed of the following basic elements.

o Supplier: This is the entity that provides the raw product to the channel. It may be a maker of silicon, LSI circuits, modems or whatever depending on what the company is doing in the chain.

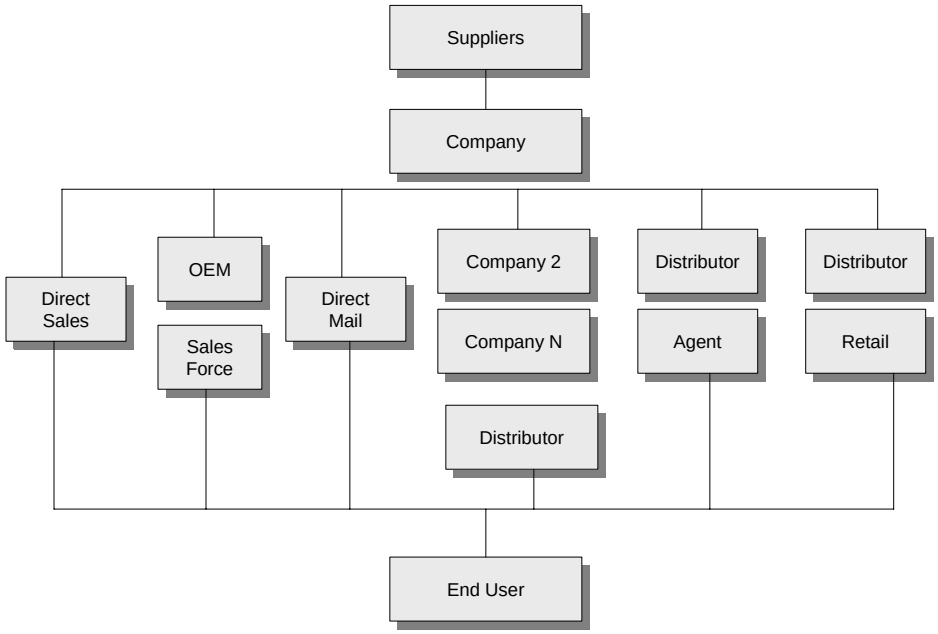
o Packager: This is the position of the company itself. It packages and adds value to the raw product of the supplier. It views suppliers as commodity providers and views itself as the key value added element. This is the position of the company in the business plan.

o Distributor: This element is the one who takes the product and distributes it to the channel end users. In some cases the company may want to be its own distributor, or in some cases there may be multiple layers of distribution. For example in the computer business, if the company make filaments for console lights, they will sell them to a computer company through a distributor. In that case the end user is the computer company. The computer company may have their own sales force so they are their own distributor.

o End User: This is the person or entity who will use the product.

o Decision Maker: This is the person or entity that makes a decision to purchase and may also be the entity through which the product flows to the end user. Figure 4.5 depicts the distribution channel alternatives that apply to a generic example. It depicts all of the elements and inter-relations that we have just described.

Figure 4.5 Distribution Channel.



The following describe the various alternatives depicted in the distribution channels of Figure 4.5.

o Direct Sales: This is a direct sales force that has a direct contact with the decision maker, the end user and the buyer. Companies such as IBM have extensive and accomplished direct sales forces.

o OEM Sales: In this case the product is sold directly to someone who then incorporates it into their product and then resells it.

o Distributor Sales: A distributor buys the product and then resells it to a retailer or other sales force.

o Agent: A third party takes on the sales of the product possibly on a direct sales business. As an example Motorola has a large direct sales force that acts as agents for radio common carriers to bring on customers to their service if the Radio Common Carrier (e.g. RCC) purchases the hardware.

o Retail: This requires the direct selling to the retailer such as a Sears. Atari was successful in using this approach in getting a breath of distribution. It avoids the problem of having to deal with the distributor middlemen.
o Direct Mail: In this approach the company targets their customer and uses a direct mail campaign. This works very effectively if recognition is high and if the product is easily understood. For example, American Express is a master at direct mail sales.

o End User Agents: This assumes that the end user will be using a bundled product that works in conjunction with someone else product. Then the company tries to bundle their product with that sale. Software companies use this technique in conjunction with computer companies to make their sales.

There are also combinations of these strategies that can be applied. Distribution may also vary by market segment. In a business with three segments, it is likely that there may be three distribution channels. The choice of such channels are determined by the ability to reach the market effectively and in a cost effective manner. The issue of cost in the channels is oftentimes a determining factor. Let us examine the factor of cost on the alternatives.

o Direct Sales The direct sales costs depend upon the following factors; the number of customers, the number of calls per customer per sale, and the number of people required per call. For example, in a software company, they need a salesman and a sales software engineer to call on a client. It takes six months to develop the client and this may require six calls of two days for each sales call.

Each call day requires three days of preparation. This is thirty days of effort at the rate of $50,000 per year of $200 per day unloaded manpower costs. A fully loaded cost is $500 per day. Thus the cost of a sale is $15,000. If the product is priced at $100,000, then the sale is productive. Another approach is to pay 15% commission on the sale. This is deceptive however, since it does not include the loaded technical support. As we have mentioned before, the sales costs are determined by the three factors of market, productivity and salary.

o Direct Mail Direct mail is appropriate for reaching a large cross section of targeted consumers. It works in both the consumer and commercial market. Let us consider an example of a direct mail approach. A software company has developed a tool to allow the educated investor to evaluate optimal option pricing schemes and to select options from a large portfolio. The software uses an artificial intelligence kernel that makes it easy to use and provides real time optimal selection of a portfolio of stock options.

The target market for this product is the upscale financially active individual investor who has a personal computer. At the time of the plan development, there were 8 million PCs and of those there were 1.5 million in homes or used for personal use. Of these 1.5 million, 10% or 150,000 were sophisticated investors who had interest in the product. The product was priced at $995.00 based upon the market research that was performed. The company went to American Express to use their mailing list program and the quote per direct mail package was $2.30. The buy ratio, that is the percent of direct mail pieces returning for purchase was estimated at 2%.

A direct mailing of 200,000 was made of the package and the return rate was 2.5%. Thus, there was a revenue of $5 million from the mailing. The cost of the mailing was

$500,000, including preparation. The cost of sales in this case was 10%, which is quite low for typical direct mail operations. If the company had sold the product at $495 and had only a 1% return, then the revenue would be $1 million and the cost of sales would have been $500,000, or 50%. This extreme case represents the sensitivity of direct mail to overall costs of sales.

o OEM Sales In OEM sales, the company contracts with a third party company to incorporate their product in the other company's product, and then agrees to a price per unit sold to the end user. The cost of sales in this case is the cost of selling the OEM company in integrating your product. It is similar to a direct sales approach, but the price at which you sell the product is much lower and the terms under which the sale is made can be less demanding in terms of warranties and guarantees than a direct end user sale that may be controlled by the UCC (Uniform Commercial Code).

As an example, a software company makes a project management control system software product that can be put into a workstation product. The workstation company wants to add to its CAD/CAM ability by providing an integrated applications package. The software company then has the option of either selling the package one at a time or licensing the package. The difference is that a sale books the total revenue to the software company's books whereas the license books the license fee only. It will not change the profit, only the type of revenue.

o Retail In the retail distribution channel, the company has a product that it wants to sell in the retail market. Take the example of the electronic game business. In this case, the end user is the consumer in the age bracket of 9-15. The possible store chain is Sears. The company then goes to the Sears buyers in Chicago and tries to convince them to carry their product. Sears may try to persuade them to private label the product for in store use or try to gain some exclusivity.

They may also quote a price level for different volumes of sale and may also include a returns policy for the unsold product. The company may be able to sell the game to Sears at $120 per unit, which then gets marked up to $295 for in store sales. Sears may then quote net of 60 days, and inventory held longer then 180 days acceptable for full return at purchase price. The cost of retail selling is that of targeting the retailers and of closing the sale. There is also the aftersale costs of keeping the retailer happy if the product is not meeting expectations, or of negotiating a better deal if it is doing well. There are also hidden costs. Remember that revenue is booked to the company once the retailer takes custody of the product.

This may occur when the product leaves the shipping dock at the factory. However, the company must have reserves against returns. Let us see how this may backfire. In the case of Atari, the company shipped $2 billion of product in 1982. The company did not perform shelf counts, which are typically done in the retail business.

The shelf count is done by an independent company to determine how the product is moving in the retail stores. If the product is not moving, then the reserve account, which is an expense is increased. In November 1982, the electronic games business softened. Shelf count would have given an early warning signal. It did not in this case. The result was a return of 25% of store inventory in mid December.

This then results in a $500 million dollar expense hit. Combined with lowered operating margins due to increased development costs, this resulted in a $350 million loss for the fourth quarter. Indeed, the costs of retail sales have to be augmented by reserves that reflect the business. The author was told by an Atari executive in November 1982, "People buy everything we make". The fact to be learned from this experience is, do not trust the people that much.

o Agents Agent channels use third parties to sell your product to end users. The agents may be distributors for several companies who go door to door selling a list from companies that they have been dealing with for many years. An agent may also be a company that has access to your customer base or some other relationship to the customer that gives them access.

An example is in the case of Motorola which has a large distributed direct sales organization in its Communications business for mobile products. It will act as an agent for carriers to sell the product. An agent agreement typically results in a fee for sale which may be anywhere from 15% to 45%. This is agreed to by the two companies. Unlike the distributor, the agent does not take title to the goods. The title remains with the company until it is sold to the end user.

o Distributor A distributor will take the product and the title to it. When the company sells the product to a distributor, the sale can be booked, unlike that for an agent. However the distributor may also have a returns policy as does the retailer. The same factors apply as do those of the retailer except that the price will be lower than retail prices.

o End User Agents The end user agents are a special type of distributor/agent. As an example, a large bank has developed a home banking package. It needs computer terminals to operate the package in the home but it does not want to sell the terminals itself. It then strikes a deal with a terminal company to send out direct mail pieces in its promotional campaign, advertising both the terminal and the service. The bank would then get a 5% fee of the selling price on all terminals sold through this means. The bank would never take title, but would also not represent itself as selling the terminal. This is more than co-op advertising but less than an agent status.

Table 4.4 summarizes the advantages and disadvantages of each of these approaches, and Table 4.5 depicts the costs of the scheme and the possible margins. In Table 4.5, we have for each of the channel alternatives, depicted the cost drivers for the sales expense. We

shall be using this in detail in the next chapter. In addition, we have depicted the typical margin on sales, associated with that type of channel. This table could be prepared for any business and may provide the basis of deciding on the most desired type of distribution channel.

Table 4.4 Advantages and Disadvantages of Distribution Channels

Channel	*Advantage*	*Disadvantage*
Direct Sales	Well Targeted	High Cost Sales .
OEM Sales	Existing Force	Loose Control Customer .
Distributor	Existing Force	High Cost Sales .
Agent	Controlled Sales	Loose Customer Control .
Retail	Large Distribution	High Return Reserve .
Direct Mail	Highly Targeted	High Cost Sales .
End user Agent	Controlled Sales	High Cost Sales

Table 4.5 Distribution Cost Factor.

Channel	*Cost Factor*	*Margins*
Direct Sale.	No Companies Sales Staff/Customer Months/Sale	25%
OEM Sale	No OEM Cos Sales Staff/OEM Months/Sale	15%
Distributor Sales	No Distributors Sales Staff/Dis Months/Sale Reserve	30 %
Agent Sales	No Agents Sales Staff/Agent Months/Sale Agent Fee	35 %
Retail	No Retail Sales Staff/Retail Months/Sale Reserve %	55 %
Direct Mail	Cost per Piece Number of Piece Buy Ratio Prep Cost Cycles/Product	30 %
End User Agent	No Agents Staff/Agent Months/Sale Fee	35 %

In all distribution channels there are roles that the different players have. As important to the distribution is the role of the player and the role of the company. Let us consider generic examples using the structures that we have developed above. Example: Electronic Home Shopping The company wants to develop an electronic shopping mall concept that provides to the home consumer a wide choice of goods and services using a presentation format of videotex and full motion video on demand.

They want to get the goods and services to the consumer from a wide variety of service providers. There are several roles in this distribution. At the one end are the suppliers of the goods and services such as banks, retail stores, and travel suppliers. At the other end is the consumer. The company recognizes several roles in the distribution channel. They are.

o Suppliers: Basic suppliers of goods and services. These may be the basic providers of travel services such as American Airlines or Hyatt Hotels.

o Packagers: Electronic packagers of industry specific offerings such as electronic banking and automated ticketing. Typical in this area may be such banking establishments as Citibank, Chase Manhattan, or Chemical.

o Distributor: The role that the company wants to take on as the local sales force, selling the bundled set of services to the consumer. This is an electronic shopping mall. The company wants to deal with packagers of electronic services. The packagers may be American Express, Citibank, Ticketron and J.C. Penney.

o Transmission: The providers of the communications network to the consumer. This may be the telephone company or the cable TV company, or both.

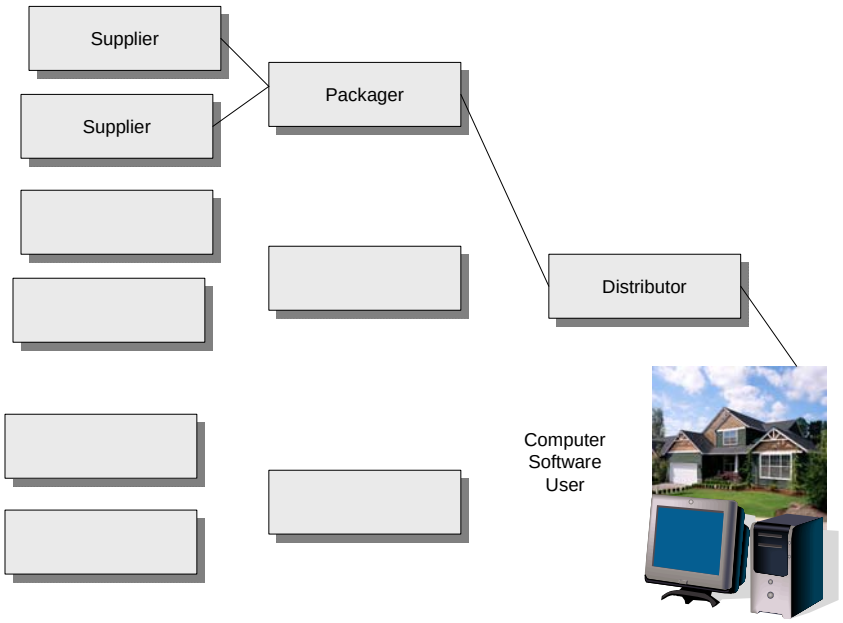
o Terminal Provider: This is the provider of the terminal to the consumer so as to access the service.

o End User: This is the consumer. The distribution channel then reflects how these entities then coordinate with each other in the distribution of the goods and services.

Fig. 4.6 depicts the channel for this service. Note that there are many alternatives as to how the terminal gets to the consumer. Is it supplier, packager or distributor supplied. What do the players do and how do they share in the revenue. Who sells the service to the consumer. In this model the distributor does the sale. Is there a co-op sales effort. What is the role of the packager. In this case it is that of merely packaging the product electronically.

This example raises many of the questions that are present in the development of new businesses and the need to clarify the roles of each of the players. One of the many problems that can arise is that of the confusion of the roles to the customer. If the end user or customer gets confused as to who provides what part of the service, the market may be lost for all players.

Fig 4.6 Electronic Services Distribution.



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Example: Data Radio Network Services.

A company wishes to develop a portable communications service that will allow both special purpose portable devices and radio frequency (e.g. RF) modems to communicate over radio signals into a national network. To get the service to work, it is necessary to have both the service and the terminals. The company does not want to manufacture the terminals, but only to operate the network. The distribution problem then is how to sell the service and ensure that the terminals are available. The second dimension is the segmentation of the market. There are corporate users and individual users. The corporate users are further segmented by corporate size.

This further adds to the distribution alternatives. The service is the same for all segments of the business. The company must now develop a strategy to reach four segments with two possible user products per segment. This opens the way for eight possible distribution strategies. It also opens the way for confusion. The company had decided to divide the corporate users and the consumer users into two segments. The consumer users were targeted by direct mail and through co-op efforts with retail distributors such as Computerland.

The corporate users were targeted by direct sales and agent sales. The direct sales allowed the bundling of the RF modem or terminal. The agent was using the terminal manufacturer and the service company provided the manufacturer with 5% of the customers revenue for three years or the life of the customer as a user, whichever was less. Thus there were four distribution channels selected.

o Direct Mail: This is developed to target the users who have already expressed an interest in similar types of services, such as pagers or mobile telephones.

o Retail: This channel allows for expansion of the service into a broad base of retails establishments, such as those that are already selling personal computers. For example, the service could be bundled directly with a portable computer at the point of sale of that device.

o Direct Sales: This sales channel is targeted to the large corporate user who may have a totally bundled solution and need to access the large corporate network. This type of sale may require a sophisticated sales force that can address the need for integrating the service into a complex network.

o Agents: The agents are those sellers of collateral services. They may be the automobile dealers that sell mobile phones and who may be able to extend the sales to fleets of distribution truck companies, such as United Parcel service or Purolator. Fig 4.7 to 4.9 depict the distribution alternatives for this case.

Figure 4.7 depicts the overall distribution problem. There are the two suppliers. The first is the basic service supplier, who is providing the network and the network service. The second is the hardware supplier who provides the modem device that is placed in the portable computer terminal. There are also two end user markets. The first is the niche market who want the modem integrated into the terminal and want to purchase the product as a total system. The second market is the modem market, these want to purchase the modem only and to integrate it into a device of their own choosing. They also want the service. Figure 4.8 shows how the niche market is addressed. It has a direct sales force for both the service and the terminal. The sales force is a unified sales force that approaches the customer. The reason for the is that the typical customer in this segment is not that sophisticated and thus needs direct support. Figure 4.9 depicts the different channels for the modem market.

In this case there are several distribution alternatives used; direct sales, direct mail, and a distributor. The reason for this is the need to reach a wide base of customers whose needs vary significantly, and whose technical expertise also varies greatly. This example depicts a case where the distribution channel may be significantly different in many cases.

Figure 4.7 Data Radio Network Distribution Alternatives.

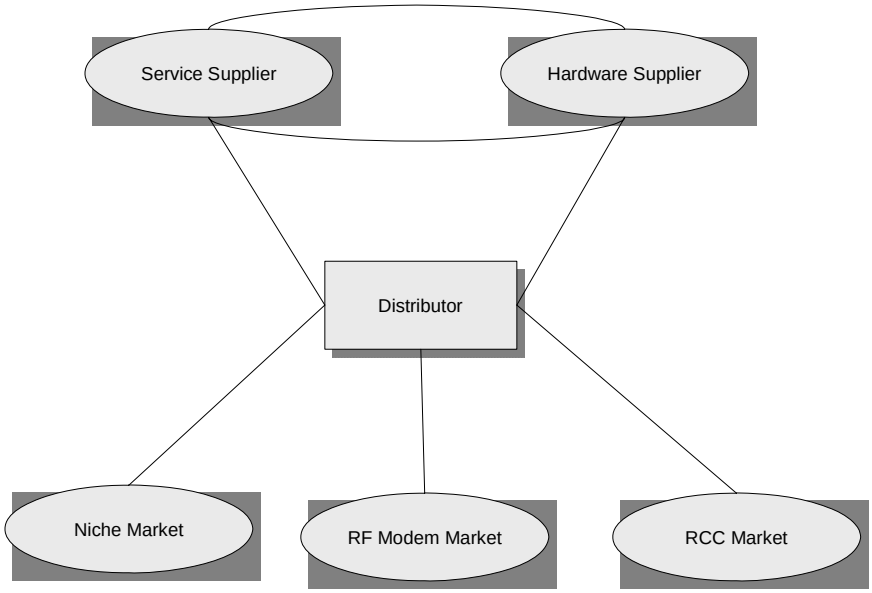


Figure 4.8 Distribution Channel: Niche Terminal Market.

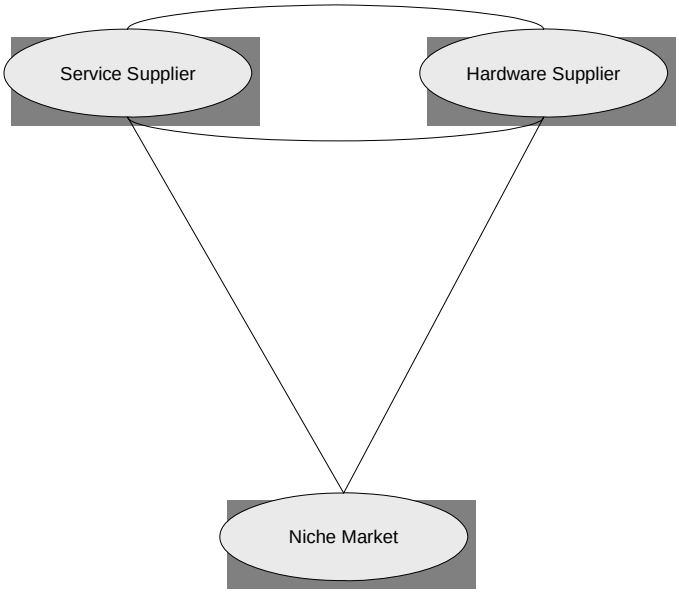
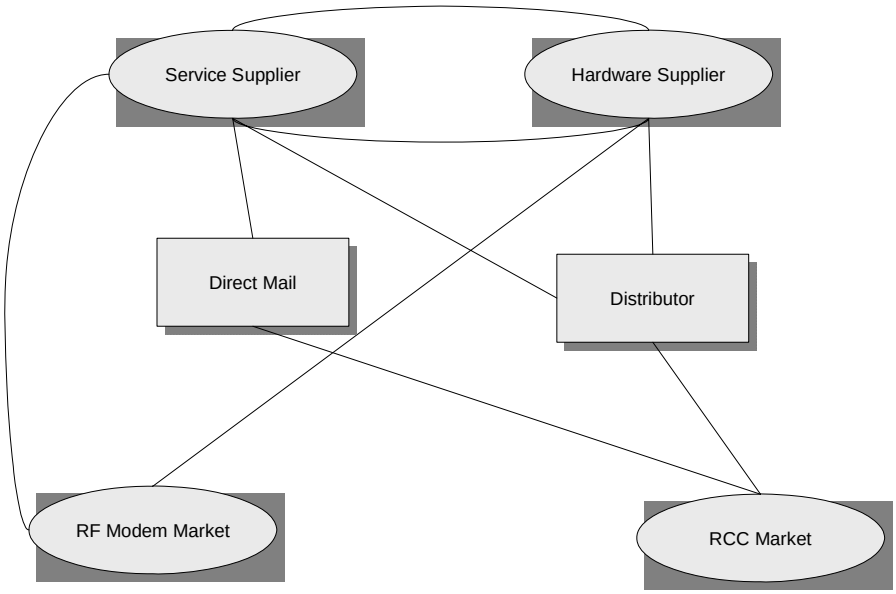


Figure 4.9 Distribution Channels: Modem Market.



4.6 SALES STRATEGY.

The sales strategy is a specific detailed statement of how the distribution strategy will be implemented. Having selected the distribution alternative, the sales strategy defines how the sales force in that distribution channel will deal with the end user or their alternate. The sales strategy should include the following elements.

o Product pricing alternatives: This includes the elements of the pricing strategy and what flexibility the sales force has in exercising the strategy.

o Targeting customers: Who are the target customers and how they will be approached. It also includes the sales presentation format and what the sales presentation will be.

o Lead generation: This includes how the sales force is determines a good customer and how that information is provided to the sales person.

o Commission Policy: This may be the most critical part of the sales strategy. It is how the salesperson is compensated for their efforts. All too often the company fails to recognize that the sales commission will directly determine how the sales are made. For example, in a service business, the ongoing relationship with the customer is critical. If the commission recognizes only a one time sale, the ongoing relationship will be lost, as will be the customer. The sales force is totally independent from the marketing force.

Marketing is often confused with sales. Frequently both are confused with order takers. The marketing force has positioned the product, provided general pricing guidelines and have targeted the customers. The sales force must do one thing, sell. They must be motivated and supported because they are the lifeblood of the company.

The sales strategy determines how the sales force is to be organized or leveraged off an existing force. For example the company may develop its own sales force or work through distributors. The latter approach often works well for new companies. The distributors have other products that they are representing. A direct sales force allows for high and consistent quality of service but can be quite costly. The following are the typical sales force strategies.

o Direct: A single sales force to target all companies.

o National Accounts: A large company only sales force segmented on specific customer.
o Distributors: Independent agents for sale.

o Joint Efforts: Sales through companies that are larger and have complimentary product.

The use of such new technologies as telemarketing for lead generation is important in the sales effort. The development of the sales team requires that the sales force be provided with a well defined product, told to address a well targeted market, and be provided with leads to succeed in that market.

4.7 REVENUE POTENTIAL

The revenue model is the first quantitative model that is developed in the business plan. In the marketing section of the plan, the revenue potential for the product and in turn the business must be presented. The revenue model also is the one most subject to speculation. It will be used to drive the capital model and the expense model. The revenue model requires that the following be specified.

o Market Size: This includes the major factors that make up the market. It may be the number of consumers, the number of companies, the number of buildings, or whatever factors are the major drivers of the market size.

o Market Segments: The total market must be segmented according to those elements that are treated differently in terms of how they are serviced. For example, if the type of customer is different for two elements of the market, then the market and revenue model must reflect these differences.

o Distribution Alternatives: Further differentiation of the customer base must also be made along the lines of the type of distribution channel employed. The reason for this is

that the expense model will include the different expense factors for the different distribution channels.

o Pricing: Pricing is the final factor in determining the revenue on a yearly basis. The developer of the plan may want to segment the market further by pricing strategies or to aggregate the pricing to an average price number.

o Growth per segment per distribution: The growth of the individual elements of the market (segment and distribution) must be presented on an annual basis. This growth includes both the diffusion process associated with a new product introduction, plus the growth associated with the overall market size.

o Unit User: The unit user must be identified. This will allow for the inclusion of all support factors in the expense side for the support of that user on an ongoing basis.

o Churn: The churn represents the loss of existing customers due to moves, relocation, or dissatisfaction with the product. Many business plans do not include this factor. It will result in a large number of new customers that will have to be sold in order to keep the existing base. For example, 20% of the population move on an annual basis. Thus in a consumer business, one could expect a 20% churn.

Thus the revenue model includes the factors of total number of customers, times the revenue per customer, to generate the total revenue. The planner must know the total market size and the growth of that market with time. In addition, the planner must estimate the penetration of that market by the company as a function of time. In this section, we shall consider two examples of revenue projections, one for a service business and one for a hardware business. What will be important will be the ability to develop the drivers for the capital and expense requirements that we shall discuss in Chapter 7.

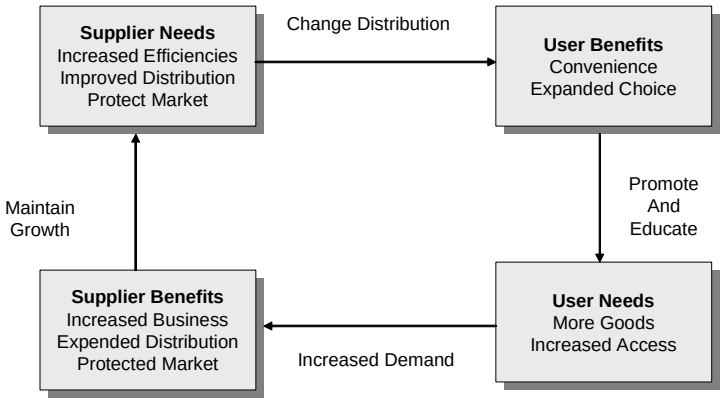
One of the greatest problems with business plans in a new business is the estimation of the market size and its growth. Market share estimation is a problem that requires an assessment of competition and marketing expertise that we shall defer until latter. The growth of new business follows a well established cycle. Revenue models must take these cycles into account when developing the total revenue potential for the new business. The markets do not always grow as rapidly as the entrepreneur would like.

For example, Fig 4.10 depicts the market evolutionary process for the previous example of the electronic distribution business. Step one in this process shows that at the present time, the suppliers see a set of benefits in developing a new distribution channel through a electronic means. If they can develop that channel, then it will result in a set of needs that keep the business growing. Remember, that the benefits come first, and that needs are developed when the business has proved itself and has demonstrated results. When these needs impact the new distribution, the user of the service perceives the benefits.

Then through promotion and education of the customer these benefits become needs. The needs then feed demand and the business grows.

Figure 4.10 Evolutionary Cycle

Needs/Benefit Cycle



This cycle follows through with all new businesses. The benefit-need cycle takes time as new products enter the market. If it stops at benefits and is never turned into need, then the business may falter.

The user must become reliant upon the product. The time this cycle takes also varies. The first company in a market suffers the problem of being too early. The fifth company may suffer from being too late. An old proverb state that it is better to be a lucky second rather than a smart first. Business does not reward intelligence, it rewards luck and timing. The following two examples depict the revenue model structure that we have been developed.

Example : Fiber Optic Network Business A company will lay 100 miles of optical fiber in a large metropolitan city. The city now has a market for $1 billion annual data revenue in the T1 band and this is the target market. The revenue is 80% among 150 companies and the other 20% is among the other companies. The company wants to bypass the telephone company. It will target the top 150 companies. It believes that it can capture 10% market share in ten years, or a total revenue $80 million plus growth.
Growth is 12% per annum. The company must have all the fiber in place by the end of the second year. The company can sell direct to the companies or it can deal with the long distance carriers who in turn would resell the product. These are the two distribution strategies. It will sell to the long distance companies at first because that is an easier sale and they will buy in bulk.

The price for the service from the local phone company is $1000 per month per circuit. There are 80,000 circuits in the city. The company will price their service at $750 per circuit to commercial companies and $600 for carriers. This pricing will assure rapid market entry. Table 4.6 depicts the revenue model for this business. The capital drivers are the number of companies and the drops per company and the number of miles of fiber. The expense drivers are the number of companies, the number of new companies, and the miles of fiber.

The churn represents the percent of companies that drop out each year. The company uses a 5 year contract so that 15% is an adequate number.
Table 4.6 Revenue Model for Fiber Optic

Year	1986	1987	1988	1989	1990
No Miles(Trunk)	35	35	35	35	35
No Customers	4	21	48	97	157
No Locations (sites)	41	182	211	264	330
No New Bldg Entries	30	95	10	17	21
No Bldgs Entries Cum.	30	125	135	151	172
No Sites/Entry	1.38	1.46	1.57	1.74	1.91
No New Customers	4	17	28	48	60
No Entry/Customer	7.50	5.98	2.78	1.57	1.10
No T1/Customer	75	66	34	22	18
No T1	300	1369	1654	2156	2788
No Bldg Entries	30	125	135	151	172
Rev/T1/Mo	500	543	594	650	692
Transmission Rev	$1,800	$8,924	$11,790	$16,822	$23,143
No New Customers	4	17	30	53	70
Chg/NewCo/T1	3	3	3	3	3
Sign Up Rev	$900	$3,207	$855	$1,505	$1,896
No New Drop	30	95	10	17	21
Cost/Drop/T1	0	0	0	0	0
New Drop Rev	$0	$0	$0	$0	$0
Up Front Payment	$0	$0	$0	$0	$0
TOTAL REVENUE	$2,700	$12,131	$12,645	$18,327	$25,039

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Example 2: Computer Terminal Company.

In this example, the company makes special purpose telecommunications terminals that allow the user to access remote data bases from any location by plugging into a telephone. The terminals are battery of line operated and they have an autodial modem and a 10 line display.

The terminal also connects into TV sets for full display capability. The market for the terminals is the commercial user and the consumer. The distribution strategy for the commercial user is to sell the terminals on an OEM basis to a turnkey computer system integrator who is developing a full system for companies to access corporate data bases. On the retail side the company has developed a direct mail approach for those users that it believes have a need for electronic mail. The second consumer approach is to go through the computer stores such as Computerland.

On an OEM basis, the company will sell the terminals at the price range of $150. In the direct mail market it has priced the terminal at $199. In the retail stores the terminal will sell at $235 and the company will sell it to Computerland at $135.

Computerland has a 100% return policy with the company for all inventory not sold after 180 days. The company has estimated that on the commercial side, the number of companies that are targets are 50, and that there are 1,000 terminals per company. The company believes that it will get 50% market penetration in five years. On the consumer side the company estimates that the electronic mail market is one million and that it will get 10% penetration by year 5 and that it will experience a flat growth thereafter. The retail store market is estimated to have a potential of 500,000 of which the company will get 25% by year 5. Table 4.7 Depicts the revenue potential for this business.

Table 4.7 Revenue for Computer Terminal

Year	1	2	3	4	5
Segment 1					

No Companies	50	55	61	67	73
No Term/Co	1000	1000	1000	1000	1000
No Term(MktSize)	50	55	61	67	73
% Penetra	5	10	15	20	30
No Companies	3	6	9	13	22
No New Cos	3	3	4	4	9
No Terminals	2500	3000	3575	4235	8652
Rev/Term	$ 150	$ 150	$ 150	$ 150	$ 150
Segment Revenue	$ 375	$ 450	$ 536	$ 635	$ 1,298
Segment 2					

No Term(MktSize)	1000	1150	1323	1521	1749
Cum Term	1000	2150	3473	4993	6742
% Penetra	2	6	8	9	10
No Terminals(K)	20	69	106	137	175
Rev/Term	$ 199	$ 199	$ 199	$ 199	$ 199
Segment Revenue	$ 3,980	$ 13,731	$ 21,054	$ 27,239	$ 34,805
Segment 3					

No Term(MktSize)	500	575	661	760	875
Cum Term	500	1075	1736	2497	3371
% Penetra	1	3	5	8	8
No Terminals(K)	5	17	33	61	70
Rev/Term	$ 135	$ 135	$ 135	$ 135	$ 135
Segment Revenue	$ 675	$ 2,329	$ 4,463	$ 8,213	$ 9,445
TOTAL REVENUE	$ 5,030	$ 16,510	$ 26,054	$ 36,087	$ 45,548

4.8 CONCLUSION.

This chapter presents the basis of the market and how to sell to the customer. The material presented in the business plan of many high tech start up companies fail to present the market in the correct perspective. The reader is cautioned that the same amount of effort that is supplied to the product development must also be supplied to the market development. The revenue projections will become the cornerstone of the business. The sales force will rely upon the projections and the market definitions. They cannot be expected to develop customers fro thin air. Thus the entrepreneur is cautioned to develop a business that has a strong and realistic foundation.

CHAPTER 5 COMPETITION

The competition section of the business plan is a combination of a strategic statement of the business and how it is to be run, and a tactical statement of what the day to day efforts will be to position the company against its competition. As we shall see, the competition is not necessarily the obvious competitors. All too often the new entrepreneur, who will be the first in the market, will ay that there is no competition. The new product that has been developed is the first of its kind and there will be no other competitor.

The fallacy in this reasoning is that people have just so much money and they will not create money to buy the new product. They will have to spend less in one area in order to spend some on the new product. This is the issue of enhancement versus displacement. If one could add up the revenue streams of all the new business plans that have been reviewed in the past five years, the revenue would exceed twice the present gross national product of the U.S. Competition seen and unseen eliminates most of these new businesses. The competition is not always the other guy who makes the same product. It is a much more complicated set of inherent mechanisms in the economic system.

This chapter is structured around the concepts of success factors and distinctive competencies. These factors are the ones that are most important in being successful in the new business.

The approach taken is that the competitors first identified. The suggested methodology is more expansive then that of just viewing the direct competitors. We then addresses the question of what does it take to succeed and what does the company have that makes it any better. In that context, we can then position the start-up company in the competitive matrix and show where the competitors fit.

As an overview to this chapter, the following are the elements in the development of the competitive analysis.

First, the set of competitors are identified.

Second, the set of success factors must be detailed. These are the factors that any company must have met in order to be success full in the business. For the most part, the entrepreneur will have identified his competitors through the efforts in developing the market. They will be brought to his attention in the discussions with the customer.

Third, the set of distinctive competencies of the start up will be identified. These are the factors that allow the start up to compete and allow it to have a sharp competitive edge.

Fourth, the competitive strategies will be developed. These strategies build upon the prior three items. They recognize what is needed to be successful, what the competition has to

compete with, and third what the start up company has as strengths. They are strategic statements of how the company will enter and survive in the market. Finally the barriers to entry are stated. These are important in that they tell investors how strong the position of the start up will be. Our approach in this chapter follows in many ways the work of Porter[1], [2]. In addition, the reader is referred to the works by Andrews on corporate strategy as well as the books by Peters [1] and [2]. In particular, we shall end the chapter with a discussion of the value chain concept applied to a start up company and show how it can be used as a competitive strategy tool.

5.1 COMPETITOR.

In a new business, the competition may already exist with a similar product or the entrenched companies that may already offer the present product. Consider the example of a new company that wants to enter the business of providing electronic shopping and banking, as well as other home services.

The company has a proprietary technology that can provide a videotex plus full motion video on demand offering to the consumer through a combination of cable TV and telephone. It has demonstrated the service and has had high consumer acceptance. The suppliers of the goods and services have an interest in the business as an alternative distribution channel for their products.

The business has a set of competitors in several start up companies that are funded by larger corporations, but whose offering is a text or graphics only offering with no full motion video. For this new electronic shopping and banking service, how are they to determine their competition? Clearly it is more that just the other videotex companies. It should also include the present channels of distribution, since they will continue to provide the consumer with the standard and accepted means to perform the task. Clearly it will continue to be the catalog shopping services, since the are continuing to grow at a significant rate.

This simple example clearly illustrates that the competition is not as readily defined as those entities that are directly competing with the new company, but should include all possible competitors. In this section, we shall develop a methodology to determine the set of competitors and show how to use external resources to determine them. The assessment of the competitors is of the same magnitude as the assessment of the target market itself. In the business described in the opening paragraph, we can see that there are several classes of competitors.

o Direct.

These are the other start ups who are trying also to enter the market. The company must distinguish its offering on the basis of its enhancement over these other start ups.

o Existing These are the existing distribution channels that the suppliers are using at this time. The suppliers are accustomed to them and there may be a switching cost if they decide to change. Also the present channels are measured by the ratio of cost of sales to total sales. This is the efficiency of a distribution channel. This efficiency reflects itself in the profitability of that channel. If a new channel is introduced the cost of sales may not change but the total sales may.

This is a reduction in productivity in this channel and may be viewed negatively by the supplier of goods to that channel. Thus, there may be a significant barrier to entry to the new start up company due to the switching costs associated with the new channel.

o Alternatives The existing channels of distribution for the shopping channels are the "brick and mortar" stores. They are the edifices that presently represent the retailers in their local markets. This representation leads to strong brand recognition and loyalty. However, there are alternatives to the proposed electronic.

channel. One is the use of a direct mail channel, preparing catalogs and sending them to a well targeted audience. This is a proven distribution channel but it may or may not work for the product mix and target market of the retailer. Thus there are three sets of competitors: those that compete directly with the business, those that offer an alternative that may satisfy the need, and the existing method of satisfying the need. One of the most important observations is that there may be a need, an unrecognized need, but the company or consumer does not wish to have it satisfied or the funds available are not adequate to purchase it.

Thus, to determine the competition, we must determine the need that the product is satisfying, see how that is satisfied at the present time, evaluate the cost of satisfying it, and see what is displaced or enhanced on the part of the consumer to satisfy that need. The competition is not analyzed in a vacuum. It is analyzed within the context of the market, the consumer, and the consumers needs.

As a second example, consider electronic games business. The need of the consumer was for entertainment. The target market was the 9-17 year old. The existing expenditures competing for the consumer dollars were in records, fast foods, movies, and teen magazines. These were the items that were to be displaced if the business were to succeed.

The size of the target market was 40 million consumers. Each of these spent $500 per year. This totaled $20 billion. In 1983 Atari revenues reached $2 billion. This was 10% of the total market. The competing companies had an additional $2 billion in total. Thus, the games business represented 20% of the total. The revenue was displaced from the other markets. It was not an enhanced revenue base. The other markets suffered the loss and responded with increased promotion. Thus Atari had three competitive sectors: the direct

competitors such as Coleco and Activision, the existing competitors in the records and movies market, and alternatives such as clothes and fast food. The games business focused solely on the direct competitors, trying to outdo one another.

They failed to address what their competitors were doing. The result was a rapid growth in records as their consumers got bored with the limited games and as such new promotional television channels as MTV grew the increased awareness of records grew and the record business rebounded. The fact to remember from this experience is not to watch direct competition only. The irony of this strategy was that Warner owned both Atari, Warner Records, and MTV.

The outcome for Warner was a short term loss of the Atari business, but a long term growth and stability in the alternative businesses. In this case, the top Warner management, Steve Ross, had taken a long term view and had very accurately predicted this trend. Ross had managed a short.

term loss into a long term winner. Thus, the business plan must include a description of all the competitor sectors, including the direct, existing and alternative sectors. We can now present the process by which these competitors may be identified. Once the business and the product have been defined, the first step is to assess those companies who are direct competitors. This can be accomplished as follows.

o Market Assessment: By going directly to the customers, the list of competitors may be developed. The customer or even your equipment suppliers may be able to provide guidance as to who may be competing.

o Data Bases: Using the SIC (Standard Industrial Classification) codes for the product and business areas, it is possible to search data bases and determine the list of competitors. This approach often expands the list and addresses companies that you would not ordinarily think of. Another way to use the online databases is to search for companies that are addressing the same product area that your company is interested in.

o Investors/Venture Capitalists: In the process of trying to raise capital, the investors are closely tied to other start u.

companies. This will be the most invaluable source of new competitors who are in the same area. The typical problem that you will face in this area is that the VCs do not really know what the company does only what they have been told. VCs for the most part are non technical although they do have a good grasp of he market and technology trends. Once this identification process is complete, it allows for the listing and assessment of the competition.

5.2 SUCCESS FACTOR.

The success factors are those elements that a company must have to be successful in the business. These factors may be in areas such as technical, marketing, operations, financial. The first step is to review the business concept and then to list the areas of importance. The areas of importance should then be examined in detail and specific factors of importance should then be identifies. These factors should represent a specific factor or attribute that a successful company in this new business should have to maintain it success and grow. Let us consider several typical areas. Example.

A company wants to get into the business of providing a sales and collection service to large corporations who have distributed sales force. Companies like Avon, Tupperware and Mary Kay are typical examples of distribute sales force companies. The extreme is Mary Kay who has little over 300 employees, but over 30,000 sales representatives. The sales people really act as agents for the parent company. In these types of business, there are many sales at remote locations and the sales personnel are usually left to perform their tasks using paper and pencil.

This then results in long order cycle lag and an extended period for receipt of accounts receivable. For example one of these three companies has over $2 billion in sales and has 120 days of delay on account receivables. Thus, if a means could be developed to automated the distributed sales force data collection and payment processing, significant interest could be saved on financing the receivables. The new company recognized the need and the opportunity and decided to enter into the business of providing a service bureau function to these distribute sales companies.

The business requires that the company have a large computer system and a relationship with a major Bank who is also an Automated Clearing House (ACH) so as to process the collection of the funds. The target market is the set of Fortune 1000-250 companies who need support in better managing their working capital. In order to be successful in this business, the entrepreneurs have determined that the following list of success factors are essential. The list was developed by carefully assessing the business and the market.

o Marketing/Sale.

o Large well dispersed sales force.

o Trained Account Executive team.

o Access to key decision makers.

o Established direct mail presence.

o Technical/Operational.

o Proprietary design.

o Software capability.

o Communications network capacity.

o Operation.

o Large Field Service Organization.

o Trained maintenance personnel.

o Extensive operations software support.

o Financial.

o Commitment to meet peak negative cash flow.

o In place management control system These are the success factors that the entrepreneurs decided that were the most important for this business. They do represent a typical set of more general factors can be listed for any start up business. Typically a new business will not have success factors in more than two or three of these dimensions. If the company has to meet a very long list of these in many dimensions, then the risk associated with the business becomes very high and it becomes doubtful that any company can meet it. If for example the field service is an important factor, then the company can either develop the capability internally or can contract for the service from a third party firm. In the latter case, the contract can be phased out as the company develops its own capability. Let us consider an example of how these factors may be developed for a particular business and how in turn they may be related to the capabilities of the competition.

Example: A Company called Digital Pathways Inc.

(DPI) has decided to get into the business of providing a national computer communications network linking up portable computers via a data radio network. It has developed a technology that has permitted it to provide the service at a low cost and in a frequency band that has a capacity to support many instantaneous users. The founders of this company have both a hardware and service business background. They recognize that this business requires the combination of skills from both disciplines.

They look at the needs of the end user and see that communications to these portable computers will be provide a valuable service but that there are alternatives, such as the telephone. In addition, in order for a user to effectively use the system it must be in many

locations in a fairly short period of time. The key success factors for the business fall into two categories; technical/operational and marketing/sales. The following are the elements for each of these areas.

o TECHNICAL/OPERATIONAL FACTOR.

o Exclusive access to a proprietary design.

o Extensive experience in operating a large scale national shared communications network.

o Extensive experience and presence in multiple SMSAs (Standard Metropolitan Statistical Areas) to operate, administer, and maintain a local communications network.

o Established base of software development expertise to support the end user (e.g. communications and applications software).

o MARKETING/SALES FACTOR.

o Established marketing and sales organization on a national scale with access to the decision maker and end-user of the service (e.g. systems and service selling skills).

o Experience customer service infrastructure and experience in operating a national service oriented business.

o Recognized image on the part of the end user as an integrated communications/applications service provider.

o Established base for billing, problem resolution etc. on a real time basis to ensure level of service.

The entrepreneurs of DPI have evaluated the absolute measures of success and have in turn graded themselves as to how they fit in the success factors. The grading is initially all qualitative, yet we shall develop a methodology to convert that grading into a more quantitative result. The qualitative approach allows for the statement of the key issues, whereas the quantitative grading allows for a more objective assessment of the strength of the company on any single factor. The following is a qualitative assessment of the position of DPI relative to the success factors in this business.

o TECHNICAL/OPERATIONAL.

o Proprietary Design: DPI has a proprietary design but it has also made the decision to sell this to any bidder. This gives the Company organization a lead and access to personnel but does not ensure a barrier to entry.

o Communications Network Experience: DPI has a large corporate communications network but has never made the network available to outside users. Thus it has functional experience but not operational.

o Local Support : DPI has extensive presence in the local markets to support and maintain the system.

o Software Level: DPI has developed special purpose software with great success but has not developed large scale end user software.

o End User Credibility: The end user has an understanding of DPI as a portable/mobile communications supplier of hardware but has not seen the company as a service supplier.

o MARKETING/SALE.

o Organization: DPI has an extensive and experienced hardware sales organization but lacks the account executive high level contact organization to address many of the key users.

o Customer Service: DPI has developed a customer service infrastructure and has demonstrated that it functions quite effectively.

o Image: DPI would have to reposition itself as a service supplier of a national network. It is presently positioned as a hardware company.

o Customer Engineering: DPI has the capability to integrate customer engineering with a to-be-developed account executive team.

o Service Support: DPI does not have the infrastructure to support a billing, problem determination etc. to support the level of service. The expertise is present but an ongoing operation is not present. DPI has recognized as a result of its discussions with potential customers that there are several competitors or potential competitors in the new market. These competitors are.

o IBM.

o General Electric, GEISC

o Bell Atlantic.

o Ameritech The largest potential competitor is IBM. The following is the evaluation of the IBM factors relative to success in this business.

o TECHNICAL/OPERATIONAL.

o Proprietary Technology; IBM has an agreement with a Japanese company to purchase and operate on a limited basis a shared network. It has had two years of contact with the Japanese company to understand the hardware and is capable to design it elsewhere.

o Network: IBM presently operates and markets a large communications system and network and other closed user group networks.

o Presence: IBM has a direct presence in all SMSAs and with its Field Service group can support any system requirement.

o Software: IBM will enter the market by backward.

integrating this service with its software. It has a preeminent position in this area.

o Credibility: There are mixed feelings as to IBM's ability to provide the service. It has had multiple technical problems in previous attempts at developing and operating communications systems (viz. SBS and MCI).

o MARKETING/SALE.

o Marketing Organization: IBM has a preeminent Account Organization with direct access to the end user as well as the decision maker.

o Customer Service: IBM has a well established customer service organization.

o Image: IBM has a mixed image as a communications network provider. It may have to compete with ATT to reposition itself and if it overreaches it may chill the market.

o Customer Engineering: There is a well developed base here.

o Support Services: IBM has a well established base in this area.

The following table, Table 5.1, compares DPI, IBM, and the other competitors along the lines of key success factors. The comparison is quantitative. The quantitative determination of each of the elements will be described shortly.

The table provides insight into DPI's competitive strength but also provides insight into possible alignment and joint ventures. This is further exemplified in the figure in Figure 5.1 which positions each of the competitors relative to one another on a technical/marketing axis.

Table 5.1 Evaluation of Key Success Factors for DPI and the Competition.

Key Success Factors	COMPANIES						
	Data Pathways	*IBM*	*Bell Atlantic*	*Ameritech*	*GEISCO*	*BelAt/Mot*	*IBM/Mot*
Technical Factors							
Proprietary Tech	18	14	0	0	0	18	18
Net Experience	12	15	18	18	16	18	15
Local Ops	18	18	15	15	10	18	18
Software	10	20	15	8	18	15	20
User Credibility	15	16	15	15	12	15	16
Total Technical	73	83	63	56	56	84	87
Marketing Factors							
Mktg/Sales Org	10	20	15	15	16	15	20
Cust Service Exp	15	18	16	16	17	16	18
Image	15	16	18	18	12	18	16
Cust Engr	13	17	11	11	13	13	17
Support Svcs	10	20	17	17	13	17	20
Total Marketing	63	91	77	77	71	79	91
SUMMARY							
Technical	73	83	63	56	56	84	87
Marketing	63	91	77	77	71	79	91
Total	136	174	140	133	127	163	178

Table 5.1 is developed in the following fashion. First, define the key success factors. Then assess the competitors. We shall develop this process in further detail in section 5.2. For each of the success factors, rate the competitors. This rating has been done for DPI and IBM in a qualitative fashion. To create a quantitative result, as was done in Table 5.1, there are two possible approaches.

o Group Assessment In this approach, a group of competent and well informed reviewers assist in the preparation of the quantitative statements for each of the factors and each of the competitors. Then, each individual rates the level of performance of this factor on a scale of 1 to 5 or 1 to 20, or whatever scale is appropriate. In this sample case, we use a scale of 1 to 20 since five factors were used and the total had a maximum of 100. This process may be further extended to allow each of the assessors to review the work of the others and have a group consensus.

o Absolute Measures This approach requires that the measures of success have a base of an absolute and measurable unit for comparison. For example.

o Proprietary Technology: 5 points for each patent with a maximum of 20.

o Customer Service: 1 point for each SMSA covered by a Customer Service Facility with a maximum of 20 points.

A similar set of quantitative measures can be made up for each of the elements, and these may be determined by a review of the status of the competitors in each area. This approach is generally the more difficult, but it allows for a specific articulation of what quantitative measures are necessary for success in the business. Once the rating table is complete, it can be depicted on a chart that has dimensions of the technical and marketing ratings. This has been done in Figure 5.1. The upper right corner shows the highest of both ratings. The lower left the lowest. On this chart, we position all the competitors as well as the start up company. This chart then allows us to determine the following.

o Competitive Positioning: How well are we positioned to the competition and in what areas. Specifically, where are the weaknesses of the company.

o Key Competitors: Who are our key competitors and how are we to compete with them. Specifically along what dimension. If we find that we excel in the technical area, and are falling behind in the marketing, how do we best improve the company in that area. In this case, the quantitative approach is of great help.

o Strategic Alliances: Rather than competing, we may wish to for a strategic alliance that may allow us to work with a potential competitor and then in turn be stronger than the major market force. This type of analysis is readily performed and depicted using this approach.

o Strategy Issues: The chart also allows us to develop the competitive strategies that we shall discuss latter in this Chapter.

Figure 5.1 Position of Competition.

The competitive analysis is typically performed in this fashion. The first step is to determine the success factors of the business. Then the competitors are listed and they are positioned in this matrix of success factors. Then for each factor and each competitor, the ranking is made of the competitors strength in that area. Typically it is possible to rank the competition on the basis of some quantitative measure regarding the success factor. This then yields the matrix and the competitive positioning chart. Having established the success factors in the business, and having determined the relative position of the competitors, the company can now set out to determine its market share. The share is based upon three factors.

o Competition The share that the company expects will depend upon how aggressively and competently it expects the competition to enter the market and respond to the perceived threat of the company. For example, in the case under discussion, IBM is assumed to be a very aggressive competitor and will thus ultimately attain a high market share. The same would be true of the GTE position. However, the two Regional Holding Companies, Bell Atlantic and Ameritech, are expected to be more cautious and more concerned about regional markets.

o Capability The share dependence on capability is assessed directly upon the results of the success factors. The company with the greater success factor total will have the greater share of the market. All things being equal, the ultimate equilibrium share should be directly proportional to the success factor of each company, relative to the total of all competitors. This however does not include the other two factors discussed.

o Required Financial Return The return on the investment is highly dependent on market share. Thus to be a significant player, the company must be first, second or third in the market. This means that the desire to attain adequate profitability requires a high level of market share. This strategy is the essence of the General Electric strategy of being one of the top three players in any business that it is in. Using these three factors, estimates of achievable market share can be determined. The process follows the approach of using the experts, as was done for the quantitative assessment of the success factors, and determining share along the three lines discussed. The summary number is then presented.

In our present example, the business has three segments. The first segment is for a special purpose terminal directed at a niche market of users. The second segment is for a data modem device that allows for insertion in portable computers and many other devices. The third segment is a low end two way paging service that addresses a broad based, however, limited service market.

Table 5.2 presents the estimate of the market share of the companies in the business. Table 5.2 depicts the estimates for years 1 thru 5 of the business. It divides the market down from the total, to the addressable, to the feasible, then the convertible. It then assigns market share to the company, and then to each of the competitors.

Note that in this example, the company is the sole player in year 1 and it reduces its share to 20% by year 5. However, this still allows for a significant growth in the company's market. It also shows IBM having the ultimate largest market share. It is assumed that DPI starts with a 50% share but looses it as the business base expands.

This is based upon the fact that as the business becomes better known, and DPI sells hardware to others, the competitors will enter the market. In addition, it assumes that the Competition grows in share, dominated by its software expertise and its 50% hold on the

PC market. DPI also assumes that it can attract its existing computer base users to the business and retain its share amongst them.

One of the problems often faced in a start up business is the determination of market share. As we have seen in the marketing section (Chapter 4), market share is one of the factors that allows for the determination of the revenue. However, for the start up business with no defined market, the share is a goal rather than a defined entity. For many existing businesses, the share may be determined using the online data bases described in Chapter 2.

They allow the market researcher to get detailed market information and to analyze it in detail. However, for the new business this may be quite difficult. Thus market share is a qualitative assessment of what is expected. The process developed in this chapter provides a simple and direct methodology that combines the market numbers with the competitive analysis, and permits a quantitative analysis of the share problem.

Market share is a factor that has been determined to be a key factor in the success of a business. The PIMS study, as described by Abell and Hammond, indicates that the greater the market share the greater the return on investment. Thus, it is imperative to assess the business for the ability to obtain a dominant market share. Unlike the larger companies such as General Electric, which is only in those segments that it is number one or two in market share, the start up business allows more flexibility in aggressively getting market share. GE and EXXON have each demonstrated dismal performance in internal start ups. They are superb in petroleum, light bulbs and silicone cement. They have not done well in computers or office systems (see Sykes).

Table 5.2

Market Share	*1*	*2*	*3*	*4*	*5*
Total Market (users,000)	666	810	1177	1354	1836
Percent Addressable	20	30	35	40	45
Percent Feasible	25	30	35	40	45
Percent Convertible	20	30	40	45	80
Convertible Market (users,000)	7	22	58	98	298
Percent Share	90	80	65	50	20
Market Size (users,000)	7	18	38	49	60
IBM	10	15	25	30	30
ATT	0	0	5	5	20
RBOC	0	5	10	15	20
GTE	0	0	0	5	1

Figure 5.2 Market Share Development.

Having established the set of success factors and having determined the relative position of the competitors with regards to each of these factors, it is now possible to delineate the strengths and weaknesses. In determining the market share estimates, it was necessary for the planner to determine in a very quantitative fashion why each of the competitors will have the ability to attain the customer base ascribed to them.

The result of this process is a clear understanding of what the start up company brings as a strength and what it still has a weakness. The strengths and weaknesses of the players described in the ongoing example are detailed in Table 5.3. The competitor IBM is clearly the strongest player in this business. The only barrier to entry will be the associations with the larger customer base, which IBM has strength in.

Table 5.3 Strengths and Weaknesses

Company	*Strength*	*Weakness*
DPI	Direct access to technology Large Direct Sales Force Large National Service	Non-exclusive tech access technology HW Sales Force not service Force Lack of SW Depth Force Lack of Operations Support
IBM	Direct access to technology Large sales force. Large field service Large Operations support capability. Strong SW capability Strong communications network expertise Existing network Ability to work on marginal cost basis	No internal HW capability technology Limited network sales
GE	Potential technology Strong Marketing. Large national network. Strong Computer expertise Extensive field service Extensive Operations infrastructure	Lack of direct control of tech access. Lack of network experience in DRN Limited App SW capability
RBOC	Potential HW access. Operations infra. Moderate marketing. Field Service. Computer expertise.	Lack tech direct control Lack national network structure. Lacks national presence Lacks national force Lacks App SW expertise

This section provides an evaluation of the success factors and how the start up venture compares amongst the competition. In this example, we have evaluated a company in terms of its own relationship to the success factors and that of its prime competitor. Also other competitors were evaluated. The competitive analysis thus is a three step process.

o First: Determine the key success factors in the business from both the technical and marketing side. Try to choose the factors in such a way that they are key and are quantifiable.

o Second: Choose the set of competitors and rank them along the success factors, comparing them to the start up company. This will be subjective but can be assisted by the use of quantitatively measured success factors.

o Third: Determine the strengths and weaknesses of the competition and the company along the business areas. This analysis will lead to the estimates of the market share and a positioning of the company relative to the market and will lead to the development of competitive strategies to meet the competition or even to develop joint ventures.

5.3 DISTINCTIVE COMPETENCE.

The distinctive competences are those elements that the company possesses that the competition does not. They are the factors that make the company able to address the success factors and position it in such a way as to best deal with the competition. The distinctive competences are those items that the entrepreneur must be able to explain to the financing firm as the reasons that they feel that they will succeed where others will not. Distinctive competences may include the following.

o Proprietary technology protected by patents.

o Existing direct sales force in place.

o Long term leases.

o Franchises in access to resources.

o Team of unique technical talent.

o Commitments from key customer base.

o Proprietary software developments.

The business plan must then map the distinctive competences against the success factors. In the previous section in this chapter, we did this for the case of the data radio network business. In a similar fashion, we can do this for many other businesses. One of the most frequently stated advantages that is heard from firms is that we are here first. As indicated in the last section, the competition may not just be a firm that has the same or similar offering. Just being the first with a new device does not necessarily guarantee success. A second most often heard distinctive competence is that we have the best people. Again

good people can move or disappear in other ways. People are the heart of a business and good people are rare.

Although they are an ephemeral asset, they are truly the most distinctive competence that a company may have. This fact must be brought out. The company needs three key people, the entrepreneur or idea man, the manager or organizer, and the marketing person or seller. These three can make the company and are one of its distinctive competences. The sets of distinctive competences are used to place the company in a framework with respect to its competition. That is, how does the new company intend to differentiate itself from the competition and with what tools is it planning to do so. To see how this can be reflected in terms of distinctive competences, let us examine the set developed above in further detail.

o Proprietary Technology

The key to any new high tech start up company is the special technology that it has developed. This is true whether the company is a goods or service oriented company. The proprietary technology allows for a short period of sole player in the new business with some control over the pricing of the product. The competition has not yet produced or duplicated the technology and taken cost advantage. The proprietary technology may be a device or system that does some process that has never been done before or a device that does it better and/or cheaper. The protection of that proprietary technology lies in the use of patents or trade secrets. The patent process is a long term process taking two to five years and is expensive.

It does offer public protection, but only as far as the claims of the patent can be supported. Trade Secrets provide total protection only as long as the responsible persons hold them secret. Many new start ups try to use patents to leverage their proprietary technology. However, in so doing they expend valuable resources and time and at the same time signal a set of competitors as to what their actions are. Therefore, it is debatable as to what the advantages of patents are.

The trade secret approach uses the legal strictures against employees or others exposed to the technology and tries to keep secret the concept. This latter approach has an advantage in a small firm that has limited resources and a market that may have a short fuse in terms of its response time. If the small company has the ability to market the product, then it may be able to capture the market share and defeat the competition early on. Proprietary technology is often short lived, but it is a distinctive competence at a point in time with any start up company.

The proprietary design must be carefully explained and protected. Let us consider two examples of how this may work. In the first case, there is a start up service company that has the intention to develop a business in the area of fiber optic network in a large metropolitan area. The key to the business is the right of way (ROW) to allow the

company to lay the fiber optic cable along pre-existing cable ducts in a large city, and in this case using the access that the local transport authority has. Five principals get together to form a company to seek out this business with this unique way of providing the service. Unfortunately, two of the members have less then the best intentions and return to their old companies with the idea.

The management at the old company tells the dissident employees that it will help the employees with the business if they stay. They do, and the result is that the idea becomes public, the start up looses the proprietary concept, and the two employees that left are terminated by their original company on a cutback. The situation results in a lose-lose situation for both the start up company and those that betrayed the confidence. In this case, the problem was that the proprietary concept was held as a trade secret but was not protected by agreements between the principals.

The most important aspect of trade secret protection was the need to have control over all those that have access to the trade secret. This is done by employee or consultant agreements that not only include a non disclosure clause but also a non compete clause that allows the use of temporary or permanent injunctive relief. Consider a second example. In this case, there is a hardware company that had developed a means of transmitting telephone calls on the electrical power lines. The technology was protected by extensive and well written patents.

Unfortunately the product did not sell. Apparently it was positioned in the wrong market. Yet the company's assets were sold and the original investors did recover since the patent had clear value and there were non compete agreements that allowed the purchaser to be assured of a market window. Specifically, the purchaser repositioned the product, was assured that the idea was protected, and was further assured that any disaffected former employees could not re-start the venture and perform an end run around the newly formed product concept.

Thus, distinctive competences in the area of technology allow for not only short term advantages but also allow for long term advantages with respect to the value of the business. The proprietary base must be protected and this protection must be of an active and legal form.

o Distribution Capability

The second general distinctive competence is distribution. Even if the product is the most effective ever created, it means nothing if it cannot be sold. Thus access to distribution is a key distinctive competence. For most start up companies there may be a significant lack in understanding the issues of distribution and in gaining access to it. In the commercial area, there may be a need for a large direct sales force that is not easily developed.

The way around this deficiency is to deal with an existing sales force of some non-competing company which covers a similar market and to enter into a joint marketing and sales agreement. This may cost the company in sales margin, however, it may pay back in gaining visibility and distribution that results in market share. Some companies also enter into joint licensing agreements with companies that want to distribute the product. This can result in a win - win situation for both sides.

On the consumer side, distribution means market presence through retailers and distributors. It means getting shelf space in the right locations and developing a brand recognition in that market. The Atari experience is another example of how, in the early days of the start up of the company, the distribution was obtained through agreements with Sears and other retail stores. The company obtained very favorable agreements on margin and agreed to accept back any unsold merchandise.

o Long Term Leases

Long term leases or agreements provide the start up company with a guaranteed revenue stream that reduces the level of risk in the venture. This may result from the agreement of a large customer to buy a certain quantity of hardware for a specified period of time or through agreements with customers to purchase the service for several years. On the positive side, the lease guarantees the revenue. On the negative side, it locks the company into delivering the product at that revenue level for an extended period of time. This may position the company in the market at a place that may not provide adequate cash flow for growth.

o Franchises

A franchise represents, in the most general sense, a right to exploit a market, unencumbered by the competition. These typically arise in the context of natural monopolies. They are granted in the areas of cable TV, communications systems, and in many service oriented companies. Franchises represent less than long term contracts or leases in that they give rights to market in an unencumbered market, but do not assure that a revenue stream exists. As an example, a company has developed an new service that provides nursing care homes with cable TV and educational programming to each room on a daily rate base. The homes have given the company a five year exclusive franchise and have assured the company that the patients will have approved TV sets in their rooms. Thus there is a market without competition. However, the company must still market to the patients on a daily basis.

o Unique Technical Talent.

In a new business, there is first the recognition of the need that has to be satisfied and then the means to satisfy that need. In some cases, to satisfy that need requires the collection of a unique talent base. As an example, several banks with large

communications and computer networks needed to interconnect these computers on the communications system using several protocols. These multiple protocol conversion devices required the talents of a few highly trained specialists because many of the requirements were based upon technical folklore, experience with what worked and what did not, rather than what was in the literature. There were very few individuals available and the collection of several in one location was even rarer. Thus the distinctive competence was the unique collection of talent.

o Proprietary Software.

Software may be patented in certain cases, but for the most part it is considered as proprietary. Having protected this software, it becomes a distinctive competence of the company in that it provides the company with a base against which it can compete head on with the competition. The software must have the ability to be expandable and must be valued to the end user for an extended period of time. The software should not be just a one time development effort. A database system is an example of a reusable competence whereas a custom billing system may not be. The collection of distinctive competences are use in the plan to show the potential investors why this company can hope to compete with those who might already be in the market or for those other established firms that may desire to enter the market.

The statement of the competences should be clear and should be carefully judged against the competition. It is important to reiterate that the competition is not just those who are presently making a similar product, but also includes those with the resources to develop and distribute the product to the target market.

5.4 COMPETITIVE STRATEGIES.

What we have thus far developed in this chapter are the set of success factors, the list of competitors, and what makes the firm different in a positive fashion in this business area. Understanding these, it is then possible to articulate the competitive strategies that will be followed. The strategies, both defensive and offensive, and fall into the following areas.

o Technical.

o Marketing/Distribution.

o Production.

o Pricing

The strategies allow the company to clearly address the competition on the basis that it has been assessed and targeted for attaining the desired market share. It is important,

however, to understand that there are good and bad competitors (see Porter [2], p.213). A good competitor will compete on the basis of maximizing the return on equity to its shareholders. A bad competitor is a predator whose sole objective is to grab market share independent of return.

The latter is typically a competitor who drops prices below cost to get market share. The Japanese have typically been accused of the bad competitor strategy, as have many other American Companies. IBM, generally, is a good competitor, although it has large market share that may make it appear predatory. Yet it acted out its good role in the PC market allowing Compaq and others companies to establish a foothold and prosper. We now go into greater detail on each of the competitive strategy areas.

o Technical

The technical strategies focus on how the product's unique technical capabilities are to be leveraged and developed to gain market share. Part of the technical strategy focuses on the eventual vertical integration of the product line. For example, consider a company that wants to develop a network control center (NCC) concept that is primarily software based. Its distinctive competence is focused in the software area. It must use standard off the shelf hardware for the field monitoring equipment However, it recognizes gaps in the hardware that it is also interested in filling.

Thus, it develops the software in such a way that it has hooks that allow for vertical integration of its proposed hardware but would not allow another hardware competitor to enter the system. Thus, it has established a barrier to entry in a vertical aftermarket. It did this by developing a long term strategic plan that focused on the technical development of the product. Example: Hewlett Packard has developed a strong competitive lead by using strong technical competitive strategies.

It has developed a set of high quality measurement equipment and then expanded into the instrumentation computer business. The vertical compatibility of the measurement equipment and the computers has allowed the company to ensure its business base while at the same time expanding the market potential.

o Marketing/Distribution

One of the typical marketing strategies is to recognize that the need for the product may exist in different forms in several key individuals of the buyer's firm. Thus, the marketing strategy must recognize that with a new product, it is necessary to convince a set of individuals of the merits of the new products. For example, in the case of a PBX enhancement company, it has recognized that the telecommunications manager has a large expense budget but a low capital budget. The MIS manager has both a large capital and expense budget. In addition, the decision maker is the VP of Finance and Administration.

Thus to sell the PBX enhancement, it has to be positioned differently than the PBX which is sold to the telecom person. It is positioned as a data processor enhancement, and the company focuses much of its marketing activities on the VP by establishing a presentation that shows the operating cost savings to the company and the potential return on investment. Thus, the strategy focuses on decision makers and on the users with funds. Example: IBM has been the quintessential example of the marketing strategist. It has addressed the broad base of customer users such as the MIS manager, the Telecommunications manager, the Chief Financial Officer, the office automation manager, and even the CEO.

IBM is really in the service business. It is only happenstance that it manufactures hardware. It establishes a relationship with the company, keeps and builds on that relationship, and then uses it to expand its product base. This accounts for why IBM was so successful in the PC business. It was not because of the technical strength, but its marketing power.

o Pricing

For new start up companies, pricing is a difficult problem. For typical hardware companies in the commercial field, there is the assumption that the price is based on a cost of goods margin on the operating statement. Yet as we already have noticed, pricing is really a very flexible item. A start up may price as high as possible to gain large up front cash flows and be prepared to drop the price to a certain level as the competition develops. This is the classic IBM strategy, which is to always price higher to allow some competition to assist the market development, then, as the market is crystallized, to drop the price to capture and retain market share.

Yet IBM has also managed to refrain from destructive pricing. The latter was the case in the calculator business, where Texas Instruments (TI) dropped the price below cost the get market share and found that they could not raise the price once it had been dropped.

The issue of pricing and the competition also suggests who to compete with. IBM is a good competitor in certain niche areas because they tend to avoid early price drops. Other companies can be suicidal in their pricing and should be avoided. Example: In the satellite communications business, American Satellite, owned by CONTEL, has repeatedly competed on price. It has gained market share on the basis of under pricing the competition. The strategy was that they could buy market share and then using the inherent scale economies, maintain margin.

Unfortunately, the telecommunications business is a commodity business with replacement from a wide set of alternatives. As American Satellite cut prices, so did AT&T. However AT&T was well along on the scale economy curve. Thus American

Satellite continued to see margin erosion and took over eleven years to see a positive margin.

o Production.

The key strategic issue in production is to determine how much is done in house and why. As an example, a small start up was in the business of developing computer keyboards to be placed in hotel rooms to access the hotels data base on restaurants, entertainment and final check-out. The company had a contract for 250,000 units. The device was very straightforward.

The company decided that it would develop its own production line. It also had the choice of sending the boards out to a job shop. However, it felt that the contract cash flow would pay for the acquisition of the capital plant which was obtained on a debt basis. Regrettably the contract fell through and the company was left with the capital plant and no money left to pay employees. The company was sold off and is now in the custom board stuffing business.

The strategy was sound only if the contract was sound. A similar case resulted with a company that had 95% of its business volume of $40 million with one customer. They felt it justified their own plant of 350,000 sq feet. Three weeks after the plant was opened, the major customer canceled the contract and the plant is now a warehouse. Production gives some control, but also a great level of risk. The production strategy should be focused on both the long term strategy of the business but with an eye to the short term risks. There is a cost in avoiding the risk and reducing the inside production, but in the early phases it may pay off.

5.5 BARRIERS TO ENTRY.

When approaching a venture capitalist for funding, the first question asked after the business concept is presented is why can't someone else do what you have just done. Let us consider a rather complex example. A company wants to get into the business of providing home shopping, banking, ticketing, travel, and other services.

The business is called TIES, for transaction, information, entertainment services. It has developed a proprietary software system with generic interfaces to the suppliers of the products and has developed a special input device to be used in the home. To be successful it believes that it must be in 20 cities within five years. It has a unique technology that allows it to provide full motion video on demand to the consumer with no limit on the system load. It further has gotten the support of a large retailer, a bank and a regional telephone operating company. Its competition is a joint venture of three major corporations all of whose revenue exceed $10 billion.

It has articulated its competitive strategy as follows.

o Provide an enhanced consumer package at modest cost.

o Rapid market entry with full service to capture market share.

o Provide a proprietary terminal to reduce switching of services by the consumer.

o Price at a rate similar to cable TV and be prepared to reduce the rate by 30% as the competition enters.

o Use the consumer recognition of the partners as an acceptance factor.

o Use the proprietary video technology to leap frog the competition. The company is trying to raise $15 million. The venture capitalist asks why can't this product or service be done by any other group of people. The answers are as follows.

o The cost of entry is high and not all companies are willing to spend $50 million.

o The market will support only two or three players and w.

will have early market share.

o The technical expertise is unique and we have filed for a patent with broad claims.

o The customer would not be willing to switch and to have to learn a new service.

These are barriers to entry. They represent reasons perceived by the company as to why competitors would shy away from the business. Barriers to entry typically fall into the following categories.

o Cost of Entry.

o Technical Expertise require.

o Proprietary Technology.

o Lead Time to develop the product or service.

o Lowered margins as a result of established player reducing prices.

o Barriers to exit on the customer associated with switching costs.

It is the development and understanding of the barriers to entry that will be the key to the business success. The barriers to entry will be in the same areas as those of the distinctive competences or the success factors. All businesses must have some barrier to entry. Without such barriers, the business will have no chance of lasting if it were to be profitable and subject to attack by a large company. The barrier to entry concept is one of the main reasons that service business have a difficult time in raising funds from venture groups.

Take for example the BBI business that we have discussed. It is a reservation business that develops a software package and agreements with Bed and Breakfast establishments to provide a service. The only barrier to entry is the set of exclusive agreements that the company has with the establishments. If the business concept catches on early, a large company such as American Express or American Airlines may readily enter the ,market and cream-skim the B&Bs, thus reducing the market share and endangering the business base. Barriers to entry are more successful in hardware business where there is a prototype of the unit that can be protected by a patent. However, even here the patent may be reversed engineered or blatantly copied. The small company cannot fight back and is forced to go after a reduced market share.

The entrepreneur typically views the barrier to entry as the uniqueness of the idea or the fact that he is first in the market. In reality the barrier to entry must be much more substantial. It should be a legally defendable and includes the high cost of reproducing element of the design. Software developments for commercial items may have such a barrier to entry.

Contracts with a large portion of the market are barriers to entry. A good idea alone is easily copied.

5.6 VALUE CHAIN.

Analysis Having established the concept of competition and developed a methodology for determining and evaluating the competition, it is necessary to better understand the process of developing the competitive strategies. We have just completed a discussion on the elements of competitive strategy within the context of determining how to be successful in the business.

An alternative approach is suggested by Porter [2], wherein he develops the concept of a value chain. Simply stated, the value chain is that set of steps or processes that a company takes to deliver a product to and end user. The analysis of the value chain entails assessing each step of the chain and determining how that step adds to the firms profitability, and finally comparing each of the steps to the competition. The result is a process that allows the planner to detail where specific improvements can be obtained. We shall now develop the value chain concept for new start up companies, and in turn,

develop a methodology to utilize the results developed throughout this book to improve the competitive strategies developed.

Consider he process of developing and delivering a new product to market. We shall call this the product development cycle. It consists of the following steps.

o Product R&D This is the early development stage where the product concept is developed and the prototype is produced. It is also a step in the chain that is required for the ongoing development of new products to keep the distribution channel filled with competitive products. The tasks performed in this element of the chain are the technical aspects of the product, its initial conceptualization, and the steps necessary to bring out the first prototype.

o Product Concept Development This is a marketing driven step in the product development chain. It focuses on the normal marketing function.

associated with the development of the target market, the development of the pricing strategy, the distribution strategy, and the product positioning.

o Systems Development This element provides the development of the product from the stage of being a prototype to that of a pre-production unit. This step provides the design to cost, design to manufacture, design to maintainability, and design to integratability into the product. In an ongoing business, it is in this area that the total product quality and assurance lies.

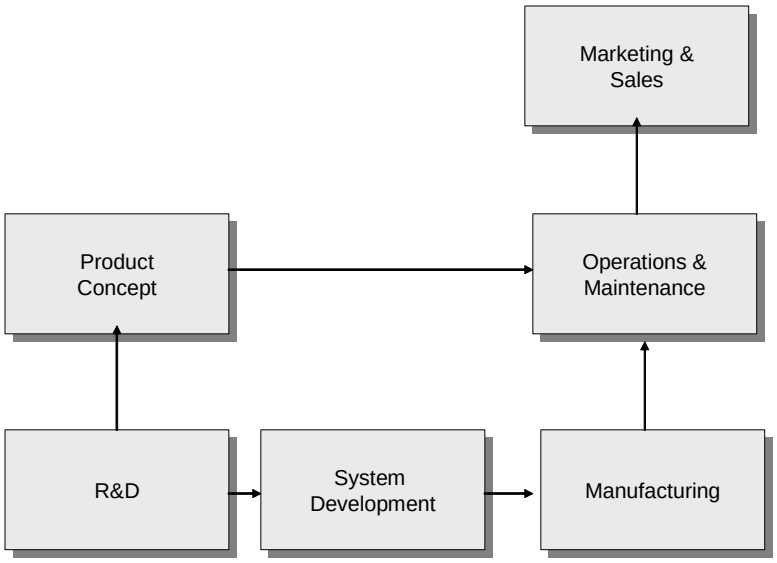
o Manufacturing This step includes all of the necessary functions to take the final preproduction units and to create the flow of product from the company. It may include the company's factory but may also include the use of outside board manufacturers. The manufacturing function may be considered as an extended factory, encompassing all of the elements that are necessary to deliver good or services to be delivered to the end user.

o Operations and Maintenance.

The day to day operations of the business are included in this element of the product development chain. This includes such elements as customer service, billing, operations of the service and maintenance of the hardware product.

o Marketing and Sales This is the final element and included the day to day tactical marketing functions and the day to day sales functions. This product development cycle is depicted in Figure 5.3. Shown are the relationship of each of the elements in the chain. In this figure, we show that the R&D function drives both the Product Concept and the System Development functions. Manufacturing supports the Operations and Maintenance area, as does the Product Concept. Marketing and Sales is the day to day direct contact with the customer.

Figure 5.3 Product Development Cycle.



Each of the competitors must have the same or similar set of elements in their business operations. Thus, by understanding the operations for their own business, the entrepreneur will be able to project what the response capability of the competition may be. We can further expend this concept by recognizing that each of these elements in the chain has an operational cost associated with it. Specifically, for element i in the chain, it has an expense E(i). This expense is composed of three elements: the revenue driver element, called D(i), resulting from the need to meet the needs given by the customer base; the productivity element, called L(i), based upon how effectively the company can perform in each unit or subunit of the development chain; and, a unit cost element, C(i), based upon the cost to deliver a unit of each of the elements.

A simple example will help to understand the makeup of these factors. Consider a sales force that is required to make $5 million per year in new revenue. The revenue driver is this number. The productivity of the sales force is give by the new revenue per salesman per year, or $500,000 per salesman per year. The unit cost factor is the cost per salesman, including all loaded factors, namely $60,000 per year. Thus, for this example we have.

.

o D = $5,000,00.

o L = 1/$500,00.

o C = $60,00.

o E = DLC = $600,000

A similar breakout can be performed for all functions. Thus the profit of the company can be expressed as follows:

P = R - E(i) = R - D(i)L(i)C(i)

This clearly states that the firms profitability depends on the three elements that yield the expense. In Porter's sense, these are the value chain elements for the firm. By understanding what these elements are and how they compare to the competition, the firm can readily assess how it compares to its competitors. For example, if the company is competing with a firm that has a lower unit cost per salesman, and a higher productivity, then the competitor has a better margin on its sales effort, and can thus compete more effectively. A similar process can be made on manufacturing, operations and all development items.

The analysis of the value chain for any business starts with a recognition of the product development process and a detailed understanding of all of the elements in that process. We shall provide considerably more detail in this are in Chapter 7. Having that understanding, it then requires that the following be performed.

o Element Costing For each element in the chain, determine the costs per element, by revenue driver, productivity number and unit cost. Note that competitors can compete on all three elements. The competitor can use a different revenue driver, more efficiently provide the element, or have lower unit costs.

o Competitive Assessment For all of the major competitors, determine their respective cost elements and element cost factors. Use this evaluation to determine where the competition is directly competing. This requires a much more comprehensive evaluation of the competition than is typically performed.

o Strategy Development.

Having assessed the areas where competition exists in the value chain, develop strategies to compete. For example, the firm may desire to compete on productivity and not on unit price. It may want to compete on revenue driver, by segmenting the market differently, rather than any of the other two elements. By determining the elements of the value chain, as described, the firm can determine where its profit or value comes from. In addition, if the profit is adequately high, the firm may desire to lower costs, and reduce prices, to obtain increased market share.

This type of strategy allows for controlled profitability in the short term, but allows for capture of significant market share during the more mature periods of the business. In

latter portions of this book, we shall return again to the elements of the value chain and use them as key elements in developing the strategy of the company.

5.7 CONCLUSION.

The competitive section of the business plan is oftentimes neglected. However, it is one of the more important ones, second to the marketing section. The entrepreneur must understand the competition. He must not think that the competition is only those who directly compete, but also those who indirectly compete. The needs of the business to succeed are critical. What are the success factors. If the new company does not have them satisfied, then it may be embarking on a fruitless journey.

CHAPTER 6 THE DEVELOPMENT PLAN

The development plan presents the tasks which must be accomplished in order to develop a finished product that can be sold to the end user. The development efforts include, not only those of the development of the hardware and software, but also of the development of the market, and the development of the organization.

The development program encompasses efforts from the time of plan funding until revenue of a continuing nature is produced. Thus the development plan consists of the following elements:

1. *Technical Product Development.*
2. *Market Development.*
3. *Organizational Development.*

The development plan must articulate the specifics of each of these areas as well as the overall goals and objectives of this phase, its budgetary limitations and the most important factors for its success or failure.

In this chapter, we shall focus upon the structure and goals of the development plan and indicate the elements and methods involved in the development of the details of the plan. The specific methods typically depend upon the type of business being developed, whereas the structure is consistent regardless of the type of business involved.

The major emphasis in the development plan is upon structure and goals. Development must be tightly focused and that focus is the product of a good business plan. The first step is the definition of the product and the establishment of the product development goal. If this goal is attained, then we can assume a level of business success.

However if this goal is not attained, then we most likely will not attain business success. In order to recognize the goal, it becomes essential to articulate not only success but also failure.

The product has been defined in the market section of the plan and in this section we establish the goals and objectives of the development effort. These are in both the technical as well, as marketing areas.

For example, the technical goals may be.

1. *Development of the operating system.*

2. *Prototype boards for the communications interface*

3. *500 Hr operations test with no failures*

4. *Acceptable Beta Test site acceptance by three companies.*

On the marketing side, the goals may be:

1. *Letters of intent from 10 customers.*

2. *Pre Development contracts from four customer.*

3. *Co-Marketing agreements with two OEM distributor.*

These goals are measurable and quantifiable. They result in an increased valuation of the firm by reducing the risk to market. They are predicated upon determining the key uncertainties in the financial risks of the plan.

The goals that are defined for the development plan should have the following characteristics.

o Quantifiable: Easily measured as to whether they have been achieved.

o Directed: Related to the success of the overall business.

o Impactable: Capable of being related to the set of business financials and shown to have an impact on the business.

o Achievable: They are a set of finite goals that relate to the business rather than some abstract notion of the business.

The goal setting process is a collaborative effort involving all the key principals of the business. If there is a disagreement, it should be resolved by mutual acceptance by all parties, or by the elimination of the disagreeing party. Persistent disagreement in a start up company will lead to a short term failure.

Once the goals of the development have been articulated, the tasks of the technical and marketing development plan are set forth. Each goal is stated and tasks necessary to reach that goal are detailed. These are then reviewed by the top management of the firm to assure that the overall goal of a successful business is reached.

6.1 TECHNICAL PRODUCT DEVELOPMENT.

The technical product development portion of the development plan is aimed at defining the steps needed to develop and field the product. The product development process is characterized by the following eight steps.

o Goals: Establish a set of realistic goals for the product development including the performance and the acceptance of the product.

o Strengths: Characterize the strengths of the development team in attaining the goals that have been established. For example, these may be the strengths in the area of software development, hardware integration or other areas.

o Process: Define and establish the process for the development of the product. This may involve the software development process, its controls and the implementation of the details of the development process itself.

o Steps: This is the details of all the steps that are to be taken in the actual development. These steps may include the development of the hardware, packaging, and the development of the manufacturing design model. Detail on each of the steps should be adequate to meet the specificity of the schedule and the budget.
o Schedule: The schedule is a detailed description of the time allocation and start of each of the detailed steps that must be completed in the development plan.

o Costs: The costs are detailed estimates of the expenses, labor and other expenses, as well as the capital requirements for the development. The budget should be precise and should include the needs for labor expenses as well as capital elements.

o Human Resources: The people needed for the development are also to be specified. Indicate where they are to come from, what are there talents, and when are they needed. The single most important ingredient of the development effort is the allocation of these human resources.

o Risks and Risk Management: It will be essential to list the risks that are to be anticipated. In addition these risks must be shown to be manageable and a plan must be developed to manage them.

These eight items are a necessary part of the product development plan. We shall now provide more detail on each of these efforts.

6.1.1 GOAL.

The development process requires that a clear set of goals be established for the overall development. These goals should reflect the needs of the product in both meeting the technical objectives, as well as meeting the marketing objectives. The goals should include the following or similar elements.

o Performance: How should the product perform. How many users should it support, how quickly should it respond, or how much data should it contain.

o Price: What is the price range of the product. How is it to be marketed and how are each of its elements to be priced.

o Interfaces: What are the interfaces to the end user. Is there to be an open system that allows for ease of expansion.

o Interoperability: Will the system have the ability to operate with other systems. If so, is it to do this by means of standards or by means of a proprietary interface.

o Quality: What level of quality and customer satisfaction is required. Is this a part of a customer mission critical system.

o End User Interface and Support: Is the product designed to be serviced by the customer or is the design such as to require continued company contact. These goals should be expressed in clear terms and should be transferred to all members of the development team. There should be no ambiguity in any of these goals.

6.1.2 STRENGTH.

The development team must contain strengths in many areas. Typically the development team must be able to focus on the technical development and not the development of the customer base. However, the development team that develops the technical part of the product must communicate with the marketing side that is developing the customer.

The development team must typically have the following strengths.

o Technical Depth and Experience: It is essential to identify the strengths that are needed for the development effort and to assess the specific areas that will be required. For example, in one company, the development team was led by the technician of the company from which the founder come. The founder was a marketing person and was not capable of judging the competence of the technical person. The product was never completed and the design had to be totally abandoned due to its inability to be manufactured.

o Contacts: In a development team, the effort will in many ways be leveraged off of the sets of relationships and contacts of the development team members. Thus it is essential to have a team that can draw on the resources of many people, those that can assist the PC layouts, provide parts distributor contacts and those that have access to assembly shops. No team is a stand alone team.

o Cohesiveness: The team must be able to work together. Their strength must complement each other and they must not be put in a position of competing on a smaller part of the whole.

In many development cases there are other types of strengths that are needed for the success of the effort. These should be evaluated by the development team at the beginning and the team should be complemented with those that are lacking.

6.1.3 PROCESS.

The development effort should have a process established that is understood by all of the players in the development team. Process establishes a means and method to achieve the goals that are established at the beginning of the development effort. Process establishes the allocation of resources and identifies who does what at that time in the development and how the individual parts interact. All too often the entrepreneurs will begin the effort with a general sense of direction and with little else. They do not have a plan and furthermore are unaware of the need for process. In large corporations in contrast, there is often an excess of process and a lack of the individual creativity that makes for successful innovation. The amount of process required in a start up development effort must be balanced to provide direction and control but at the same time to ensure continued creativity and freedom.

In this section we develop a concept called the work breakdown structure (WBS) that provides the basis for the process. It establishes a set of steps that must be followed in the development and delivery of the product. The WBS alone is not sufficient. It merely says what has to be accomplished but fails to address the issue of how it is to be accomplished. The how is the essence of the process.

The elements of the process are the following.

o WBS delineating the steps.

o The Organization and the mapping of the WBS onto the organization showing who is to accomplish the tasks.

o The Review process to establish the critical reviews of the adherence to the success factors for the development.

o The development of a detailed schedule that can be tracked by the management team.

o The clear assignment of the tasks to the element of the organization that will be required to perform and deliver.

6.1.4 STEPS

We can consider the individual steps in the development cycle in an organized fashion. These steps are typical of the steps that must be followed in any development process. The developers of the prototypes must plan these steps in detail and execute them in accordance with the process that is established. The steps include the following:.

o Individual Work Elements The WBS provides the developers with module task elements that must be accomplished in order to deliver a successful prototype. These modules are a partial listing of the tasks that must be accomplished. The developers must address the total set of tasks that must be accomplished and amend the work elements accordingly. One of the key elements is the need for the development and coordination of this set of lists of work elements.

Typically the entrepreneurs fail to take into account the individual work elements and in the process forget to include several of the critical path items associated with the development. For example, in the development of a new software network management product, the developers had done an exceptional job on the development of the software and hardware requirements so as to achieve the development of the prototype. However they failed to take into account the necessary changes to the power supplies in the development areas, thus causing a three month delay while they negotiated with the landlord on leasehold improvements. This simple work element should have been better planned in the early phases.

o Deliverables The deliverables must be clearly defined in terms of hardware and software as well as in terms of what they do. In many cases the typical syndrome is that release zero is what is delivered on the date the release was scheduled. However release zero does not function as required. If the process had developed a set of phased deliverables along the way of the development, then it would have been easier to predict the delay of the release as well as understanding the causes of the delays.

o Testing Quality is essential to the success of any business. The integral party of quality is meeting the customers needs and expectations. Failure to assure that this is accomplished is a sure means for failure. Thus it is essential that proper testing of the design be developed and implemented. This may also mean the assignment of a separate quality assurance function in the development effort. In the current developments of new technology systems, one must also realize that hardware and software must receive the

same care and attention. All too often we find careful attention to the hardware elements, but the major failures developing in the software parts. Thus we see new releases and versions of systems. These too often are not new features and functions, but are merely new releases with less errors in the software. Thus testing should have its own plans and organization. A detailed test plan is the heart of a successful development.

o Interfaces and Integration The larger the system the more interfaces it will have. In additions , as we develop systems that fit into more complex environments, they are forced to interface with many more elements. As the development efforts progresses, the sub elements of the design must be integrated and then finally the entire design must be integrated with the external world. As with the test plan, there should also be a detailed integration plan.

o Final Acceptance The final delivery is the delivery of the prototype or the beta test, pre-production unit, to the customer. Delivery should be done on time and the unit should perform as expected. Thus it is essential that there be an internal final acceptance procedure for the release of the design. This acceptance procedure is the last of many steps. The steps typically leading up to this are:.

o Preliminary Design Review: Assuring the features, functions and specifications.

o Critical Design Review: Assuring all critical element are satisfied and that scheduled are to be met.

o Final Design Review: Assuring design compliance and release for final implementation.

o Final Acceptance .

o Delivery The delivery of the product to the customer should be done in a timely and professional form. It represent the end of the development cycle and the beginning of the operations as a business.

6.1.5 SCHEDULE.

The schedule for the development effort should include all of the key elements of the WBS as well as all of the reviews that have been discussed. There are many techniques for scheduling, starting from the use of a Gantt Chart, a chart showing all of the tasks, to the more complex PERT and CPM scheduling methodologies. Generally one of the most critical reasons for developing a schedule is not just to ascertain the time required, but to manage the process to determine the time to complete. Thus the choice of the scheduling is left to the entrepreneur. There are many software packages that support this area.

However, the entrepreneur should be assured that the schedule include the following at a minimum:.

o Complete WBS compliance: The schedule should include the WBS elements and should pay careful attention to software elements. Remember that software scheduling is still a black art and that only through experience can a detailed schedule bed developed. For example, one start up company had to develop 10,000 lines of code. They felt that this could be done in three months by one person. After all, three months was almost 100 days and a good programmer could do 100 lines of code a day. Wrong, typically coding is 5 lines of code per day, and there are 200 effective work days in a year. This means that this was a 10 man year effort. This was also quite a surprise for the company.

o Inclusion of all reviews: The schedule should include all of the reviews that we have discussed. It should show these on the critical path of the development.

o Estimates of Time to Complete: The time to complete is the key measure of success. If the actual time to complete is close to budgeted, then the development is on schedule. Remember however, time to complete is not the difference between the total time and time spent. It is a reflection of the productivity to date on existing efforts and projecting this forward on efforts to be done. For example, if the schedule assumed that the prior tasks were done at a certain rate, and they were accomplished at 25% over that rate, then this may be projected into future developments.

o Integration into budgeting and actuals: Schedules should be integrated into the budget and the tracking of the actual expenses.

o Determining critical paths: All critical paths, or sequence of WBS elements and their dependencies should be considered.

6.1.6 COSTS

The costs associated with the development effort are all too often considered in lesser detail than the costs of the ongoing business. This is a major problem, for the limited funds are in the beginning of the business and these will be most difficult to obtain if they are expended too quickly. For example, a typical problem is the lack of funds due to the misstatement of the goals. The entrepreneur has decided to develop a prototype for the evaluation of the concept by the market.

He then assumes that the prototype, if successful, can be modified with minimal effort for the production line. The staff developing the prototype, however, have never developed production hardware before. They have all come from a research lab environment. Thus the design has not been developed on a design for cost, design for manufacturability, or

design for maintenance basis. The net result was a successful prototype, but a business failure. The production costs were three times the costs to develop the prototype.

Thus the entrepreneur should develop a development budget that takes all of these items into account. Remembering the goals that have been established and the process that has been put into place, the development budgets should contain the following elements. Each of these elements should reflect the WBS elements plus overhead of the development effort.

o Direct Labor These are the staff members that are working on the development team. Remember that the costs associated with the staff members should reflect competitive salaries. All too often the entrepreneur underestimates the costs of acquiring the best people.

o Indirect Labor There are labor elements that are not directly related to the WBS elements of the development program. These include the CEO, the finance staff and other indirect costs. These may also include the accountants, consultants and others. Typically the indirect costs may be 25% to 75% of the direct labor costs.

o Overhead The overhead costs include taxes, benefits, deferred compensation, rent, office expenses and other factors. It is in this area that the entrepreneur will often underestimate. For example, travel costs are all too often under estimated as are costs associate with demonstrating the product at shows. Floor space at shows is quite costly and requires the allocation of many technical staff for periods of a time that equals three to five times the show period.

o Other Related Costs There are many other costs that are not directly related to staff. These may be leasing costs and other factors.

o Capital Requirements For a start up company, although capital is depreciated and not expensed, it is critical to consider it as a cash requirement. Thus the entrepreneur should make a detailed lease or buy decision on much of the equipment. In addition the entrepreneur should carefully consider the use of outside contracting rather than internal efforts. For example, a company decided to develop a new computer terminal board. They decided to internally have the capability to perform the board layout, the chip design and the board stuffing and testing. This required $4 million in capital, but they justified it in the long term. After one year the market changed, the cost of the equipment dropped and the per unit costs of outside design, stuffing and testing were reduced below the internal marginal costs. The company still carried the capital, the depreciation and the interest. They eventually were sold. The key to remember here is that you cannot fire depreciation or interest. Thus one must be very cautious with capital.

o Financing Costs Financing costs have often been ignored in the process of estimating the total development costs. Typically these may include interest, the legal fees of attorneys, the costs associated with the venture capital placement and other factors.

6.1.7 HUMAN RESOURCES.

The human resource factors in the development plan are often the most crucial. The staffing of the development effort faces three major barriers:.

o The acquisition of the proper personnel. This is often a difficult task in first identifying the key people and in second attracting them. The identification may be done through existing professional contacts or even through the use of executive recruiters. The most important factor though is the selection of the correct person. Compromise at this point is deadly to the business. The second factor is the selection of all of the key people. Too often a technical start up fails to obtain the proper marketing and financial person at the early stages and this can readily lead to failure. The second part of staffing is the acquisition. This is done by packaging an attractive success directed package for the prospective candidate. Thus it is essential to induce them through proper compensation including stock incentives.

o The integration of the personnel. This includes the identification of the positions and tasks that they are to fill and the integration of the individuals into a team. The most significant factor in team building is the need for leadership. Leadership is the most lacking element in American business today. All too often the management styles allow for consensus. This is untenable in today's fast moving management world. Leadership requires that the entrepreneur have himself or the CEO be the leader, showing the direction and clearly articulating the vision of the company.

o The management of the key personnel. Once the team is selected and integrated, it must be managed. In a start up environment, one of the most typical problems is the attempt by all of the staff to take on the duties of all of the other staff members. Thus engineering starts to do marketing job, the CEO starts to do the sales role and on and on. The managements role is to focus the efforts, not to dampen the enthusiasm. Engineering may effectively support marketing and vice versa, but they should not supplant each other. Thus there should be a management chart with some effort on the part of the CEO to keep it orderly.

6.1.8 RISKS AND RISK MANAGEMENT.

During the development stage, there are many risks, surprisingly most of which are anticipated. An experienced team will have been exposed to risks in many other business environments and it should be possible to delineate the risks associated with the above set

of steps that we have just discussed. The development effort should then delineate the sets of risks in such areas as:.

o Technical development.

o Market development.

o Staff Development.

o Financial Support

The issues, for each risk that has been identified, there should be an articulated risk management strategy. The strategy should take into consideration how best to avoid the risk as well as what to do in the event that the problem delineated in the risk occurs. These eight items are necessary as part of the product development plan. Consider the following example of how this may be done for a typical start up company.

Example: MiniSAT is a satellite communications company that has decided to develop a small satellite communications terminal that will allow for the transmission of data between computers using a sophisticated communications protocol enhancement (e.g. IBM's SNA SDLC protocol). The company has decided to develop the earth terminal (e.g. satellite transmitter and receiver) and the data interface unit for the terminal. The development effort encompasses four major areas:.

o Software.

o Hardware.

o Integration.

o Manufacturability The eight step development process is then applied to this effort. First the goals were established as follows:.

o Terminal price to customer of $7500 per unit.

o Mean time to failure (MTTF) of 10,000 hours.

o Installation time of 4 hours.

o Mean time to repair (MTTR) of 2 hours.

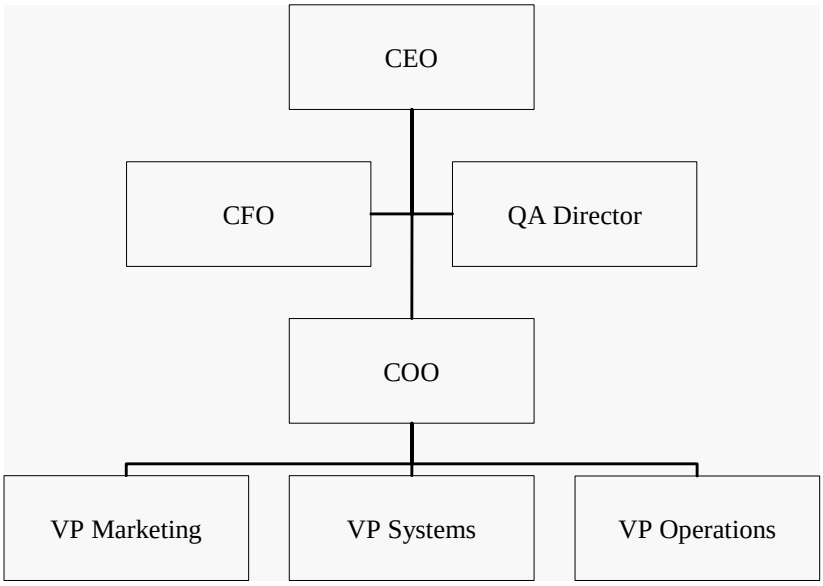
o Support two major protocols: SDLC and BISYNC.

These goals establish the overall baseline for the development effort. The company has as its sets of strengths a matured and established staff of software personnel. However it does not have the RF (radio frequency) persons nor the manufacturing capability. Thus it must develop in the product development plan a strategy and action plan to offset these weaknesses. In this case, the company has developed a strategic alliance with an RF manufacturing company in the Far East, Matsumani Electric. Matsumani has no software development capability but it has manufacturing plants in Kyoto and Singapore. Thus the company has avoided this development problem.

The process of product development focuses on the organization and development procedure.

In this case, the organization in the development area will be as shown in Figure 6.1. There will be a development director and he will have a hardware (HW) development manager, the software (SW) development manager, the integration manager, manufacturing interface manager and the Quality Assurance (QA) Manager.

Figure 6.1 Development Organization



The development process requires that the individuals in the organization have the goals and tasks clearly defined. The tasks are the steps in the development process. We shall expand upon this in detail latter in this chapter, but let us follow on with the example and develop the tasks.

Task development is performed in a very structured manner. The organization reflects the tasks that are to be performed. Thus we break the task down into four areas:.

1.0 Hardware Development.
2.0 Software Development.
3.0 Integration.
4.0 Manufacturing.

Table 6.1 depicts the details of the next level of task breakdown. We will discuss this latter in detail. This approach is called the work breakdown structure (WBS) for the project.

Table 6.1 WBS for MiniSAT.

1.0 Hardware Development.
- 1.1 Antenna.
  - 1.1.1 Definition.
  - 1.1.2 Selection.
  - 1.1.3 Test.
  - 1.1.4 Interface.
- 1.2 RF Components.
- 1.3 Modems.
- 1.4 Data Interface Unit.

2.0 Software Development.
- 2.1 Operating System.
  - 2.1.1 Definition.
  - 2.1.2 Design.
  - 2.1.3 Coding.
  - 2.1.4 Test.
  - 2.1.5 Integration.
  - 2.1.6 Documentation.
- 2.2 IO Drivers.
- 2.3 Link Protocol.
- 2.4 User Protocol.
- 2.5 Multiple Access Protocol.
- 2.6 Diagnostics.

3.0 Integration.

- 3.1 SubSystem Tests.
- 3.2 System Tests.
- 3.3 Alpha Test.
- 3.4 Beta Test.
- 3.5 Documentation.

4.0 Manufacturing.

- 4.1 Design Modification.
- 4.2 Pre Production Run.
- 4.3 Cost Minimization.
- 4.4 Manufacturing Run

From this table, we can see that the task are broken down into the smallest sub-task possible. These are the tasks that are scheduled. However when presenting the plan in a formal setting, it will only be necessary to present the high level elements. These are typically those top 10 to 25 task at the highest level. This is shown in Figure 6.2

Once the tasks are defined, they are scheduled according to the start and finish dates. The schedule will not only provide the details of the tasks but also those of the key events in the development process. The key events are those elements that the investor will have visibility to and may be the keying factors for additional rounds of financing. For example in this effort it may be the successful completion of the Alpha test. An alpha test is typical a test of the entire system in a prototype stage. The Beta test is the test of the preproduction model. There may also be critical and final design reviews of software.

As an example, in a company called PicTel, the entrepreneurs were rewarded with additional stock if the image compression system met a set of standards by a given date. They did and they got the additional equity.

Let us discuss the development schedule in further detail. In Figure 6.2, we have listed the WBS tasks by number and by description. Then we list the duration of the task and allocated the responsibility. The responsibility may be by department or by person. Then we allocate the amount of effort required by the task. This is given in man-month loadings. Thus task 1.1.1 takes 5 weeks and has a 0.5 man-month duration. We then indicated the start data as the data the task should not start before. Then in this case we include the tasks that this efforts depends upon.

That is these are the tasks that must be complete before starting this task. Using this, this program calculates the start and end dates for each WBS element. The interesting fact is that WBS element 4.4, the manufacturing run, starts on March 7, almost three months

from the anticipated start date. Thus this method of estimating, by including dependent dates, shows inherent slippage in the system. .

Figure 6.2 Schedule for MiniSAT.

The costs for the effort can be developed on a detailed basis. We shall spend greater detail latter in this chapter but we shall review what goes into the plan at this point. The costs provide enough detail of the expense and capital required as well as when they are required. The expenses are task drive. Using the WBS, we estimate the duration and manpower required for each task. Then using the rates per person, the expense are obtained along with the timing. The capital procurement will be an additional and itemized factor.

We discussed the organization. The people resources are the most difficult to obtain. Thus if the development requires significant resources, the description of where and when these are to be obtained is essential.

Finally is the discussion of the risks and the management of the development risks. The developer must preempt his reader and detail these along with the means he will takes to countervail them.

The product development part of the development effort must be succinct. It must also however have detailed backup to sustain the results presented. In the plan itself, all that is necessary is a statement of the goals, the description of the tasks, the schedule, budget, and organization needed, and an assessment of the risks. The backup will be a detailed part of the development plan that must be prepared as part of the effort.

6.2 MARKET DEVELOPMENT.

The market development portion of the development phase includes the efforts necessary to establish a presence with the customer and to position both the product and the company for success in the business phase of the company. As with the product development effort, it will be necessary to describe the market development effort. Specifically the following items must be discussed:.

o Goals: What is expected of the market development effort. What commitments are sought and to what degree are we trying to determine the size and type of market.

o Process: What is to be done specifically in the market development phase. What are the tasks, what are the milestones, and what organization is needed to accomplish this.

o Costs: This is a description of the costs of the marketing side of the development effort. This will include all the manpower expenses, direct and indirect, as well as other ancillary marketing expenses. For example it may be appropriate to hire a PR firm or an advertising agency. It is suggested that care be taken in hiring such firms until a firm date on delivery can be established. Much of the frenzy in Silicon Valley was fed by PR firms and not by fact. A good PR firm can easily get the company's name in the trade press such as Forbes, Fortune or Business Week. Yet the management must decide the timing and impact relative to the ability to deliver.

o Resources: As with the product development, there must be a statement of what human resources are need and how they are to be obtained.

o Risks and Risk Management: At what point do we pull the plug on the business? That is the issue of risks and risk management on the market side. We can always argue extending the development of the new product but if there is no market, there is no need to extend anything. This is often called the "Silver Bullet" element of the plan. It is the statement of when to use the bullet to put the business out of it misery.

These steps follow those of the product development effort fairly close. The major steps that must be accomplished on the market side, however, are generally more common and do not have as close a connection to the specific product. Specifically;.

o Identify the target market: This step includes the detailed work necessary to identify the customers by name and to identify who in the company is the end user as well as the decision maker. This will require the development of data bases of customer contacts and the development of a process whereby the sales force will be able to contact all of the key customers and to track the process of the customers contact as the sales cycle develops.

o Establish Distribution Channels: This is the most critical element of the market development phase and the one that is most often neglected. Distribution has been discussed before as being the element of the business that gets the product from the factory to the customer. In many new companies the distribution is not just through direct sales forces. Thus it is necessary to establish the co-marketing efforts with existing distribution channels and to position the product so as to be complementary to those co-market products. In this phase the negotiations fro such agreement should be made and the costs of distribution clearly tied down through contractual commitments.

o Establish Beta Test Customers: These should be friendly customers who are interested in assisting the company, partly out of their own interest, in evaluating the new product. In the market development phase the effort should be focused on working with these customers and assuring them of what the product will and will not do. Success of the product will depend on a lack of ambiguity of expectations, that is the customer assuming one level of performance and the product delivering another.

Example: DSO is a business that will provide an online computer based order entry service combined with a cash collection service through an automated clearing house function. The target market is the distributed sales organizations such as Mary Kay, Shaklee, Avon and Tupperware. DSO has decided to target these companies and has established the following goals:.

o Obtain commitment from 2 DSOs prior to operation.

o Sign up 2,000 of their sales representatives.

o Obtain a fee of $10 per month for each. The effort to accomplish this is directed to the Marketing and Sales VP as well as the director of sales. Their efforts are tightly targeted. They must visit all the companies and make sales presentations. It was anticipated that they will have to take six to eight weeks to set up the meetings, two to three months to meet and two months to close. The major milestones are:.

o Initial customer contact: This will include contact with the top five DSO companies in the field. The contact must be at the highest level and the start up should avoid the problem of dealing with too low a level of middle managers.

o Customer Presentations: This will require the development of both a professional slide presentation, collateral sales material as well as a demonstration of how the system and the service is envisioned to function. Care must be taken to anticipate customer specific requirement that could turn into objections. These may, in this business case, include needs to interface with their backoffice mainframe computers.

o Letter of Intent: The targeted customers should be interested in providing a letter of intent for beta test of the product. There should be a time schedule on this letter of intent.

o Test Trial: A single customer should be targeted for a test trial to assure that the beta test with several customers is successful.

o Start of Beta Test: The beta test should commence on schedule. It should involve the marketing and sales team as the customers eyes and ears on the project. Care should be taken for too much exposure of the technical side for fear of excessive delays in the product delivery.

o Customer Contract: The major milestone in the market development phase is the customer contract. The customer should be prepared to sign a usage contract upon successful completion of the beta test.

This example shows how the market development part is more structured than the product. It may differ considerably in a consumer business where there is a need for extensive distribution channel development. In this case, the business was terminated

because the marketing team could not sign up two or more DSO companies. The problem at the time the business was attempted was significant change and turmoil in these businesses.

Specifically Mary Kay was being brought private, Shaklee was retrenching, Tupperware was being reorganized due to the breakup of Dart Kraft and Avon had just installed a similar system.

6.3 ORGANIZATION DEVELOPMENT.

The organizational development section of the business plan is straightforward. It addresses the need of the business to develop the key player for the development stage. For example the key players may all be in place at the time of the plan. On the other hand the manufacturing or marketing person may be absent. This part of the plan addresses the following elements:.

o Goals: What is needed and for what purpose.

o Schedules: When are the key people needed.

o Assets Needed:

What are the qualifications of the key people to accomplish their tasks. This is a statement of both the existing personnel and the people to be hired. In addition to what is required for the business plan, however, the entrepreneur should develop a detailed organization plan that satisfies the development phase as well as the transition to the operations phase. The specific details that are need for this plan, although not included in the business plan itself, are as follows:.

o Organizational Charts:

As we have repeatedly stated, focus is the key element of success. The focus is attained through a clearly articulated statement of the goals and an organization that unambiguously attains that. Thus the organization charts reflect this strategy for success. They must be clearly understood by all of the player in the organization.

o Position Descriptions:

Most entrepreneurs will typically eschew the position description. That was the one restricting element that they fled from in the large structured business world. However, just as we had to develop a functional specification for the product, a detailed development plan for the product and high quality customer contacts, the same must be accomplished for the organizational side. Position descriptions are required to state what tasks are to be accomplished and what are the ideal requirements for the person to fit that

position. Failure to obtain the right person leads to compromise at the most critical stage. Just because some person is a good friend, and that they two may have worked together, is no reason to put that person as head of sales. Understand the requirements of the job, determine the background required and then fill it accordingly.

o Management Structure:

Recruit the most important people first. All too often it is easy to recruit the lower level people and then find the right top management. The problem with that approach is twofold. First the entrepreneur has significantly increased the management problem with less experienced staff. Second, the senior people have been preempted in their ability to search out the right people that will work with them. There is also a hidden third problem. Bringing in a person in the middle often breaks bonds between the CEO and the lower level staff. This often leads to dissension and work problems. Thus the sequencing of the management structure is very critical.

o Recruiting: The largest problem is where to find the correct people. Recruiting can be a full time job. If not done properly it can all but destroy the start up company. Thus the entrepreneur should consider the use of other sources. First, the venture backers may be important sources of better people. Second, executive recruiters may also be ideal. They may often be costly, but the better ones are clearly worth the cost. It is critical however to interview several recruiters and then choose.

Example:.

The management plan is presented as an integral part of the development plan. A typical management organization plan for a new business in the development mode is given in Figure 6.3. This plan is for a company that is interested in starting an interactive videotex shopping business. As such, the company needs both extensive technical as well as marketing expertise.

While this organization is the same for the operations of the business as we shall see in the next chapter, it may also serve as a basis for the development. The major factors associated with this effort are the key player and where they are to come from. In this plan the players are:.

o President.

o VP Supplier Marketing.

o VP Consumer Marketing.

o VP Systems.

o VP Operations.

o VP Administration.

Table 6.3 depicts the functions for such a set of positions and the experience that is required for the person filling the slot. .

Figure 6.3 Typical Development Organization.

Table 6.3 Management Organization.

This plan should be detailed enough to assure the financial backers that the key people have been considered. In addition, there should be a description of those who have filled the needed positions as well as a description of how the unfilled positions are to be filled and on the appropriate schedule. Typically this may require the statement of staffing strategies such as the following:.

o Obtain the top people as quickly as possible. The president and VPs of marketing have been selected.

o Establish frequent Board meetings to monitor the recruitment of key executives.

o Recognize the need for long lead times and adequate compensation packages for the key personnel. Use the pool of available equity for management to attract the up front management. Establish a equity allocation pool and seek Board approval.

o Obtain good team players in management and use the strength of the president and the financial backers to assure early placement.

It is important to acquire the most competent people. They all must have an entrepreneurial capability and desire. The hiring of persons with backgrounds in large corporations may cause problems because the infra structure that they expect is oftentimes lacking.

6.4 SCHEDULES, BUDGETS, AND CONTROLS.

The development plan has a detailed set of schedules to meet the goals that have been developed. We have spent some detailed effort on the product development schedule and we have further added the market and the organizational development efforts. In this section we shall provide further detail on the schedule and the corresponding budget elements. The ultimate objective is to integrate these into a control environment for the development phase as a total. To demonstrate to investors the viability of the investment,

it is necessary to have not only a plan in place but also a means to monitor and manage the plan.

Let us begin by an example and demonstrate how this process evolves. A start up company wants to develop a service to assist the Distributed sales Organizations (DSO) in more rapidly collecting funds from their sales representatives and in also reducing their processing costs. The net result will be a reduction in overall operating costs and an increase in the profit margin. The goals for the development effort are as follows:.

o Develop a transaction processing communications system to support 2 transactions per second.

o Interface with the regional Automated Clearing House (ACH) to facilitate funds transfer.

o Secure the commitment from two DSO companies such as Avon and Tupperware to test the product and if successful agree to participate for three years.

o Perform the test for a period of ten months.

There are three elements of the business; the technical, operations and marketing. The development plan schedule builds upon these objectives and develops a detailed set of tasks along with the organization to effect the successful completion of these tasks.

We shall now develop the detailed infrastructure of the schedules, budgets and controls as relates to a business of this type and which can be extended to any other start up business entity.

6.4.1 SCHEDULE.

We have already introduced the concept of a Work Breakdown Structure (WBS) in the product development section. We can now use that concept and expand upon it in detail. Any detailed plan contains the following elements:.

o Tasks and subtasks: These are the tasks that must be completed to achieve the goals. They are hierarchically divided into three major task areas: marketing, operations and systems. They are then further subdivided into lower and lower levels until specific tasks are defined.

o Organizations: In order to assign and manage the tasks an organization is developed. This organization has a functional characteristic that matches the task development.

o Schedule: Each task is then assigned a time frame for initiation and completion. The relationships for the tasks are shown on the schedule. As we shall discuss, the use of simple task schedules is appropriate and the need for such complexities as CPM or PERT charts is often unnecessary.

o Effort: The effort in man months is then allocated to each task. This can be further subdivided into man months per organizational element. Finally the tasks can be costed out using the allocation of salaries per organizational unit.

o Capital Requirements: Allocated to each task are the capital requirements. These represent the capital side of the cash flow requirements to support the development of the new business. Let us now return to the DSO business example. The task allocation is called a Work Breakdown Structure or WBS. The WBS is a top down determination of all the tasks that have to be performed in the development of the business. In this business there are three major task areas:

1.0 Systems: This includes the development of all of the software and hardware interfaces necessary for the delivery of the system. It will also evolve into the ongoing product development functions of the business.

2.0 Operations: This includes the development of all of the operational infrastructure for the business. It includes the development of communications, customer service, operations and maintenance and other elements.

3.0 Marketing and Sales: This includes all of the elements associated with the development of the market, sales to new customers, management of the beta tests and other elements.

Each of these areas can be further subdivided into a smaller set of tasks associated with the development effort. For example, we can further break the System area as follows.

1.1 System Development: These are the general system concepts that manage the overall system from the point of view of architecture, interfaces, performance and capacity.
1.2 Software Development: This is the set of overall elements that focus on the development of all the software for the system.

1.3 Hardware Development: This element focuses on the development and integration of all of the hardware elements for the system. lm-5.

The areas can be further divided. Let us focus on the software. We can divide the software down another level. This will produce.

1.2.1 Operating Systems: All software elements that relate to the systems operating system. This task may result in the selection and integration of an operating system. For example, the output of this task is the selection of UNIX.

1.2.2 Data Base: This task includes the definition of all of the system data elements as well as the selection of the database manager to be use in the system. It may also include the integration of the database into the system design.

1.2.3 Foreground Systems: This task is the development of all of the real time software systems. These systems are those that perform real time functions that support the ongoing operation of the DSO network.

1.2.4 Background Systems: These are all of the non-real time systems that support the DSO business and may also interface with the customers back-office systems. These may be evolutionary in nature.

1.2.5 Test and Diagnostic Systems

We can still go further into the WBS diagram in the Foreground area.

We have still not defined assignable tasks. To do so we develop the specific foreground modules that need to be developed. Let us further take the Foreground System to that point of development. It yields.

1.2.3.1 Communications: This module handles all of the communications need for the system. In some cases it may be necessary to further delimit the communications module, but for this example we shall assume that it can be adequately defined at this level.

1.2.3.2 Performance Monitor: This is a real time process that collects data to be provide for the database. The data may be customer data or system performance data.

1.2.3.3 DSO Process: This is a process that sets up communications with the sales person in the field. As with the communications process, it may be divided further into such tasks as presentation, input/output, setup and other elements.

1.2.3.4 ACH Process: This process setup communications with the Automated Clearing House for the purpose of establishing funds transfer. It is a critical process in that it is at the heart of the business. It also is a process that has severe Federal Regulatory limitations placed upon its performance.

1.2.3.5 SR Process: This process allows for the communications between the DSO system and the DSO company user. It allows for the real time management of the funds transfers and the management of the transactions. lm-5.

At this point we can introduce generic tasks that are required at the communications level. Let us take the Communications element and assume that it has been adequately defined so that it is a stand alone module of work. Then the phases of the work in this module may be developed. These are as follows.

1.2.3.1.1 Definition: The development of a detailed definition of all of the steps that have to be performed in the communications process.

1.2.3.1.2 Design: The detailed design of all of the steps in a level of detail that the functions can be validated for meeting the design requirements.

1.2.3.1.3 Coding: This is the step that includes the physical writing of the code to perform the process.

1.2.3.1.4 Unit Test: This step performs test on the code to ensure that it meets the requirements.

1.2.3.1.5 Integration: This step integrates this module with all of the other modules in the system. At this point there may be discovered many inconsistencies.

1.2.3.1.6 System Test: This is a full system test that integrates the hardware and the software of the system. It is the most critical test in the development of the system.

1.2.3.1.7 Documentation: This task is the most often forgotten and most poorly done. It documents what the code does. Documentation will often save the system as it evolves if it is done properly. Too many system work on folklore rather than proper documentation. lm-5.

At this point the WBS will specify a task that can be assigned to a specific set of individuals to be performed. These tasks may be the above set of tasks for a specific module. For example the coding of the communications system interface may take six man months to perform and it must be completed in three months. Thus two people are required. If one looks at the above set of steps for the communications code, one can readily see how the set of code can have productivity rates of 5 lines of code per day per person, if one includes all of the steps.

The WBS is often a lengthy description of the tasks that are to be performed in the development. They are specified to a level low enough to be assigned to a set of individuals and monitored at various levels of management. WBS schedules typically go to the fifth or sixth level of depth. In this case the depth is five (e.g. 1.2.3.4. as indicated by the number of numbers required to specify an executable task.

The procedure for developing a WBS is highly collaborative. It requires the support of the highest levels of management to implement. The actual schedule is then a schedule of the final elements of the WBS such as those shown above for all the business areas.

We can relate the WBS concept to include the development organization and relate WBS tasks to organizational elements and tasks. The business organization during the development phase has the following structure:.

1.0 Systems.

2.0 Operations.

3.0 Marketing and Sales.

Each of these separate organizational elements have separate departments and sections. In the systems organization are the following separate departments:.

1.1 Development.

1.2 Software.

1.3 Hardware.

In the software department are the software development engineers who will be assigned the tasks described above in the WBS elements that have been described. In certain tasks it will be necessary to get the support of the marketing staff as well as the operations staff. This will be the case in the Sales Rep interface where the screens necessary to satisfy the DSO company and the end user are generated. These are really a marketing driven parameter and not a technical factor only.

Thus to complete the WBS approach, it will be necessary to assign the WBS task modules to each organization. Some task modules may have the support of several organizational elements. Generally however, we try to keep the tasks confined to single organizational elements to ensure accountability.

The full WBS approach then consists of the following tasks:.

1. Develop the detailed WBS for the program. This must be down to the individual task level.

2. Develop the organizational structure.

3. Correlate the tasks to the organization assigning man months of effort to each task and sub allocating it by department.

4. Develop a schedule of the project carefully laying out the WBS final elements. Then using the level of efforts per task, determining the staffing needed to complete the tasks.
5. Assign direct salaries to each of the employees in each of the departments. Use these as basis for the costing of each task.

6. Develop overhead numbers that are assignable to each task. Load the direct salaries accordingly.

7. Allocate capital to each task an the date to which it is available and the cost of the capital. Once all of these tasks are completed, it will then be possible to develop the development expense budget, a budget that will be a controllable expense item in the business development process.

6.4.2 BUDGETS.

The development budget results directly from the WBS structure as we have just shown. The budget has the three elements:.

o Revenue: That revenue expected from potential customers as a result of beta testing of the system or service on their premises.

o Expenses: The total set of expenses that result from the WBS elements. The WBS has associated with it the cost per WBS task and this may or may not have the overhead element. The overhead may be added on as a total overhead or individually. The choice depends on how the overhead will be managed.

o Capital: The capital required for the development program includes any development systems such as computers and manufacturing hardware and any other items that are required for the development of the product.

The Revenue portion of the budget is usually the most at risk factor unless there is a pre-agreed to set of contracts for the development phase.

For example, in the development of a new service bureau company for the Distributed Sales Organization case, the DSO companies have agreed to provide the start up company with $500,000 each for the development of the test market evaluation. Using the three companies that have been assumed by the developers of the plan, this results in $750,000 initial revenue. The expense portion must also be allocated on a monthly basis along with the number of staff required to perform the tasks. The expense will be broken down as follows:.

o Direct Salaries.

o Direct Overhead.

o Other Direct Expenses For example, the direct overhead numbers should include the following:.

o Rent.

o Travel.

o Leases of Equipment.

o Professional Expenses.

o Employee Overhead (e.g. Social Security, Pension, Health Benefits, etc).

o Insurance.

The other direct expenses are those related less directly to employees. Examples would include computer leases or telecommunications expenses for the telecommunications intensive service company. The ratio of Direct Overhead to Total Salaries is the Overhead Ratio. It should not exceed 200%. In most start up companies, it should be kept to 100% or slightly more.

Table 6.4 depicts a typical budget for a one year development. Also included are the capital requirements, the cash flow and the cumulative cash flow. In this case, the estimated development costs are $5.6 million.

Table 6.4 Budget ($000)

Item	*Quarter 1*	*Quarter 2*	*Quarter 3*	*Quarter 4*
Revenue	0	0	250	250
Expenses				
Salaries	350	350	450	450
Overhead	450	500	550	600
Other Expenses	0	100	250	250
Total Expenses	800	950	1250	1300
Net Expenses	800	950	1000	1050
Capital	200	400	500	700
Cash Flow	1000	1350	1500	1750
Cumulative CF	1000	2350	3850	560.

This Table depicts the cash flow and cumulative cash flow for the development of the business. It allows the investor to see what the development costs will be and what the

total exposure can bee on the entire development program. Behind this overall budget, there should be a detailed budget developed on an item by item basis of the WBS.

6.4.3 CONTROL.

The development process must have controls that carefully guide and monitor the development of the business. These controls have three key elements:.

o Goals: A set of well defined goals must be established and adhered to. These goals are readily measurable and definable and must be specified in a time context. Typical goals are the attainment of market distribution agreements, an available beta test software package, or the generation of revenue at a specified level.

o Tracking: A process whereby the elements of the development process such as the WBS tasks are tracked and reported upon. Whereas the Goals report on macro levels of accomplishments, the tracking process will report on the micro level of progress in the development phase.

o Management: This is the most intangible part of the controls process. These are the management controls and policies and procedures that are to be followed and checked upon.

The establishment of controls is best embodied in a Project Management Control System (PMCS). The PMCS has as its basis the element of the WBS, the organization, the schedule and the budget. A typical PMCS has the following elements:.

o Planning: This includes the development of the WBS, the allocation of manpower by organization, the scheduling of the WBS elements and the development of a budget.

o Measurement: To be successful, a PMCS must have a real time measurement system that measures the expenditure of labor on a per task basis, the receipt of capital equipment and the costs, the status of all work elements and the percent complete, and a tracking of all expense elements.

o Monitor: A PMCS must have a monitoring element that tracks manpower, tasks, capital equipment and overall project status. Such measures as the budget and actual expenses, by task, by department, by month and by year to date must be made available. In addition the estimate of the cost to complete must be available. Table 6.5 depicts a typical Project Management Schedule for a development Project.

Table 6.5 Project Management Schedule

	WEEK		YTD		TOTAL		ETC	
WBS No.	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual
1.1.1	23	27	135	142	144	172	31	45
1.1.2	22	24	122	123	132	144	22	23
1.1.3	12	10	109	210	222	234	78	99
1.2.	0	3	0	3	0	0	99	99
1.2.	9	5	9	5	9	0	134	134
2.1.	0	0	0	0	0	0	150	150
2.1.	0	0	0	0	0	0	225	225
3.1.1	24	33	223	224	300	334	0	35
3.1.2	33	55	250	220	250	220	0	0

Table 6.5 depicts a typical control chart that develops the project by total expenses on a task basis. Other breakdowns of the project may also be developed. This may include more detail on expenses or more detail on organizations. The specific project usually dictates the approach taken. The key point, however, is that the is a need for the initial system, the need for the measurements and the need for a tracking system.

o Control: After the monitoring is performed, there must be a means for the control of the system. The control usually entails the implementation of work and materials order documents. These control the use of labor or capital on specific projects. It means that capital require the approval of the proper person, usually the VP of Finance and Engineering. Also, in large development programs, each individual should be assigned a task. Those not assigned should be evaluated based on their direct contributions.

o Action: Action elements of a PMCS usually entail reports on the status of specific elements of the project. Specific amongst such reports are the yellow and red flag reports. The red flag report is a report on the delay of a critical path element. It should go directly to the CEO. This may be the development of a major piece of software or the development of a major customer relationship. It is key that the management not be blindsided. Failure to generate such a report should be grounds for immediate termination of employment. Yellow flag reports are reports that indicate the possible development of more serious difficulties in a near time period. They too are of importance to the development effort.

Example.

Consider a company that is developing a new software product that performs protocol conversion for a personal computer so that it may talk into a packet network at high data rates. The company has developed a detailed software development program and has targeted a direct sales approach for its product. It has defined the following set of goals:.

o Commitment from three companies for 100 units by month six.

o Beta Test product available by month 9.

It has established a detailed WBS and has introduced a Project Management Control System (PMCS). It has hired a controller who has a Stanford MBA to manage the program development and act as controller.

The president is an aggressive sales oriented technical person and is not a manager. He has hired a sales person to work the sales area personally. The following things begin to happen:.

o The President talks to several new potential customers and is so enthralled with a new product that he sells them on it.

o The President does not communicate this to the head of development but talks directly to the software people. They began a "small" project to test out his idea. They assure him that it won't take long.

o The Sales person calls on the clients to close the deals. He finds that they are confused because he has not included the new products. The deals do not close.

o Engineering sees a slip in the development. The Head complains to his staff. A new engineer begins to play politics and goes around the head the engineering organization and directly to the President. A serious rift occurs. The Engineering Head now drops all interest in reaching target.

o Beta Test units are three months late. The President fires the Engineering Head and takes on direct responsibility. The customers are concerned and never complete their offers.

o The company runs out of its first round of financing without product or customers. The venture capital Board members believe the president has not acted wisely and fire him.

o A new president is appointed from the Venture Board. The engineering staff is disillusioned and quit.

o The company is dissolved and sold as a tax carry forward to another company owned by one of the Venture Board members.

This is a true story, and only some of the exact instances have been altered. Yet what it shows is that with even clearly defined goals, and measurement systems, the people management is the most critical chain. The president must be up to the task of managing.

Often this may not work effectively and he should be replaced quickly. This may not mean terminating him but only repositioning him.

6.5 SUCCESS FACTORS.

At the completion of the development, how do we know if we have a business? We may have reached our goals but we also need success as well as failure factors. One final element in the development plan is the development of the success and failure factors. Once we have established our goal, we must carefully and in a detailed fashion state what success is. In a similar fashion, we must have well defined failure factors. The failure factors are those factors that we use to terminate the effort. They are critical to articulate because that can save a great deal of suffering and expense. All too often businesses do not attain success but they continue to bleed money for a long period. If there had been hard and fast failure factors, this would have been eliminated.

The success factors and the failure factors are those elements of the business that if measured at the end of the development cycle will provide a measure of the future success of lack thereof of the business. These will oftentimes be factors that relate to the financial viability of the business.

The following two are examples of businesses with appropriate success and failure factors.

Example .

This business wants to develop a videotex service that uses a full motion video approach. The company has a development program to test the service out in 1000 homes in two cities. The development program will last 18 months and the test market another year. The development effort will cost $16 million and the actual business will require $120 million for its total development.

The investors are willing to invest the development amount but they want to know what factors will reduce the risk in the long term. Also the investors want to know what factors will show that there is no business and that they should withdraw from the business and thus from the market opportunity.

The concern of the investors is related to the capital required and the risk of not pursuing the business. In the event that the business is not pursued it may allow a competitor to enter the market and dramatically reduce their market share.

Table 6.6 depicts the risk elements and the risk management strategies for each of these elements in this business. The important fact to note here is that the business development process tries to anticipate the set of risks and to provide the managers with

an anticipation of and a strategy to manage the risks. Clearly these are not the only risks but they provide a level of understanding the of the business and the market that allows for a margin of error.

Table 6.7 depicts the success and failures factors for this videotex business. If at the end of the development effort, all the results are in the success column, then there is a high reliability that there is really a business here. On the other hand, if the results are all in the failure column, there is a good chance that there is no such videotex business. However, the most difficult problem is that there are uncertainties. Some results may appear as success and other results as failures and other may even lie in-between. This is a management call. If there are 5 successes, 3 failures and the rest undetermined, this implies a high level of risk with a possible positive outcome. At this point, high level management judgment must be made.

In Table 6.7 let us consider some of the entries in detail. The consumer sales factor states that at the end of the trial, we would expect 1000 household to be a success. If on the other hand we attain on 500 or less then this is a failure. This factor was developed on the basis of the market penetration necessary for the financial success of the business. Consider now the second factor. The sales rate of 100 subscribers per month meets that rate expected for a profitable business. The rate of 40 or less subscribers per month would result in a cash flow that would be too great and an IRR on the investment that would be too low.

We could continue with each of the entries in this table. Each relates back to a fundament element of the profitability and viability of the business.

Example .

In this case a data radio network business was developed using radio modems in Lap top computers. The business also provided full service and a backbone communications network. The success and failure factors are shown in Table 6.8. The business factors are similar to those shown above. These factors are taken from a detailed analysis of the business financials and which of the key factors in the business financials would make of break the business.

We can analyze these success and failure factors in some detail. The first is the number of companies needed for a successful trial. In this case we assumed that 15 companies were appropriate. If it fell below 8, it was felt that the ultimate market penetration would be insufficient for the success of the business. Also 6000 subscribers were required for success. Less than 3000 was considered a failure. The churn rate is the rate in which subscribers leave the service on an annual basis.

A churn of 15% was a success. If the churn reached 25% or greater, it was felt that the cost of gaining new sales made the business unprofitable. The system availability also

determines how frequently the system operates. An availability of 98% was necessary for this vital business communications link. Since typical voice grade data lines have an availability of 90%, it was felt that if the availability dropped to that level the effort was a failure.

Each of the entries in Table 6.8 depict critical elements of the business. It was essential that each of these be simply quantified and that they be highlighted at the beginning of the development effort.

The Success/Failure (S/F) Factors are based upon the business and the financial models of the business. The business factors relate to the revenue potential, the expense factors, its use of cash, its market penetration rate and other actors that indicate how effectively the business can grow and prosper. The business plan must clearly state these factors and show how they are related to the business success or failure. The business plan thus designed will include a silver bullet that will allow all concerned to put the business out of its misery in the event that it becomes clear that a failure is immanent.

Table 6.5 Success and Failure for Consumer Business.

Factor	*Success*	*Failure*
Customer Sales HH	>1000	<500
Rate of penetration HH/mo	>100	<40
Subscribe Usage hrs/year	>80	<60
Purchase Volume $/yr	>600	<300
Revenue per HH	>$250	<$100
Churn rate per year %	<30	>60
Supplier Size	>50	<10
Response time sec.	<5	>15
Transaction errors %	<1	>4
Availability %	>98	<90
Terminal cost $	<200	>400

Table 6.6 Success and Failure for Commercial Business.

Factor	*Success*	*Failure*
Number companies	>15	<5
Number subs	>6000	<1000
Rate of sales sub/mo	>700	<300
Churn annual %	<10	>20
Revenue ($000,000)	>3.2	<1
Availability %	>98	<90
Response time sec	<1	>10

6.6 CONCLUSION.

The development plan describes the actual tasks necessary to develop the business to the point at which it is ongoing. It provides a set of actions to be followed and to be supported by the capital raised. The financing agents will look at the development plan and assess the credibility of the plan in view of the funds available and the level of expertise in the people associated with the company.

The description of the development plan must be realistic. The WBS is the most important element of the development plan. The key point is to do a tops down and bottoms up analysis of the tasks that have to be performed and to carefully allocate all of the costs and efforts.

CHAPTER 7 OPERATIONS AND MANAGEMENT

The development portion of the business plan allows the plan to be the most specific. It is very near term goal-oriented. In contrast, the operations plan describes how the business functions on an ongoing basis. The Operations Plan discusses both the organization and its responsibilities, that is; the operations factors as to who does what and why, the team used to accomplish the task and the capital, and expense factors related to the operations of the business. The Operations Plan is the counterpart of the Marketing Plan. While the marketing plan focuses on the Revenue side of the equation, the Operations Plan focuses on the expense and capital side of the business equation.

The operations plan is strategic. The development plan is tactical. The overall strategic intent of the operations plan is to effectively execute the business once it has become active.

In this chapter, we develop a very key concept that is used in the development of the expense, capital and cost of goods model. The concept is that these functions are all influenced by the revenue model that we have developed in Chapter 4.

More specifically, the expenses, capital, and cost of goods models are directly driven by a set of parameters that are a direct part of the revenue model. We shall call these elements the revenue drivers. We shall spend a great deal of effort identifying these factors in this chapter for all of the elements of the business. Once these have been identifies, we can then use productivity ratios, and unit cost factors to generate all of the operations plans.

7.1 ORGANIZATION

The organizational structure for the operations of the business is specified in th business plan and is a key element for the financial analysis of the business. The organization structure is used as the basis for the manpower loading requirements of the business. The choice of a specific organizational type will depend upon the type of business that the company is in. The organization can be along product lines or along functional lines. The product line approach is usually more appropriate for more mature business that have multiple products. An alternative to product line organization is to organize along market lines. The market line approach aligns the organization to service the unique needs of differing market elements, such as direct sales versus OEM (e.g. indirect third party vendors).

The methodology that we shall adopt in developing the organization plan will follow two paths. First, the organization must meet the overall objectives of the business. Second, the organization must be such as to be measurable in terms of meeting the goals as stated. The second factor is often missing in many organizations. The question most often asked

is why are there so many people in the marketing organization, or how effective is the sales force, or don't we need more staff in customer service. In this chapter, we shall develop an organization that allows for the measurement of this effectiveness.

This methodology states that when each element of the organization has been defined, that the next step is to identify its relationship to the revenue stream through the revenue driver concept. Then each organizational element must have a productivity factor defined. This productivity factor determines how many staff are needed in that element to satisfy the need of the revenue driver. Finally, when we come to the expense side, we shall add a unit cost to each staff element.

Let us consider the sales organizational element. The revenue driver is readily understood to be the number of new customers. However, each new business may define customer in different terms. One must be certain to identify the sale to a company, an individual, a single buyer or some other final purchaser of the product. Thus if we define customer to mean the ultimate buyer, we know that for the sales force, the revenue driver, RD, is:

RD (Sales) = Number of New Customers

The productivity factor, PF, is a measure of how many staff are required to meet the revenue driver requirement. For example, in the sales force example, we may determine the sales cycle to be three months, the number of customers seen during that period to be 80, and the success is one sales per ten customer visits. Thus the salesperson will attain 8 sales per quarter or 32 per year. This means that the productivity ratio is 1 staff per 32 sales. The total staffing, TS, is then easily determined as follows:

TS (Sales) = RD (Sales) * PF(Sales)

where:

PF(Sales) = Number of Staff/Sales = 1/32

If the number of new sales are determined to be 3200, then the number of sales staff is 100. We can also calculate the productivity in terms of dollars/sales staff per year, knowing the dollars per customer per year. This is also a standard sales force productivity measure.

Thus, we consider it essential to know not only the organizational structure, but also the organizational drivers.

In general however, the best approach at the beginning is along functional lines. For example the key functional areas of many organizational are developed below. They are as follows:

o Marketing: This group provides for the definition of the target market, the development of the sales and promotional plan, the establishment of pricing, and the management of their ongoing product development programs.

The revenue drivers for the marketing function are generally the total number of customers, or the total number of companies that the marketing department is dealing with. For example, if a marketing department is developing software products for the financial services industry, then the size of the department is generally dependent upon the number of banks or other financial institutions that the company is dealing with. In a consumer business, however, the size of the marketing department may depend upon the total size of the company's consumer base. The productivity factor is generally the number of staff per total companies in the revenue driver.

o Sales: The sales organization is directly related to the interface with the customer, the closure of the sale with the customer, and the ongoing maintenance of the customer's account.

The revenue drivers for the sales function are generally the most clear. They are driven by the number of new customers the company will obtain in the year. The may also depend on the total customer base since there may be some maintenance sales functions that are necessary. Generally however, the sales force is directly related to the size of the new base generated.

The productivity factor is measured in terms of the number of staff per new customer. In many business, the productivity of the sales force is measured in terms of new revenue per sales person. It should be clear that this productivity measure is inversely related to our defined productivity factor.

o Customer Service: Customer Service is the essential element of any business that supports the product when it enters the hands of the customer. Whereas the sales function is to get the product into the customers hands, the customer service function is required to support the maintenance of the account. Depending on how service intensive the business is, the Customer Service function may or may not be very manpower intensive.

The revenue driver for the customer service function is the total number of users. This is not necessarily the total customer base. There may be many users per customer. Depending on the business, the customer service function may be labor intensive or very lean. In a service business, customer service may often have the key operational role, this due to the ongoing relationship with the customer. The productivity factor is clearly the number of staff per user. We shall show latter how this productivity factor may be developed using more detailed performance factors, such as failures per customer per year, holding time per customer service call and other detailed operational factors. These first three examples show how the productivity factors are developed. In the following organizational element discussions, we shall discuss on the revenue drivers.

o Systems: The systems element of the organization develops the overall concepts of the technical side of the business. They may handle the sizing and performance factors for new customers, they may manage and operate the MIS center, and they may be the key players in the overall costing of the product. They are also the key managers of the technical sides of hardware and software development and the manufacturing processes.

The revenue drivers for this elements are the total customer base. They not only have to deal with the new customers but also with supporting changes to the old customer base. Generally the intensiveness of their efforts is shared equally amongst all the customer base.

o Hardware Development: This element is the development arm of any company that produces hardware. This organization defines, designs and develops pre-production prototypes of the final product. It generally is interested in only the new products and may also support the R&D functions for the company. The revenue drivers typically are the new customers, although it also supports the existing customer base. This element generally is the one of the fastest moving and should be results driven.

o Software Development: This element is the counterpart of the hardware element. The major functions are the development of new software and the maintenance of existing software. This is a major difference between the two organization. Whereas hardware is focused almost exclusively on new hardware, software is typically focused on new as well as the maintenance of the existing. In fact, many software organizations find the majority of their efforts, as the business matures, focusing on the existing customers and then older software products.

Thus, the revenue drivers are the new customers in the early stage and a weighted fraction of the total customers and the new customers as the business matures.

o Field Service: This element focuses on the servicing of the customer at the point , in the field, that is the location of the product. In computer companies, there is a strong need for a field service organization than can install, test and support the ongoing operations of the product on the customer's premises.

Clearly, the revenue drivers for this function is the total number of user sites. This may exceed the number of companies but be less than the number of users.

o Plant Installation: This function is a special element of what may appear under field service. It focuses on the specific installation of the equipment or software on the customer's premise. The major difference is in that the plant installation may be more complex and require more specific expertise than that of normal field service. Clearly the drivers are the same as for field service.

o Network Installation: In many services it is necessary to establish a communications network. This work element represents the non-customer premise element of the installation part of the business. It also id driven by similar elements.

o Operations and Maintenance: In certain businesses where a service is provided, there is an ongoing need for the operations and maintenance of the service. This may include the staff that manages and mans the network management and control facilities, that operates the MIS facilities or that provides the ongoing equipment customization. Typically this has as a revenue driver the total number of users.

o Manufacturing: Manufacturing is driven by the number of new users or products shipped. In many start up companies, this function may be contracted out to third party board stuffing houses or special purpose assembly shops. Generally it requires special attention to develop a manufacturing strategy for the business.

o Manufacturing Support: This function is required independent of whether the manufacturing is done in house or at an outside facility. It is an extension of the Hardware element of the operations, but it is the group that does the design for cost, the design for manufacture, the design for maintainability as well as develops and supports all of the customer support documentation. Generally this has as a revenue driver the number of new users.

o Product Development: This work element is the most vital for the long term development and survival of the business. It is a combination of both the technical and marketing side of the business. It has the goal of developing all new products and enhancements to existing products. It generally takes information provided by marketing and interfaces with the systems organization and provides for the new features and functions, as well as concept prototype developments of new products. It is generally driven by the total number of new customers required.

o Billing: Billing is a customer sensitive task. Many companies have lost customers or have had major cash flow problems because of a poor billing operations. The most notable example of failure to have billing operations in a proper form is the example of U.S Sprint and its major losses due to improper billing processes. Billing must ensure that cash is collected in a set number of days and also that customers who have questions on their bills are serviced politely, promptly and properly. Customer service usually assists the customer when the product does not work, billing assists when the process does not work. Billing is driven by the total number of customers.

o Test and Evaluation: This element is in support of ensuring that all tests are performed on the product prior to customer release. It has the line responsibility for product quality. Generally it is driven by the total of new users to the business.

o Quality Assurance: Quality Assurance (QA) is often the most neglected element of the organization, however it is the most important. QA s job is to ensure that all of the other elements are performing their task properly. It should generally report to the CEO of the company and should be staffed by the best possible individuals. There are many works that describe the proper organization and functioning of a QA organization.

o General and Administrative (G&A): The G&A functions are those overhead functions that support the business operations. They include the finance, legal, personnel, senior management and other functions not directly related to the customers in the business.

The drivers for this part of the organization is the total number of employees in the organization. That is it does not relate to the revenue elements directly but support those who do. The productivity factor is clearly the number of staff who support each employee. A measure of en efficient and productive organization is the relative small value to the productivity factor, that is few staff in G&A per revenue generating employee.

These are just a few of the overall functions that have to be performed. In Table 7.1 we have depicted the summary of the different elements of the organization, their functions, the respective revenue drivers and productivity factors. In the next section we shall use this model of the organization in detail to develop the expense model for the operations. In the operations of the business, however, this model also represents a view that management has towards the productivity of the different elements of the organization and how best to set goals and make measurements on performance.

Table 7.1 Organizational Elements and Characteristics

Element	*Revenue Driver*	*Productivity*
Marketing	Total Customers	Staff/Customer
Sales	New Customers	Staff/New Customer
Customer Service	Total Users	Staff/User
Systems	Total Customers	Staff/Customer
Hardware Development	New Customers & Staff/Customer	Total Customers
Software Development	New Customers & Staff/Customer	Total Customers
Field Service	Total Customers	Staff/Customer
Plant Ops	Total Customers	Staff/Customer
Network Ops	Total Users	Staff/User
Operations & Maintenance	Total Users	Staff/User
Manufacturing	Total New User	Staff/New User
Manufacturing Support	Total New Users	Staff/New User
Product development	New Customer	Staff/New Customer
Billing	Total Customers	Staff/Customer
Test and Evaluation	Total New User	Staff/New User
Quality Assurance	Total Ops Empl.	Staff/Total Ops
G&A	Total Employees	Staff/Employees

The organizational structure of the operations will have these organizational elements reporting to the President. For example, a Vice President of Marketing and Sales and a Vice President of Operations may be the extent of the business. All other functions fall under these two direct reports. However, generally the business structure is a bit broader.

In the extreme, the President may have Vice President of Marketing, Sales, Customer Service, Engineering, Manufacturing, Operations, and Administration. Where there are seven such VPs who all have conflicting goals the business runs the risk of not being able to effectively operate the business.

Organizing the operations plan involves a four step process;

o First: Determine the tasks which have to be accomplished on the broadest levels. List these tasks and functions and determine the functional cells.

o Second: Considering the nature of the business, cluster these tasks into organizational units. Try to eliminate as many levels of reporting structure as possible and push the management responsibility down. Generally, we seek a flat management structure wherein the workers can have access to top management by at most three layers.

o Third: Evaluate the personnel who are going to perform these tasks. Look at talents and personalities, and realign the tasks as necessary to keep the business functioning and the people happy. In the event of severe conflicts, consider eliminating the conflicting person before the conflicting task.

o Fourth: Determine the revenue drivers and the productivity factors for each of the organizational elements. Determine if the organization can achieve these levels of performance and if the staffing required is achievable.

Example:

Consider a company that is in the business of developing and manufacturing a special purpose telecommunications device to provide for a switched data service to end users. The product may be integrated into a PBX or may be a stand alone device. The company will manufacture the units in Singapore by means of a relationship with Liu-The manufacturing. Continuing product enhancements are expected, and the company's long term strategy is to develop vertical markets in the integrated data market for multi media transmission (e.g. telephone wire, coaxial cable , fiber optics and satellites).

The sales are made through direct channels as well as in OEM channels, through distributors such as the PBX vendors, as well as the local Bell Operating companies (BOCs). The President has worked in large structured companies and is a marketing

oriented person with limited sales and technical background. He recognizes that he has the following problems to contend with.

o The Singapore plant is new and he has never run a manufacturing operations like this before. Product quality and availability is important.

o Early sales are key. The direct sales approach is to large companies in the Fortune 500 and require a sophisticated sales approach. On the Other hand the BOCs may represent a good OEM type channel. They are different in character.

o Continued product enhancements are important. However the product ideas will come from the field where the customer will be providing input as to their specific needs. The development will be performed in-house where the knowledge of the customer's requirements are not that clearly understood. The product will become more software oriented in order to have the flexibility to modify its features and functions.

These factors lead to the following organization:

1. Direct Sales

2. OEM Sales

3. Marketing and Product Development

4. Manufacturing and Operations

5. Engineering

6. Administration

This can be broken down into smaller units:

1. Direct Sales

1.1 Sales Force

1.2 Sales Support

1.3 Customer Service

2. OEM Sales

2.1 Sales Force

2.2 Sales Support

2.3 Customer Service

3. Marketing

3.1 Marketing

3.2 Product Development

3.3 Advertising

4. Operations

4.1 Foreign Operations

4.2 Manufacturing Support

4.3 Field Service

4.4 Quality Assurance

5. Engineering

5.1 Systems

5.2 Hardware

5.3 Software

6. Administration

The natural breakdown in terms of levels are Divisions, Departments and Sections. The major categories set forth in the previous example are the division level and the subcategories are the Departments. Divisions are VP level positions and Departments are Director levels. We can further divide the engineering software department into further levels, called sections:

5.3.1 Real Time Section

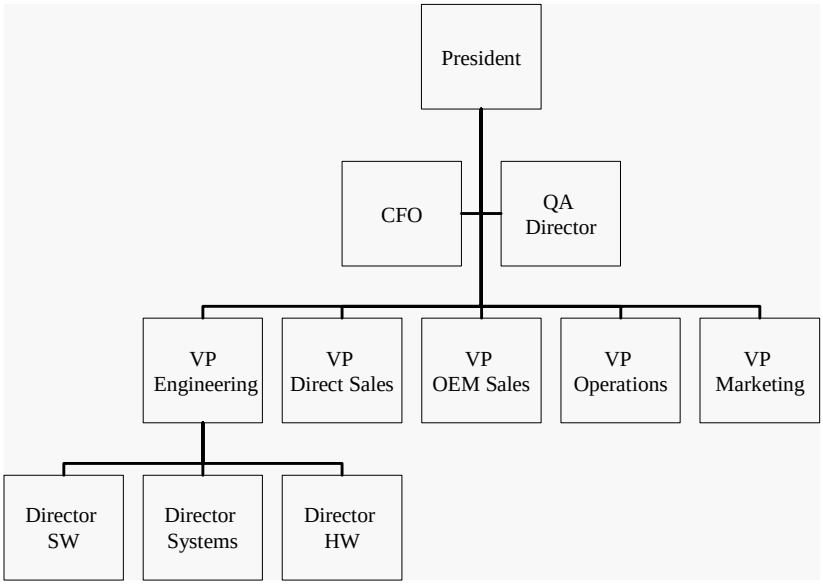
5.3.2 Background Section

5.3.3 Test Section

The level of management at the section level is the standard manager. In order to establish the management personnel, it is important to start with the Divisions and proceed to the working staff level. Remember that management personnel do more direct work the lower the level in the organization. Thus Director or Department level personnel are really workers as well as management.

The organization chart for this business is depicted in the Figure 7.1. We shall use this format when we develop the expense format for the operations organization.

Figure 7.1 Organization Chart



The operations plan must also discuss who is to fill the key positions in this organization. We shall develop this in further detail in the latter chapters of the text. The key positions are to be identified and the position requirements spelled out in detail. In turn the key players in the business are to be identified and their roles indicated.

7.2 OPERATIONS EXPENSES

The operations expenses are a direct consequence of the operations organization. As we have developed in the last section, we have shown that given the organization, we can size the organization using the revenue drivers and the productivity factors. In this section we take the sizing and use unit cost factors to develop the overall operations expense model.

Simply put, in the previous subsection we found that the staff requirements of an organization element was given by the product of the revenue driver and the productivity factor. Thus for that organizational element we have the staffing requirement. Thus, if we use the average unit cost for employees in that organizational element, the unit element expense is the product of the staffing and the unit cost per staff. Specifically, let E(i) be the expense in element i. Let RD(i), PF(i), and UC(i) be the revenue driver, productivity factor and unit cost in element i. Then:

E(i) = RD(i)*PF(i)*UC(i)

The operations expenses are driven by the operations organization chart, which in turn looks to the revenue base for the business. Let us begin by considering a simple business example.

Example:

The company, called DENTACOMP, makes a Dental Billing computer support package that it sells directly to Dentists in a specific state. The package runs on an IBM computer and requires a modest level of customer service support. The organization is structured as follows:

1.0 Sales

1.1 Sales Force

2.0 Development

2.1 Software

2.2 Product

3.0 Operations

3.1 Customer Service

3.2 Installation

4.0 Administrative

The sales are driven by the number of new dentists to whom the product can be sold. The development effort is a ongoing effort, and the effort is at a fixed level, independent of the size of the customer base. The customer service depends upon the total number of dentists and the installation on the number of new dentists. The administrative expense depends upon the total number of employees.

Let No Den be the number of dentists and No New Den the number of new dentists. Then we have:

No Sales Persons = No New Den / (No New Den/Sales Per)

Let us say that a good sales person can sell two dentists per week. Thus on an annual basis (assuming 50 work weeks per year):

No Sales Persons = No New Den/(2*50)

or

No Sales Persons = No New Den / 100

If the direct salary of a sales person is $60,000 per year, then the cost per sale is $600.

In a similar fashion, we can say that the number of software persons i.

No SW Persons = 5 + No Den / (No Den/SW Person)

This is a fixed plus variable amount. In this example, the ratios of No Den/SW are called the productivity factors. The total manpower loading is then the product of the revenue driver times the productivity factor. The revenue driver is obtained from the revenue statement and the productivity factor from business experience in this type of business. One must be careful to validate the revenue driver.

There are two factors that must be kept in mind when developing the expenses for a new business:

1. Many functions have to be performed. All too often the entrepreneur will forget to include functions that are necessary for the survival of the business. Typically these may be quality assurance, or an adequate billing or customer service organization.

2. Unrealistic productivity factors. Many proposed businesses have productivity factors that have no relationship to reality. The entrepreneur must investigate from his own experience as well as that of others, what are the typical productivity factor. Can the entrepreneur improve on those factors, or may he be forced into less productive modes during start up?

The direct salary expense, therefore, for each organizational element can be expressed as the product of the following factors:

o RD : Revenue driver

o PF : Productivity factor

o UC : Unit cost or Salary per employee

Thus the expense per element is:

E = RD*PF*UC

and the number of employees i.

N = RD*PF

The non direct employees such as administrative personnel are driven from the total direct employee base, multiplied by their productivity factor. Thus, for example, there may be 10 direct employees per G&A employee.

The total employee base can thus be obtained this process. The overhead is also obtained in a similar process. The overhead elements were mentioned previously. They too are driven by drivers, productivity numbers and unit expenses. Let us take travel as an example. The travel expense is driven by the number of employees, and the productivity factor is the expense per employee. The product is the total travel expense.

A second example is rent. Rent is driven by the number of employees, the square feet per employee, the cost per square foot, and thus the total rent expense.

In a similar fashion, all other direct expenses can be determined. These may be expenses that relate to the business operations. For example if the business operates a telecommunications network, then this network costs and its associated operations is a separate expense in terms of the fees that are paid to a third party telecommunications carrier.

The following example details the expenses, both direct and indirect, for a business that runs a reservations service.

Example:

This business operates a reservations service for Bed and Breakfast Inns (B&B) and provides a real time reservation capability. The company has developed a computer based reservations service that it believes the B&B industry could effectively use to increase their level of reservations. The company intends to support this service with advertising and a full service 800 number service to attract upscale customers to the affiliated B&B establishments. The company will place computer terminals, that will assist in the reservations process, at each of the B&B locations. In addition, the company will operate

a national data communications network to confirm reservations and guarantee payment through a credit card clearing network interconnection. Table 7.2 depicts the revenue drivers and Table 7.3 depicts the expense numbers.

Let us begin by considering Table 7.2, the revenue table, in detail. The revenue is derived in the following fashion:

o The primary driver for the revenue is the number of establishments, B&B s, that the company sees in the market for each year of the business. These are not customer establishments, but represent the total market potential. Note that in the first year there are 4,000 establishments and in the tenth year this has grown to 9,432.

o The second element is the number of rooms per establishment. In this example it is fixed at 8 rooms, on average, per establishment.

o The third factor is the rate charged per room at the existing market establishment. Note in this example we anticipate a significantly increasing rate per room per night.

o We then include the occupancy rate for each establishment.

o The product of the above factors yields the total revenue in this present market, independent of this business. These numbers are based upon actual data and show a market of $500 in 1986 and growing to $2.7 billion in 1995.

o The total number of rooms in the target market can also be calculated.

o The next factor is the most important. It is the market penetration. It says, for example, that the business anticipates capturing 10% of the total market in the first year. This means that it will capture 400 establishments. It is not yet clear in this model how many establishments have to be visited to get to that number or how many people are required to attain it. Note that in 1995 it anticipate 50% penetration, and with the total market size in that year, we have 4,716 establishments.

o The next factor depicts the total number of rooms sold.

o The Revenue base is the products of total rooms and average rate per room, including occupancy. This is the gross revenue base against which commissions are obtained.

o The reservation fee is the fee that the company expects to attain as a result of providing the service. In this case it is 12%.

o The total revenue is merely the total business base times the reservation fee. The business has a revenue of $5.9 million in its first year and grows to $165 million in its tenth.

This revenue model describes the way revenue is generated in the business. It is driven by the acquisition of new B&B establishments. We can now use this to determine, in detail, how this relates to the expenses in this business.

Table 7.2 B&B Revenue

Year	1986	1987	1988	1989	1990	1991
No of B&B	4,000	4,400	4,840	5,324	5,856	6,442
Rooms/BB	8	8	8	8	8	8
Rate/Room	$ 50.00	$ 55.00	$ 60.50	$ 66.55	$ 73.21	$ 80.53
Occupancy Rate	85	85	85	85	85	85
B&B Revenue	$ 496,400	$ 600,644	$ 726,779	$ 879,403	$ 1,064,077	$ 1,287,534
No Rooms	32,000	35,200	38,720	42,592	46,851	51,536
% Penetration	10	20	30	40	50	50
No B&B Sold	400	880	1,452	2,130	2,928	3,221
% BBI Allocation	55	65	70	70	75	75
No Rooms Sold	1760	4576	8131	11926	17569	19326
Revenue Base	27,302	78,084	152,624	246,233	399,029	482,825
Reservation Fee %	12	12	12	12	12	12
Revenue	$ 3,276	$ 9,370	$ 18,315	$ 29,548	$ 47,883	$ 57,939
Churn %	10	10	10	10	10	10
No New BB	400	520	660	823	1,012	586

The expense side of this business is depicted in Table 7.3. The company has decided to divide itself into the following elements:

o Marketing and Sales: Composed of:

o Marketing

o Sales

o Customer Service

o Billing

o Advertising

o Development: Composed of:

o Systems

o Software

o Hardware

o Operations: Composed of;

o Training

o Customer Interface

o Field Service

and finally;

o General and Administrative

The expense model follows the model developed in this chapter. For example, in the marketing area we have as the revenue driver, the number of cumulative customers. This is the total B&B establishments. In the sales area, we have, the number of new customers or new B&B establishments. In this case we see that we expect the sales staff to generate 20 sales per year. This leads to a sales staff of 20 in the first year, and growing to 43 in the tenth year. Advertising is all contracted out of the company to an advertising agency. It is entered as a fixed amount.

The G&A expenses are also fixed by the driver of total employees, and a productivity factor of 12 employees per G&A staff person. The sum of all of the salary expenses in this area yield the total salary. The overhead expense must now be added onto this base. The overhead expenses include the following:

o Travel: This is driven by the number of employees and the cost per employee per year.

o Auto Rental: We allot a small amount per employee per year for auto rentals.

o Spare Parts: In this business we have expensed the spare parts needed to maintain the terminals that are in the hands of the B&B operators.

o Equipment Leases: This may include any office furniture and equipment.

o Rent: Typically rent is based upon the cost per year per square foot. The square feet required is based on the amount per person, here it is 200 feet. The rent expense follows directly.

o Direct Overhead: This element include Social Security, pensions, taxes, benefits and other direct costs as a percent of base salary.

o Bad Debt: Revenue may be booked but the customer may never pay. Thus we list a bad debt expense as an uncollectible.

o Professional Expenses: These expenses are for accountants, attorneys and other professionals.

o Insurance: This is for liability and property insurance.

In this example we see that the total salary expense is $4.003 million in the first year and the overhead is $4.714 million. The total expense is $8.716 million. Typically the overhead expenses are equal to or exceed the direct salaries.

This example clearly indicates how the expenses directly relate to the revenue plan and that the overhead expenses are also related to the revenue through the direct salary and staffing plan. This is typical of many business, especially those in the early start up mode.

Table 7.3 B&B Expenses

Year	1986	1987	1988	1989	1990	1991
Mktg & Sales						

Mktg						

No Customers Cum.	400	880	1452	2130	2928	3221
No Cust/Mktg	200	200	150	150	100	100
No. Mktg	2	4	10	14	29	32
Sal/Mktg	50	50	50	50	50	50
Mktg Expense	100	220	484	710	1464	1611
Sales						

No New Customers	400	520	660	823	1012	586
No New Cust/Sales	60	60	60	60	60	60
No. Sales	7	9	11	14	17	10
Sal/Sales	30	30	30	30	30	30
Sales Expense	200	260	330	411	506	293
Cust Service						

No Customers Cum.	400	880	1452	2130	2928	3221
No Cust/CS	200	200	250	300	300	300
No. Cust Svc	2	4	6	7	10	11
Sal/Cust Svc	25	25	25	25	25	25
Cust Svc Exp	50	110	145	177	244	268
Billing						

No Customer	400	880	1452	2130	2928	3221

No Cust/Billing	200	200	200	150	150	100
No. Billing Emp	2	4	7	14	20	32
Sal/Bill Emp	25	25	25	25	25	25
Billing Exp	50	110	182	355	488	805
Advertising	500	500	1282	2068	3352	4056
Mktg & Sales Exp	900	1200	2423	3722	6054	7033
No. Mkt/Sale Emp	13	22	34	49	75	85
Development						

Systems						

No Cust	400	880	1452	2130	2928	3221
No Cust/SE	100	100	75	75	75	50
No. Sys Engr	4	9	19	28	39	64
Sal/Sys Engr	45	45	45	45	45	45
Sys Engr Exp	180	396	871	1278	1757	2899
Software						

No New Customers	400	520	660	823	1012	586
No New Cust/SE	150	150	100	100	100	75
No. Software Engr	3	3	7	8	10	8
Sal/Sw Engr	45	45	45	45	45	45
Software Engr Exp	120	156	297	370	455	351
Hardware						

No New Customers	400	520	660	823	1012	586
No Cust/HW	400	400	400	400	400	400
No. Hardware	1	1	2	2	3	1
Sal/Hdw	40	40	40	40	40	40
Hardware Exp	40	52	66	82	101	59
Engr Exp	340	604	1234	1730	2313	3309
No. Engr Emp	8	14	28	39	52	74
Operations						

Training						

No Cust	400	880	1452	2130	2928	3221
No Cust/Train	100	100	150	150	200	200
No Train	4	9	10	14	15	16
Sal/Train	27	27	27	27	27	27
Train Exp	108	238	261	383	395	435
Customer Interface						

No Cust	400	880	1452	2130	2928	3221
No Cust/CI	150	150	150	150	200	200

No CI	3	6	10	14	15	16
Sal/CI	25	25	25	25	25	25
CI Exp	67	147	242	355	366	403
Operations Exp	175	384	503	738	761	837
No Ops Emp	7	15	19	28	29	32
Field Service						

Field Service Engr						

No Cust	400	880	1452	2130	2928	3221
No Cust/FS	50	50	35	35	30	25
No FS Emp	8	18	41	61	98	129
Sal/FS	20	20	20	20	20	20
FS Exp	160	352	830	1217	1952	2577
Field Ser Exp	160	352	830	1217	1952	2577
No FS Emp	8	18	41	61	98	129
G & A						

No. Employee	35	68	122	177	254	320
No. Emp/G&A	12	12	12	12	12	12
No. G&A	3	6	10	15	21	27
Sal/G&A	75	75	75	75	75	75
G & A Exp	219	423	764	1107	1587	1998
Overhead						

Travel						

No. Employee	47	80	134	189	266	332
Travel/Emp	10	10	10	10	10	10
Travel Exp	470	797	1342	1891	2660	3317
Auto Rental						

No. Employee	47	80	134	189	266	332
Exp/Emp	1	1	1	1	1	1
Auto Rental Exp	47	80	134	189	266	332
Spare Parts						

No Modems	400	880	1452	2130	2928	3221
Exp/Modem	0.50	0.50	0.50	0.50	0.50	0.50
Spare Parts Exp	200	440	726	1065	1464	1611
Equip Lease						

No Cust	400	880	1452	2130	2928	3221
Equip/Cust	0.30	0.30	0.30	0.30	0.30	0.30

Equip Lease Exp	120	264	436	639	878	966
Rent						

No. Employee	47	80	134	189	266	332
Sq.Ft./Emp	200	200	200	200	200	200
Exp/Sq. Ft.	20	20	20	20	20	20
Bldg Exp	188	319	537	757	1064	1327
Direct O/H						

Total Salary	1793	2963	5754	8515	12668	15754
% DOH	24	24	24	24	24	24
Direct O/H Exp	430	711	1381	2043	3040	3781
Bad Debt Exp	66	187	366	591	958	1159
Profess Exp						
Total Salary	1793	2963	5754	8515	12668	15754
% Prof Exp	10	10	10	10	10	10
Prof Exp	179	296	575	851	1267	1575
Insurance						

Assets	420	840	1273	1730	2222	2085
% Assets	1	1	1	1	1	1
Insurance Exp	70	196	379	608	980	1180
Total O/H Exp	1770	3290	5876	8635	12577	15246
Transmission Exp						

No B&B	400	880	1452	2130	2928	3221
No Calls/Day/B&B	5	5	5	5	5	5
Exp/Call	0.60	0.60	0.60	0.60	0.60	0.60
Call Exp	438	964	1590	2332	3206	3527
No Rooms Sold	1760	4576	8131	11926	17569	19326
No Reserv/Day/Room	2	2	2	2	2	2
Time/Reserv	0.20	0.20	0.20	0.20	0.20	0.20
Resv Connect Time	4283	11135	19786	29019	42752	47027
Exp/Connect/Hr	2.40	2.40	2.40	2.40	2.40	2.40
Connect Exp	10	27	47	70	103	113
Telecom Exp	448	990	1637	2402	3309	3640
Net Oper. Exp	4012	7244	13267	19551	28554	34640

Example:

Consider the case of a distributed sales organization (DSO) business, wherein the sales companies, such as Avon and others, have field sales persons that need to communicate with a central location for the purpose of inventory management and funds transfer. One of the factors that must be present in operations section of the plan is the introduction of the employee ratios. These ratios allow the business developer to determine how effective the overall plan will be in meeting the competition and in making its overall corporate goals. We shall use the DSO business as a base to develop these ratios.

The four following employee ratios are typically calculated. The are:

o Revenue/Employee: This is a measure of how effectively the company generates revenue. A company with high revenue per employee is one that highly leverages its employees and is probably using high value added or is a strong user of technology.

o Expense/Employee: This measure will allow the analyst to determine what factors are being attributed to the employees. A low cost per employee may mean tight controls on overhead or a low paid work force. A low paid work force may be a short term advantage but in the long term, cost cutting may lead to the loss of key personnel.

o Net Operating Income/Employee: This measure is the difference between the total income and the net expenses, on a per employee basis. It is a natural outcome of the first two ratios. It shows how profitable each employee can be.

o Capital/Employee: This is a measure of how capital intensive the business is. We shall consider this ratio in more detail latter in this chapter.

These ratios are depicted in Figure 7.2 for the DSO business.

Figure 7.2 DSO Ratios

Using this as an example we can state a great deal about the nature of this business.

o Revenue/Employee:

This ratio from $130,000 to $170,000 per employee per year. As we have discussed in the first part of the book this generally is a labor intensive business. We can compare this to the salary per employee to get an additional measure of the revenue to direct salary dollar.

o Expense/ Employee

This ratio initially exceeds the revenue indicating a loss for the business. It fluctuates for this business due to the nature of the sales effort required for the continued introduction of the product.

o NOI/Employee

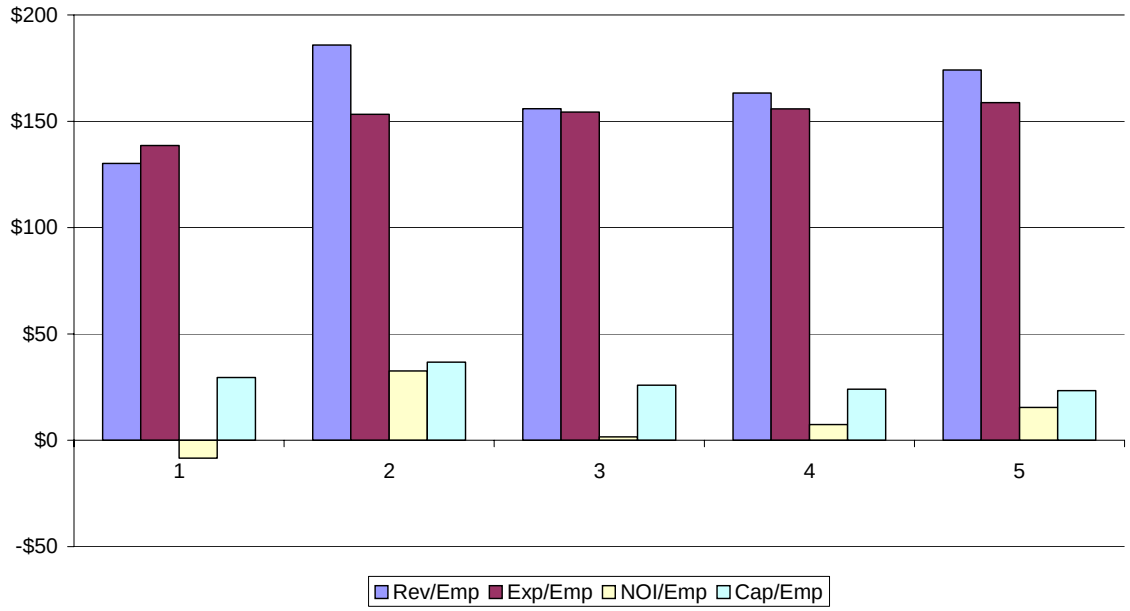
Initially this is negative but begins to grow more positively. Note that it also fluctuates. The analysis of this number will be important in the labor intensive business as we have discussed before.

o Capital/Employee

Note that this is not a capital intensive business. The capital per employee is very small thus resulting in a small capital per revenue or large revenue per capital dollar.

It is suggested that these ratios be developed for all possible business plans. They typically will be calculated by the investors and will be compared to ratios that are typical in similar industries. What we shall find as we progress through the financial parts of the business plan, is that there are often many simple ratio checks as these that experienced investors will use in determining the viability of the business. It is important that the entrepreneur develop an intuitive feeling for these so as to defend the plan. In latter stages of the business, they will return as measures of ongoing operational effectiveness.

Figure 7.2 DSO Revenue Ratios ($000)



Year	1	2	3	4	5	6
Rev/Emp	130	186	156	163	174	219
Exp/Emp	139	153	154	156	159	171

NOI/Emp	-8	33	2	7	15	48
Cap/Emp	29	37	26	24	23	29

Example:

Consider the case of a computer terminal manufacturer, Digital Transport Inc. The company is developing a device that will allow for the simultaneous use of voice and data over the same telephone line. The company needs to market this product to the end user, such as a bank, as well as to the telephone companies. The company has decided to also be the manufacturer for the product and provide for the installation and operations support of the product. The company has been organized with following elements:

o Marketing and Sales: Providing the standard functions.

o Telco Interface: Providing the special interface support needed to ensure that the product is sold to and serviced to the local telephone companies. Failure to succeed in this area will cause a failure in the business.

o Engineering: This group performs the standard engineering functions.

o Manufacturing: The company has decided to manufacture the product through internal board assembly and testing. It feels that this is necessary to ensure the quality of the product and to demonstrate that quality to the telephone companies who are concerned about that issue.

o Operations: This function supports the product at the company's premises after is has been shipped. It will control new software releases.

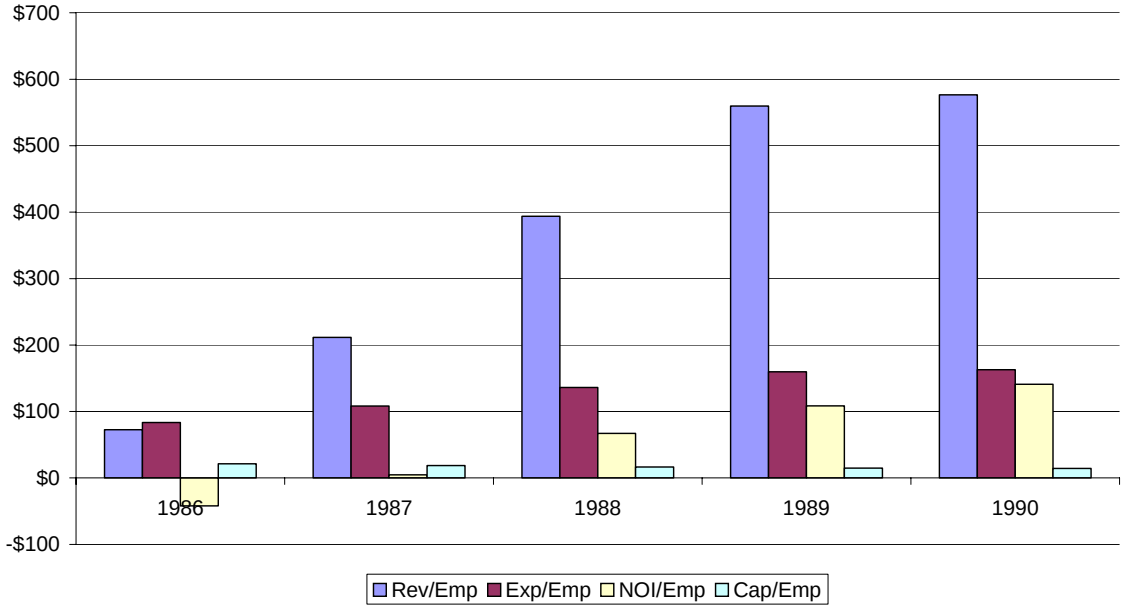
o Field Service: This performs the standard field service functions.

Figure 7.3 depicts the salary expenses for each of these segments over the first five years of the business. Note that the Marketing and Sales element is the largest for all the business operations. Thus this indicates that this is really a marketing driven business. The second element of the expenses is the engineering. One should be careful here with the manufacturing element since we do not expense them since they are part of the cost of goods and not part of the operating expense. We shall discuss this in the next section.

What this analysis does for the planner is to better understand what the major emphasis of the business is. In this case we have found that it is marketing and sales driven. We could at this point look at the operations and field service elements and see that they are quite small. This may cause some concern since this assumes that the product will be of such a high quality that it will require little effort to support once it is sold. This observation may send the planner back to evaluate the quality assurance program to see if it meets the standards required in the operating expense assumptions.

It is thus suggested that this form of analysis be performed by the planner, as well as ratio analyses. By performing both of these analyses, the planner can better understand the business and how it positions itself with its competition.

Figure 7.3 Digital Transport Expense Roll Out



We can now consider an example that contains all three of the element that we have developed in separate examples. In this example we demonstrate the organization, the relationship of the key ratios and the actual comparison of the specific organizational expenses. Recall, that when looking at the organization, we can develop the overall model for the expenses. When we look at the ratios, we can better understand the productivity and effectiveness of the business. Finally, when evaluating the expenses, by category, we can determine what type of business we are actually operating.

Example:

MiniSAT was a business that developed a small satellite terminal and also operated the satellite communications system that provided a communications service to users of IBM terminals. Table 7.4 represents the operations organization for the business. It follows the lines that we have developed for the other businesses.

Figure 7.4 depicts the key ratios for this business for three of the operating years; years 1,5 and 7. Note that for this business the revenue per asset dollar is only $0.41 in year 1 and grows to $1.99 in year seven. This is a capital intensive business. The revenue per employee grows from $148,000 to $298,000. It develops from a labor intensive to a non-

labor intensive business. What is important with this example is that a business may grow from one extreme to another. The management must recognize this and manage the development of the operations organization accordingly.

For this same example, Figure 7.5 shows the ratios in percent of the expenses under two scenarios. The first is that the satellite terminals are sold and the second is that they are leased. The key point is that the figure shows the expenses as percentages. Also note that the percentages change from year to year. By looking at the expense as percentages of the total, we get a better perspective of the change in the business mix.

Table 7.4 MiniSAT Organization

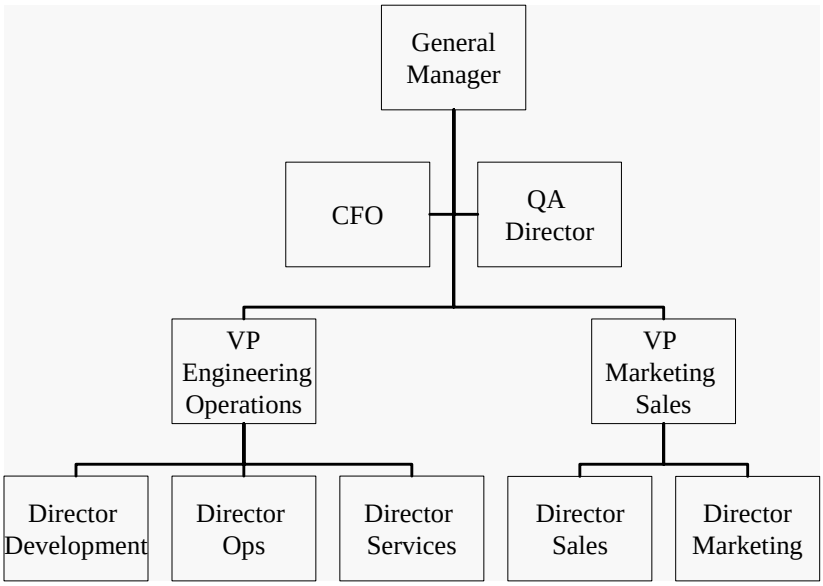


Figure 7.4 MiniSAT Ratios

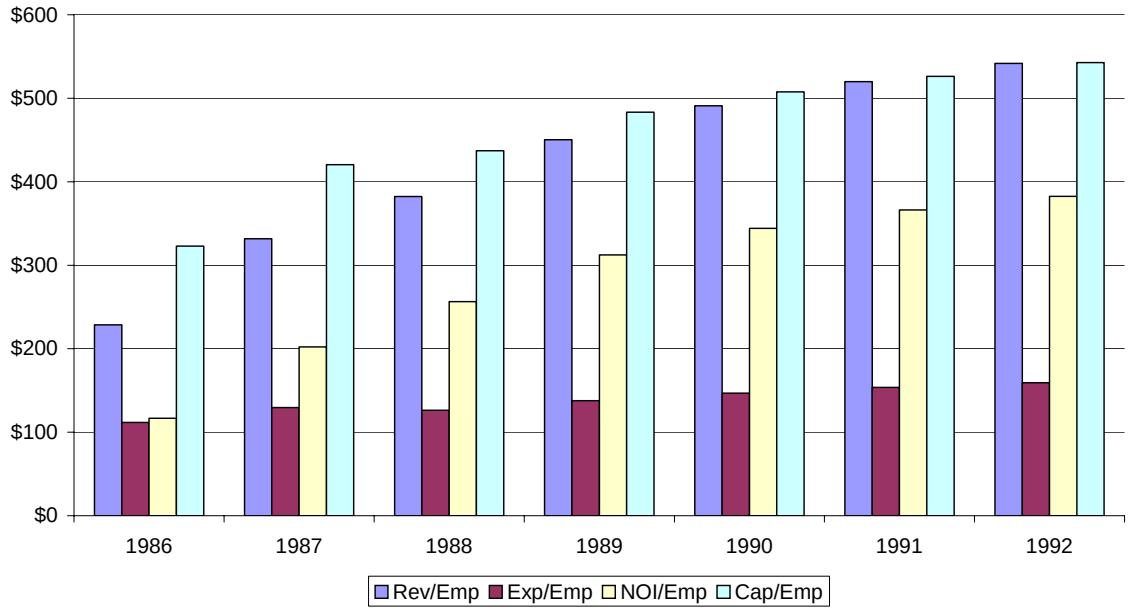
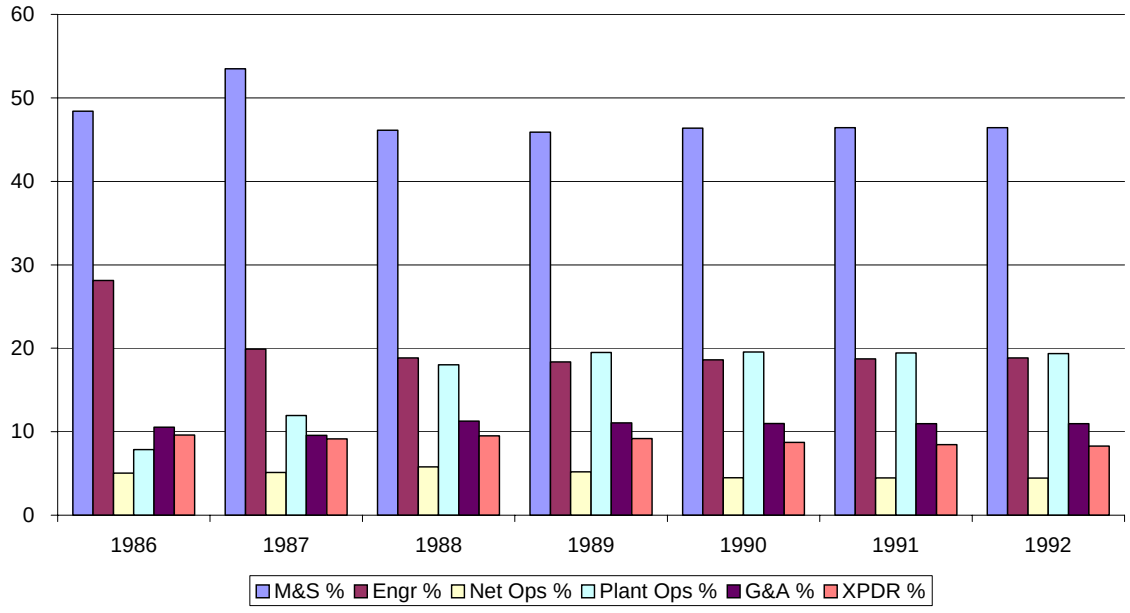


Figure 7.5 MiniSAT Expense Percentages



From these preceding examples, we find that it is important not only to develop the organization, and the expense model, but to analyze the expense relative to each another and relative to the business. Specifically the following three charts should be available:

o Ratios relative to the employee; specifically ratios of revenue, expenses, income and capital. These ratios provide measure of organizational productivity.

o Growth of expense in an absolute value for each segment. This will provide a clear understanding of the major focus of the business and may provide insight into areas that are lacking proper attention.

o Change in expense percentages, by functional area, for each segment in key years. These percentages will allow the developer to understand what type of business is being considered. As indicated, large percentages in marketing and sales may indicate a sales driven business. This may create a long term problem if there is strong technical innovation and competition in the business.

The operations expense section should thus detail an understanding of the business, how it changes in form as it develops, the management strategy to handle that change, as well as the set of absolute dollar numbers.

7.3 CAPITAL REQUIREMENTS

As with the expenses, the capital is also driven by the revenue from the business. In this section we shall briefly describe the capital model. It follows directly from the expense model. A similar approach is taken in the development of the cost of goods model which is discussed in the next section.

The capital is broken down into its separate elements. For example if the business is computer driven, then the capital is CPUs, communications equipment, and memory. These are the three capital elements. If the business is manufacturing driven, then there are test machines, assembly machines, and packaging machines. The capital per capital elements is given in terms of the following elements:

o RD: Revenue Driver

o PF: Productivity Number

o UC: Unit capital of the cost per capital element

Thus we can divide the capital into its basic set of elements, e.g. computers, modems, fiber links and others. Then the size of these individual capital elements can be determined as above. For example if the i th element is fiber in miles of installed fiber, then if RD(i) is the revenue driver in terms of the number of customers, PF(i) the productivity factor in miles of fiber per customer, and UC(i) the unit capital in capital per fiber mile, we can develop the total capital required to meet the revenue model as:

$C(i) = RD(i)*PF(i)*UC(i)$

Which is identical to the expense numbers. This can then be performed for all of the individual capital elements.

Example:

Let us consider a simple example of a business that provides computer services on a time sharing basis. Each user has a need for 1 MIP (Millions of Instructions per second) of capacity. The cost per MIP is $50,000. Thus for 100 users on the system we have:

$C = 100*1*\$50,000$

or

$C = \$5,000,000$

As the user base grows, so too does the capital requirements. The following example depicts the capital for a service bureau business.

Example:

The DSO service bureau services several companies and each company has several thousand sales representatives (SR s). The SRs, as they are known, present a computer and communications traffic load onto the system. To meet this load the system must have the CPU, memory and communications capacity. Table 7.4 depicts the revenue drivers and Table 7.5 the Capital model.

Let us first begin by considering the revenue model for this business.
o The first element is the total number of companies that have been signed onto the service. In this case it is 2 in the first year and grows to 22 in the tenth year.

o Each company has Sales Representatives (SR) who visit homes and sell their company's products. We assume that each representative sells products in groups, starting with 80 sessions per SR per year in the first year and decreasing to 45 per year in the tenth year. For example, this may be 45 Tupperware parties per year per SR.

o The next factor is the number of sales representatives per company. In the first year it is 200,000 on average and as the business expands it addresses the smaller companies so that by the tenth year it drops to 60,000 SRs on average.

o We assume that this service is not for all the SRs. Thus we begin with only 5% penetration and go to 30%.

o We then can determine the total number of transactions per year, directly from the number of SRs and the transactions per SR.

o This also allows for the calculation of the number of active SRs;

o Then the assumption of an annual fee of $400 per year per SR;

o And a total number of transactions, 1.6 million growing to 17.8 million;

o Charging $2 per transaction for the service;

o Showing the total revenue being the sum of the fee revenue and the process revenue. It should be clear that this is a process revenue based business.

This analysis of the revenue of the business allows for an understanding of the sources of the revenue and the positioning of the business as being all service oriented. We can now use this revenue model to develop the capital model for the business. As shown in the capital model in Table 7.6, we have three capital elements in this business;

o CPUs or computers capacity. We assume that we can modularly expand the computer capacity as the customer base grows. This is possible today with the use of such computers as the Digital Equipment VAX family of computers.

o Memory: The memory is needed as we expand due to the need to store more data.

o Modems: As we add on new customers, we need to have modems to communicate with them over the phone lines.

Using this structure, we can now consider each of the capital elements and determine the amount needed and the new amount required in each year. Note that we start the top of the capital model with initial capital and net capital. Initial capital is that capital that the company has prior to this operation plan. Throughout this book we shall assume that it is 0. The net capital is the capital that the company has at the end of the previous year and is used as the base of the new year.

Now let us examine the CPU requirements. The revenue driver here is the number of transactions per minute. This we found on the revenue model. The productivity factor is the CPU capacity in MIP s per transaction per minute. In year 1 we see that the system has 27 transactions per minute. The CPU requires 7 MIP s per transaction per minute capability to handle that rate of transactions. The unit capital cost is $100,000 per MIP.

Thus the total capital in the first year is $400,000 for the CPU. We can perform the same analysis, as is indicated in the Table, for the other two elements.

This then leads to the lines at the end of the capital model. These are:

o Total New Capital: This is the capital required in the year indicated to support the added business. It may also include new capital to support retired capital plant. This is especially true in the outer years of the plan.

o Total Capital: This is the total capital that is on the books of the company. In the first year it is the new capital. In latter years it is the sum of the new capital, plus the capital from the past year, less the depreciation. It should be noted that the net capital of the next year is the total capital less the depreciation.

o Depreciation: This represents the allocation of a depreciation expense on the capital model. Depreciation is a measure of the reduction if the effective use of capital in its capability to support revenue generation. There are many ways to develop a depreciation schedule, but for simple purposes, we shall assume a fixed lifetime, in this case 10 years, and use one tenth per year of the capital value at the time of purchase as the capital depreciation. Thus in this example, we see that in the first year we purchased $1.267 million and depreciation was $126,700, or one tenth the amount.

o ITC or investment tax credits were allowed until 1987. They were credits towards taxes as an incentive for capital investment. They no longer apply.

Table 7.4 DSO Revenue

Year	1	2	3	4	5	6
No Companies	2	5	8	10	12	14
No Trans/CR/Year	80	70	60	50	45	45
No SR/Co(000)	200	170	120	90	75	75
% Penetra	5	8	10	15	20	25
No Trans (000)	1600	4760	5760	6750	8100	11813
Gross Rev/Trans	400	400	300	300	300	300
No SR(000)	20	68	96	135	180	263
Yearly Fee/SR($)	120	120	120	120	120	120
Fee Rev	2400	8160	11520	16200	21600	31500
No Trans(000)	1600	4760	5760	6750	8100	11813
Rev/Trans($)	2	2	2	2	2	2
Process Rev	3200	9520	11520	13500	16200	23625
Revenue	5600	17680	23040	29700	37800	55125

Churn	10	10	10	10	10	10
No. New Companies	2	3	4	3	3	3
No. Companies	2	5	8	10	12	14
Rev/SR($)	280	260	240	220	210	210
Rev/Comp	2800	3536	2880	2970	3150	3938

Table 7.5 DSO Capital Model

Year	1	2	3	4	5	6
Initial Capital	0	0	0	0	0	0
Net Capital	0	1140	3127	3400	3839	4424
No Trans/Min	27	79	96	113	135	197
CPU Cap/TPM	15	12	10	10	10	10
New CPU Cap	400	552	8	165	225	619
CPU Capital	400	952	960	1125	1350	1969
No SR(000)	20	68	96	135	180	263
Mem/SR(MByte)	1	1	1	1	1	1
Cost/Mem($000/MB)	10	10	10	10	10	10
Mem Capital	200	680	960	1350	1800	2625
New Mem Cap	200	480	280	390	450	825
No Trans/Min	27	79	96	113	135	197
Hold Time/Trans	5	5	5	5	5	5
No Comm Inter	13	40	48	56	68	98
Capital/CI	50	50	50	50	50	50
Comm Capital	667	1983	2400	2813	3375	4922
New Comm Cap	667	1317	417	413	563	1547
Total New Capital	1267	2349	705	968	1238	2991
Total Capital	1267	3489	3832	4367	5076	7414
Deprecation	127	362	432	529	653	952
ITC	101	188	56	77	99	239

Note that on the capital model we obtain total capital and total new capital. The new capital is that capital added in the present year. The model may be made more precise if we increment the capital in increments that are typical for the capital addition. For example we may have to buy computers in large chunks of $500,000 rather then in $5,000. This detail factor associated with the actual purchasing policy may be added to the capital model after the fact.

There are many ways to calculate depreciation. We shall not go into them in detail in this book but refer the reader to such works as those of Welsch and Anthony. We assume throughout the book a straight line depreciation over the life of the equipment. There is no accelerated depreciation schedule assumed. Thus if the capital invested in year n is

C(n) and it has a life if M years, the annual depreciation for each of the M years is C(n)/M.

7.4 Cost of Goods Model

In those businesses where there are manufactured items that are placed into inventory, it is necessary to develop a cost of goods model. This model takes the goods that are manufactured and expenses those that are sold in what is termed the cost of goods and takes the items that are not sold and place them into inventory. The operations of the business must take this into account as both an expense as well as a cash flow item. Many hardware businesses find that a great deal of their cash goes into financing the inventory of unsold goods.

We shall not go into a great deal of detail in this section but shall defer detail to the chapter on financial analysis. Let us begin with some overall concepts. To manufacture an item there are two elements needed, labor and materials. For example, to develop a modem board we need chips and board materials and labor to assemble and test the board. Let us take a single board and examine it in some detail. We shall assume that the reader is familiar with the chips, but for those not a brief description follows,

On the material side, the board requires:

o CPU chip: This is the master processor chip which controls all of the signals on the board.

o UART chip: This is a communications controller chip that allows the board to talk to devices such as printers and other electronic devices.

o ROM chip: This chip contains no destroyable memory. It usually is the chip that contains the program that makes the board perform its special functions.

o RAM chip: This chip contains destroyable memory. It is used to store temporary data.

o Clock: This clock is used to keep all of the signals in synchronization.

o Gates: These are special purpose chips that allow for the interfacing of all of the other chips.

o Board: This is the physical board itself.

o Board assembly hardware: This may include connectors, mounting devices and power interfaces.

On the labor side the board requires the following efforts:

o Incoming inspection: Inspecting all of the new parts to ensure that there are no errors or defects.

o Purchasing: The preparation of purchase orders and the managing of the vendors to ensure on time delivery.

o Inventory support: The management of the inventory to keep parts available and secure.

o Board stuffing: The physical insertion of parts into each of the boards.

o Board soldering: The soldering of all of the inserted elements.

o Board inspection and test: The testing of boards on a static basis to ensure that all connections are correct and a dynamic testing to ensure logical performance of the board.

o Board burn-in and acceptance: Stress testing of each board to ensure that it meets all of the quality standards.

o Packaging: Assembling the boards into their respective packages.

o Warehousing: The storage of the boards as they await shipping to the customer.

Thus for a single board it will require $125 in parts and an allocation of $75 in labor. The labor estimate is based on the productivity of the employees and the layout of the manufacturing system.

During the flow of manufacturing, the product may be in one of four states:

o Unassembled: This is the parts and materials only stage.

o Partially Assembled: This is the work in process stage. In the WIP stage the board has all its parts allocated but only part of the labor.

o Finished Goods: In this stage the board is fully assembled but has not been sold.

o Sold Goods: In this stage the board has been sold and is out of the door. It is booked to sales.

Thus in the flow of the business, the board may fall into one of the three stages. We want to expense the last stage but we want to recognize that the other stages still represent assets to the company.

Example:

Let us consider the case of the company that makes the modem replacement devices and use this as a case to develop the issues that flow into the cost of goods model. At the beginning of its existence, the company starts out with no product and an empty warehouse. It will follow the following steps:

o First: The company will purchase raw materials. It knows that each finished product will require $100 in raw materials.

o Second: The company will assemble the units and it knows that it will cost $75 per unit in direct labor and $45 in an allocated manufacturing overhead.

o Third: It will require inventory of raw materials, work in process (board assembled but only partially complete), and finished goods.

o Fourth: It will sell a fixed number of units in a year.

Table 7.6 depicts the evaluation of the cost of goods and unit cost of goods for this product. Let us begin at the top and move down the analysis to understand the total.

o Units Sold: This is the total sold in the year.

o Finished Goods (FG): Units in inventory but not sold:

o Start Year wit.

o End Year with 30% of 2000, or 200.

o Work in Process (WIP): Units partially assembled.

o Start with.

o End year with 35% of 2000, or 700 partials.

o Raw Materials (RM) : Parts per assembled unit.

o Start wit.

o End Year with 40% of 2000 or 800 units worth of RM.

o Labor and materials per unit:

o Raw Material (RM) of $100

o Direct Labor (DL) of $75

o Manufacturing Overhead (MOH) $45

o Total Raw Material purchased equals:

o Units sold, plus

o Units to Finished Goods, plus

o Units to WIP, plus

o Units to increase Raw Materials Inventory

o Total Labor is:

o Labor % for WIP times DL and Manufacturing OH

o Labor for FG in units times DL and MOH

o Labor for Sold Units times DL and MOH

o Cost to Manufacture equals all cash flow items:

o Total Raw Materials purchased

o Total Labor

o Costs of Goods Manufactured equals costs allocated to Finished Goods and Units sold; it is Cost to Manufacture Less increase in WIP.

o Cost of Goods Sold equals cost of goods actually manufactured less the cost of goods increased in finished goods inventory.

Table 7.6 Cost of Goods Model

Year	1	2	3	4	5	6
Units Sold (000)	4.28	22.94	68.01	145.67	177.90	183.89
Begin Fin Goods	0.00	0.43	2.29	6.80	14.57	17.79
FG % Sales (Units)	10%	10%	10%	10%	10%	10%
End FG	0.43	2.29	6.80	14.57	17.79	18.39

Change FG (Units)	0.43	1.87	4.51	7.77	3.22	0.60
Begin WIP	0.00	0.34	1.84	5.44	11.65	14.23
WIP % Sales (Units)	8%	8%	8%	8%	8%	8%
End WIP	0.34	1.84	5.44	11.65	14.23	14.71
Change WIP (Units)	0.34	1.49	3.61	6.21	2.58	0.48
Begin Raw Mat	0.00	0.26	1.38	4.08	8.74	10.67
RM % Sales	6%	6%	6%	6%	6%	6%
End RM	0.26	1.38	4.08	8.74	10.67	11.03
Change in RM (Units)	0.26	1.12	2.70	4.66	1.93	0.36
Raw Mat/Unit	190	190	190	190	190	190
Direct Labor/Unit	60	60	60	60	60	60
Man OH/Unit	50	50	50	50	50	50
No Units Sold	4.28	22.94	68.01	145.67	177.90	183.89
No Units to FGI	0.43	1.87	4.51	7.77	3.22	0.60
No Units to WIPI	0.34	1.49	3.61	6.21	2.58	0.48
No Units to RMI	0.26	1.12	2.70	4.66	1.93	0.36
Total RM Units	5.31	27.42	78.83	164.31	185.64	185.32
RM($)/Unit	$190	$190	$190	$190	$190	$190
RM Costs ($000)	$1,009	$5,210	$14,977	$31,219	$35,272	$35,211
% Labor/WIP Unit	35%	35%	35%	35%	35%	35%
No Units Sold	4.28	22.94	68.01	145.67	177.90	183.89
No Units FGI	0.43	1.87	4.51	7.77	3.22	0.60
No Units WIPI	0.34	1.49	3.61	6.21	2.58	0.48
Total DL&MOH Units	4.83	25.33	73.78	155.61	182.03	184.65
DL/Unit	$60	$60	$60	$60	$60	$60
MOH/Unit	$50	$50	$50	$50	$50	$50
DL Costs	$290	$1,520	$4,427	$9,337	$10,922	$11,079
MOH Costs	$241	$1,267	$3,689	$7,781	$9,102	$9,233
Total Labor	$531	$2,786	$8,116	$17,117	$20,023	$20,312
Total Costs ($000)	$1,540	$7,997	$23,093	$48,336	$55,295	$55,523
Change in RMI	$49	$213	$514	$885	$367	$68
Cost to Manufacture	$1,491	$7,784	$22,580	$47,451	$54,927	$55,455
Change in WIPI	$78	$341	$824	$1,420	$589	$109
Cost of Goods Manufactured	$1,413	$7,443	$21,756	$46,031	$54,338	$55,345
Change in FGI	$128	$560	$1,352	$2,330	$967	$179
Cost of Goods Sold	$1,284	$6,883	$20,404	$43,702	$53,371	$55,166

COGS/Unit	$300	$300	$300	$300	$300	$300
INVENTORY VALUES						
Begin RMI	$0	$49	$262	$775	$1,661	$2,028
Change RMI	$49	$213	$514	$885	$367	$68
End RMI	$49	$262	$775	$1,661	$2,028	$2,096
Begin WIPI	$0	$78	$419	$1,243	$2,663	$3,252
Change WIPI	$78	$341	$824	$1,420	$589	$109
End WIPI	$78	$419	$1,243	$2,663	$3,252	$3,361
Begin FGI	$0	$128	$688	$2,040	$4,370	$5,337
Change FGI	$128	$560	$1,352	$2,330	$967	$179
End FGI	$128	$688	$2,040	$4,370	$5,337	$5,517
Begin Inventory	$0	$256	$1,369	$4,059	$8,694	$10,617
Change Inventory	$256	$1,114	$2,690	$4,635	$1,924	$357
End Inventory	$256	$1,369	$4,059	$8,694	$10,617	$10,974
SALES FACTORS						
Number of Units (000)	4.28	22.94	68.01	145.67	177.90	183.89
Revenue/Unit	$693	$644	$620	$577	$634	$601
Revenue ($000)	$2,968	$14,765	$42,157	$83,987	$112,774	$110,546
Inventory Turn	11.62	10.78	10.39	9.66	10.62	10.07
Cost of Goods Sold	1284	6883	20404	43702	53371	55166
Inventory	256	1369	4059	8694	10617	10974

The cost of goods model is probably the most complex statement in the business plan. In the attached table we work through the steps in detail. It represents a flows of funds into the company and the management of those funds through goods sold and those kept in inventory. Note that the percent of units in inventory is a key factor in governing the cost of goods. By keeping more inventory each year, we effectively raise the cost of goods per unit. Thus the operations plan must articulate how the inventory is to be managed.

The inventory management problem is driven by such factors as the lead time on hardware components, the need to provide units into the distribution pipeline and other factors. The measure of the business is the turn on inventory. As we shall see in the next chapter, inventory is an asset not yet converted into cash. Thus it has to be financed with debt or equity. This implies that inventory must be managed. Turns of inventory of 4 or 5 are not uncommon.

Thus we can assign inventory values to raw materials, work in process and finished goods and find the expense of the cost of goods sold. We shall detail this in the next chapter which requires that we develop the balance sheet concept for the new company.

7.5 CONCLUSIONS

The operations and management section of the plan focuses on the operations of the business as it progresses as on ongoing entity. It stresses the ongoing functions of the business and the organizational needs of the business as it evolves. The net result is the organizational chart and the evolution of the expenses, capital and cost of goods model for the business. These are then to be combined with the revenue numbers generated in the marketing chapter and used for the financial analysis of the business.

The reader is cautioned on developing an operations plan for too short or too long a time horizon. In the examples in this book we have chosen ten years. That may or may not be correct. For example in a business with a short product life cycle such as a consumer product business, this may be excessively long. It may be impossible to predict the evolution of the business beyond five years at most. In large capital based service businesses such as the fiber optic business, fifteen years may have to be used to average over the lifetime of the capital asset. We shall discuss these factors in further detail as we discuss the financial modeling of the business.

CHAPTER 8 FINANCIAL STATEMENTS

The financial statements embody the business in a structured form permitting the financing entity as well as the entrepreneur to determine the strengths and weaknesses of the business. In many cases, these statements represent a level of expertise that frightens away the business plan writer. In this chapter we shall develop the framework for the financials that will allow the technically trained entrepreneur to readily develop a set of useful and presentable financials. Once the product and market are defined, the financials act as the backbone to the business plan.

In this chapter we shall develop the following set of financial statements:

1. *Revenue Statement: This forms the basis of the business. It builds upon the work that we developed in Chapter 4 and further demonstrated in Chapter 7. The reader should remember that the revenue statement is the driver of all of the other business statements that are developed in this book.*

2. *Capital Statements: These follow from the business structure and the revenue drivers. The capital statement reflects the way in which capital and depreciable assets are deployed. We shall treat the capital assets from a business perspective and leave tax variations to a separate section.*

3. *Cost of Goods: This statement provides a measure of the cost associated with the manufacture of the goods that are sold. It does not appear in a service business but it is the key ingredient of a hardware business. What is important is that it also accounts for the unsold good in the terms of the carried forward inventory. This element is important since it is necessary to fund inventory through working capital.*

4. *Expense Statements: This includes the cost of operations which for a service business represents the totality plus the cost of goods which applies to product businesses which have an assembly line.*

5. *Income Statements: These represent the revenue and expense items and also include the flow of cash. The cash flow statement is a stand alone statement that is frequently used as the basis of the business evaluation. We shall see in Chapter 10, how the cash flow statement is used as the basis of the business valuation.*

6. *Balance Sheet: The balance sheet is the basis for the business assets and its health. A good income statement only reflects a single year. The balance sheet will reflect how well the company can grow.*

7. *Financing Statement: This statement will act as the basis of funding the business and ensuring that it has the capital to meet its working capital requirements as well as its growth requirements.*

8. *Sources and Uses: This statement provides a description of where the money comes from and where it goes. The key point in this statement is that there must always be enough sources to balance out the uses. These sources may be from the business, from debt or from equity.*

9. *Cash Flow: The cash flow describes the workings of the business exclusive of external financing. It is a measure of how well the business by itself can generate cash. The cash flow statement tells the reader how well the business can support itself or how much money is needed.*

Figures 8.1 and 8.2 depict the interrelationship between these statements and the key variables that are part of them. In Figure 8.1 we depict the individual statements and their inter-relationships. In Figure 8.2 we further detail the elements of each of the statements. Again the reader should note that the revenue statement is a driver for all of the other financial statements. This is a continuing statement of the concept that the business should be marketing driven.

We shall be developing these schedules in the remainder of this chapter and will be referring again to these figures.

Our approach in the chapter is analytical and is directed at users who will place these statements on computers for the evaluation of various scenarios. With the advent of the PC and spreadsheets, the financial analyses are even more critical to the business plan and should be done with considerable detail and precision. The accuracy of the financials will usually depend most on the revenue and market projections.

Figure 8.1 Financial Interrelationship.

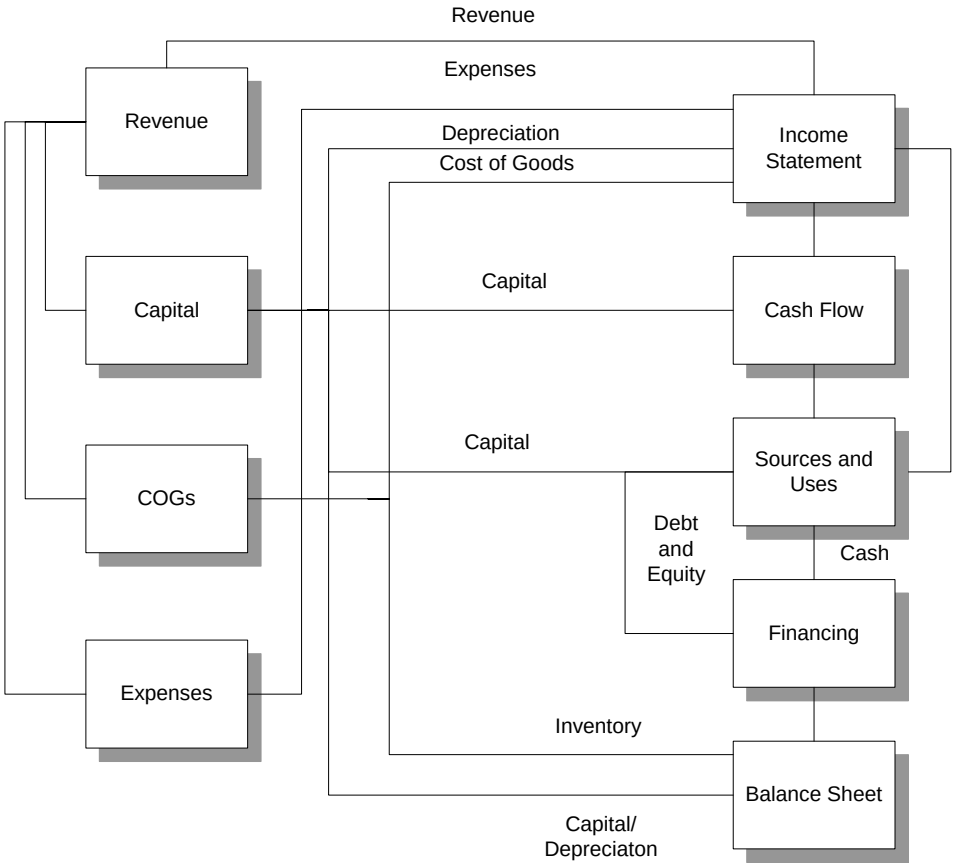
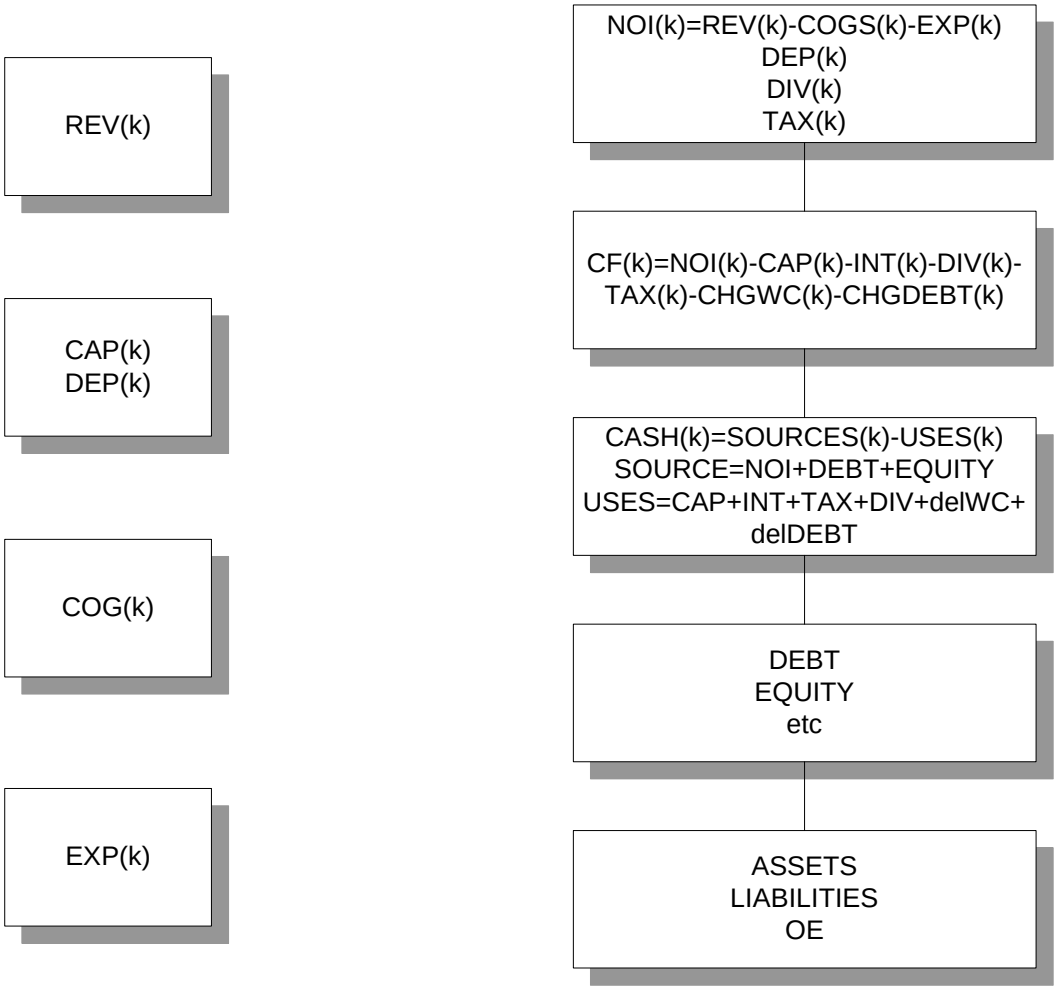


Figure 8.2 Financial Factor.



8.1 REVENUE STATEMENT.

The revenue statement will be the driver to all the other statements. It must reflect not only the sources of income but the factors that influence those sources. The basis divisions should be along market segments and product segment lines ,wherein there may be differences in the driving factors of the business development. In the prior chapters we developed the revenue statements as required to determine the total detail in the development of the revenue from the market data. In this chapter we focus upon the key elements that will appear in the financial portion of the business plan. This will be a slightly abridged version of the revenue model that was developed previously. In this chapter we shall be developing these concepts by using two businesses. We shall develop the statements for each of these businesses and allow the reader to make comparisons between a service business and a hardware business. These business are briefly described below.

Business 1: Infotel (Manufacturer).

The first is a manufacturing company called Infotel, which manufactures two major products and sells them in two channels. The first product is a low end communications controller which allows for the user to interconnect PCs to local area networks. The second product is a high end micro-message switch which allows arbitrary connection to any channel.

The two market channels are an OEM channel wherein the company sells to a value added reseller who integrates the product into a package of their own. The second channel is a direct distribution channel wherein the company sells the product directly to the end user.

The revenue drivers are the number of companies, the price per unit, the number of units and the growth in each segment. Also there is a churn factor which represents the number of totally new companies that must be reached each year in addition to those that are needed for growth. Churn represents the number or percent of old customers that are lost due to migration to competitors or to newer products. It is important to include the churn factor since the numbers of companies as well as number of new companies drive the marketing and sales expense. That is it is cheaper to market to an old buyer more so than find and market a new one, assuming that the product is good.

Business 2: OpTel (Service):.

OpTel is a fiber optic network communications supplier and as such is capital intensive and provides a bypass communications service to the user. It differs from a manufacturer in that there are no goods that it sells, only a service. However to sell the service, it must provide for a large plant and service infrastructure to support the customer. In addition, its sales are for longer periods, typically for a five year service contract. These contracts have a certain value to the business even if there is a cancellation clause. The revenue drivers in this business are :.

1. number of miles of fiber.
2. number of customers.
3. number of locations.
4. number of new customers.
5. number of new locations.
6. number of T1 or data channels per customer.
7. revenue per T1 or data channel per month.
8. new service revenue

The more fiber, the greater the number of locations, the higher the possibility of getting business. Yet there is a point of diminishing returns. If the customer base is concentrated, then there is no reason to expand the business to areas of low concentration. In addition if there are few T1 s per building there is little incentive to enter that building.

The revenue model for these two business can now be developed. Table 8.1 and 8.2 depict the revenue models for the businesses. In both cases, the revenue model starts with a logical expression of the revenue developed from the main revenue drivers. Segments and product lines are differentiated since they will latter have an impact on the business base. Then, there is a rollout of ten years of the business. The choice of the number of years is not arbitrary. In many of the plans that we have reviewed, they have only five years. That may be too short to truly evaluate the potential. On the other hand, in a product business, the product life cycle is often too short to allow for anything better. Thus a compromise must be met. A ten year period allows the investor to view the business from a longer term perspective and it forces the planner to envision follow-on products. This then provides the basis of a growth strategy.

Table 8.1 Revenue for Infotel.

Year	1	2	3	4	5	6
No Units Seg 1	3	15	47	108	138	134
% VAR	100	100	100	100	100	100
Units Seg 1	3	15	47	108	138	134
No Units Seg 2	0	1	1	3	5	6
% VAR	100	100	100	100	100	100
Units Seg 2	0	1	1	3	5	6
No Units Seg 3	1	7	22	47	71	87
% VAR	100	100	90	75	50	50
Units Seg 3	1	7	20	35	35	44
No Units Manufac	4	23	68	146	178	184
No Licencees	2	4	5	5	5	5
No New Licensees	2	2	1	1	1	1
No End User/Lic	100	150	200	200	200	200
No End Users	200	600	1000	1000	1000	1000
No New EU	200	300	200	200	200	200
Rev/Licensee	87	445	1966	4993	8423	7214
No VAR	7	14	21	25	32	35
No New VAR	7	8	8	5	8	4
No End User/VAR	100	145	180	210	210	210
No End Users	700	2030	3780	5250	6720	7350
No New EU	700	1218	1512	1008	1764	756
Rev/VAR	399	927	1539	2361	2208	2128
No RBOC	3	5	7	7	7	7
No New RBOC	3	2	2	0	0	0
Rev/RBOC	989	2953	6022	11998	16111	15792

Table 8.2 Revenue for OpTel

Year	1986	1987	1988	1989	1990	1991
No Miles(Trunk)	35	35	35	35	35	35
No Customers	4	21	48	97	157	232
No Locations (sites)	41	182	211	264	330	413
No New Bldg Entries	30	95	10	17	21	26
No Bldgs Entries Cum.	30	125	135	151	172	199
No Sites/Entry	1.38	1.46	1.57	1.74	1.91	2.08
No New Customers	4	17	28	48	60	75
No Entry/Customer	7.50	5.98	2.78	1.57	1.10	0.86
No T1/Customer	75	66	34	22	18	15
No T1	300	1369	1654	2156	2788	3580
No Bldg Entries	30	125	135	151	172	199
Rev/T1/Mo	500	543	594	650	692	723
Transmission Rev	$1,800	$8,924	$11,790	$16,822	$23,143	$31,058
No New Customers	4	17	30	53	70	91
Chg/NewCo/T1	3	3	3	3	3	3
Sign Up Rev	$900	$3,207	$855	$1,505	$1,896	$2,378
No New Drop	30	95	10	17	21	26
Cost/Drop/T1	0	0	0	0	0	0
New Drop Rev	$0	$0	$0	$0	$0	$0
Up Front Payment	$0	$0	$0	$0	$0	$0
TOTAL REVENUE	$2,700	$12,131	$12,645	$18,327	$25,039	$33,436

Let us now consider each of these two businesses in terms of their revenue statements and identify the key revenue drivers for each.

Business 1: (Infotel.)

In the Infotel case (Table 8.1), the revenue is developed along segments and then subdivided along product lines. There are three segments to the Infotel business; the asynchronous market, the IBM reseller market and the DEC (e.g. Digital Equipment Corp) compatible market.

For each of these markets the plan determines the total market size based upon an estimate of the total installed base of terminals. Then it delimits the market by those terminals that will have the proper access to telephone lines. Note that in the early years it

is a small number. Then the market is further delimited by the users for who it is appropriate. Then the penetration rates are applied, and finally a market share is determined. Using all of these delimiting factors for each of the segments, the revenue plan further assigns amounts to the two distribution channel alternatives; direct and VAR (e.g. OEM). The net result is the total revenue per segment.

In each segment, the number of companies are given, the units per company and the price per unit. Here the number of companies must track back to the market plan and must be achievable. The same is the case for the number of units. The price per unit is based upon the market pricing strategy. It is clear that the primary revenue drivers will be the number of customers to be sold in each of the three segments.

The revenue model then develops the segment revenues and then combines them to the total business revenue. This approach is identical to the approach that we have developed in detail in Chapter 4. The exact process of determining the numbers for penetration, and appropriateness, as well as the installed base require the application of the market research methods of Chapter 4.

There is also a summary chart at the bottom of the revenue model that allows for the key expense drivers. These include the number of companies, the number of new companies and the number of products.

Let us now continue the revenue analysis with the second business example.

Business 2:.

This is a more complex model of a revenue stream since there are factors that influence the business in many dimensions. In the preceding model the key drivers were the number of units and the number of customers. In this business, as mentioned before, there are several drivers. In Table 8.2 the revenue model uses these drivers to develop the base and then are to be used in the other financial elements. Here it is important to obtain the number of new drops in a building, and the number of new T1s since they will affect the capital and the expenses. The number of new companies will also directly affect the marketing and sales expenses.

There should be detailed backup for the revenue model in the marketing section of the plan. As we discussed in Chapter 4, the details will be based upon some form of direct contact with the target customer base. The revenue portion of the plan should focus on such issues as sensitivity to key assumptions, the breakout of the sources of the revenue and the summary of the pricing factors that are key to the success of the business. The market section has developed the revenue model in considerable detail. The revenue presented in the financial section should merely summarize what has already been developed in the market section. Thus the factors the should be focused on in the financial section of the plan are:.

Scenario or sensitivity analysis: There should be a discussion of what the impact will be to the business if the market does not develop as quickly as possible, or if the pricing cannot be attained, or if the market share is not as great. The entrepreneur should attempt to factor into the revenue analysis the sensitivity of the business to the key assumptions that were made in the development of the marketing plan.

Summary of price factors: The price factors assumed a reasonable and rational customer, with a similar type of competitor. In addition the pricing included costs for distribution associated with the mark up of the price. The financial section should expand on what the impact will be on the business if the competition fights heavily on price and the business is forced to reduce the price by 20% to 50%. Can the business survive. Can the business reduce the price to gain early market share and how quickly does it have to gain that share? .

o Revenue by business segment or element.: The plan should summarize the revenue ratios by such elements as segment or product element. For example, if there is a great effort to obtain revenue from a small segment that may be of strategic importance, this should be known. In addition, each product offering should be marginally profitable, at the least. If each segment and element are not profitable, the concept of loss leaders may be used, but the entrepreneur should remember that he may not be able to make it up in volume.

o Key Revenue Ratios: These should include the revenue per company, revenue per segment, revenue per end user, or any of the many ratios that we have already discussed. These ratios provide the investor with early warning signs of where the business is likely to find trouble.

The revenue section of the plan should carefully summarize the revenue and should also succinctly present the key factors relating to the revenue that will allow the investor to attain high confidence in both the top side of the business as well as its downside.

8.2 CAPITAL MODE.

The capital includes all those elements that are purchased by the company and have a lifetime that exceeds one year. They are the elements that are "capitalized" and then depreciated over time. In a highly capital intensive business, the capital is dedicated in the early phases when the expenses are small as compared to depreciation. One other element is the replacement costs of the capital base. The equipment has a lifetime and at its end must be replaced. The capital model must take this replacement into account. Thus the capital model must provide the following factors:.

o Business drivers from the revenue model that impact of the need for capital equipment.

o Capital drivers that reflect how much of a per unit capital equipment is needed for each of the business drivers.

o Capital per unit costs, or how much each unit of new capital will cost.

o Lifetimes of the capital equipment and replacement schedules.

o Depreciation and Investment Tax Credits.

o Total new capital and total capital.

Example:.

Let us use Business 2, OpTel, to shown how these variables are used. Let us start in Year 1. The initial capital is the capital the company may have on its books at commencement. In most start ups this is zero. The net capital is the amount carried over from the previous year less depreciation. In this case there is none. The results are shown in Table 8.3

Table 8.3 Capital for OpTel.

Year	1986	1987	1988	1989	1990	1991
Initial Capital	$0	$0	$0	$0	$0	$0
Net Capital	$0	$6,552	$11,525	$10,684	$10,175	$9,792
No New Miles	35	0	0	0	0	0
Cap Cost/Mile	150	150	150	150	150	150
Fiber Cap	$5,250	$0	$0	$0	$0	$0
No New Bldg Entry	30	95	10	17	21	26
Cost/Entry	68	67	60	60	60	60
Bldg Entry Cap Costs	$2,030	$6,335	$578	$1,011	$1,264	$1,580
No New NCC	1	0	0	1	0	0
Cap/NCC	0	0	0	0	0	0
NCC Cap	$0	$0	$0	$0	$0	$0
No Miles	35	35	35	35	35	35
No Miles/Switch	50	50	50	50	50	50
No Switch	1	1	1	1	1	1
No New Switch	1	0	0	0	0	0
Cap/Switch	0	0	0	0	0	0
Switch Cap	$0	$0	$0	$0	$0	$0
No New Miles	35	0	0	0	0	0

No Miles/Hub	25	25	25	25	25	25
No New Hub	1	0	0	0	0	0
Cap/Hub	0	0	0	0	0	0
Hub Cap	$0	$0	$0	$0	$0	$0
Total New Capital	$7,280	$6,335	$578	$1,011	$1,264	$1,580
Total Capital	$7,280	$12,887	$12,103	$11,695	$11,439	$11,372
Deprecation	$728	$1,361	$1,419	$1,520	$1,647	$1,805

o Revenue Driver: There is a need for 35 miles of fiber.

o Capital Driver: The cost per mile of new fiber is $150,000.

o Capital: This is the revenue driver times the capital driver or $5,250,000.

o The fiber is assumed to have a fifteen year life so no replacement is needed.

o Adding up the other factors yields a total capital of $7.2 million.

o This is also the total new capital.

o Depreciation is over 10 years since the company argues that fiber in this city has a significant chance of being broken or destroyed.

o For the second year, the Net Capital is now the total capital less the depreciation for that year.

o The process continues for the second and other years of the business.

The same process is followed for Business 1 but now the capital is allocated to the manufacturing plant. The key observations to be made in the plan concern the capital elements including the need for capital, the revenue per asset dollar number to determine the capital intensity of the business, and the depreciation effects.

The business may also want to determine the use of leasing the capital through a capitalized lease or through a third party lease. The use of a lease reduces the capital required as well as impacting on the negative cash flow. This reduction of the cash flow will show itself in a reduction of the capital required through debt or equity.

The capital observations to be made are as follows.

o Capital intensiveness through revenue per asset dollar should be measured at this point. Investors are typically concerned by business that are highly capital intensive. Rarely do such bushiness obtain financing. One major counter-example is that of Federal Express,

wherein Fred Smith obtained in excess of $50 million for the financing of the Memphis hub operation.

o Lease versus buy alternatives and the impact on financing should be considered in detail. All too often, the company wants to own everything. This may not be necessary and in fact may greatly impact early capital raising efforts.

o Depreciation life versus asset true life. This requires asset replacement after its true life. Be certain to include this. Many capital intensive plans fail to address the replacement of the capital plant.

o Capital required per year and the total capital required. The plan should carefully allocate the capital acquisition on the basis of when it is needed and not when it is wanted. The entrepreneur should view capital as if it were an expense. It is part of the cash flow and thus must be accompanied by a source. That source of cash could be quite costly.

The plan should contain some reference to each of these items which flow directly from the financials developed. .

8.3 COST OF GOODS.

There are typically two major expense items that are considered in the determination of the performance of the business. The first is the cost of goods item which represents the results of the process of converting raw materials into product that is in turn sold to the customer. The second is the set of operating expenses of the company, sometimes called selling and administrative expenses.

We shall focus on these two elements by calling them cost of goods and operating expenses. For non-product companies, there are generally no cost of goods. There are operating expenses for all types of companies. In this section we shall concentrate upon the model for the cost of goods associated with the manufacture of the product. The key insight to be gained is that unlike capital or operating expenses, cost of goods is reflected equally on the income statement and the balance sheet. On the income statement the impact will be the cost of goods element and on the balance sheet it will be the inventory element.

Thus , in the development of the cost of goods model (COGS), we shall focus our attention on how capital resources and labor are transformed into finished product, how the costs are allocated, how the residual assets are assigned to an inventory account, and how these elements are managed and evaluated. .

Let us return to the example of Business 1 (Infotel), which makes the telecommunications products. Let us examine the manufacturing process and the disposition of the product in some detail.

o Step 1: Raw materials are purchased and these are to be used in the manufacture of the goods. These materials may be composed of resistors, circuit boards, chips and enclosures for the units. For the most part the raw materials are listed as items that could be resold because there is generally a market for these items.

o Step 2: The raw materials are processed by placing the resistors and chips on the circuit boards and the loading the software into the ROM. These items are then called work in process (WIP). They are not yet ready to ship but are no longer easily sold to a third party. In addition there has been value added as a result of the assembly labor and the manufacturing overhead.

o Step 3: The boxes are tested and fine tuned. They are now called finished goods. They can be sold and at this point have a great deal of added value. They cannot be sold piecemeal as resistors and chips but they could possibly be sold as a working product.
o Step 4: At the beginning of the first year there were no products. As the products are manufactured, they are sold. However, at the end of the year , there is a collection of product that is still raw material, WIP and finished goods are accumulated. These have some value which must be recognized in the inventory.

o Step 5: Cost of Goods (COG) is that allocation of the manufacturing process that is the cost to manufacture all the goods less the changes in the raw materials, WIP, and finished goods inventory. For example, if the company buys $500 in raw materials, uses $500 in labor, and makes 100 units, then the cost to manufacture is $1000. If at the end of the year it has 20 units still left, then the COG is the allocation of that cost to 80 units.

Table 8.4 provides the detail in that process. To better understand the concept we shall go through that table in detail.

Table 8.4 Cost of Goods for Infotel

Year	1	2	3	4	5	6
Units Sold (000)	4.28	22.94	68.01	145.67	177.90	183.89
Begin Fin Goods	0.00	0.43	2.29	6.80	14.57	17.79
FG % Sales (Units)	10%	10%	10%	10%	10%	10%
End FG	0.43	2.29	6.80	14.57	17.79	18.39
Change FG (Units)	0.43	1.87	4.51	7.77	3.22	0.60
Begin WIP	0.00	0.34	1.84	5.44	11.65	14.23
WIP % Sales (Units)	8%	8%	8%	8%	8%	8%

End WIP	0.34	1.84	5.44	11.65	14.23	14.71
Change WIP (Units)	0.34	1.49	3.61	6.21	2.58	0.48
Begin Raw Mat	0.00	0.26	1.38	4.08	8.74	10.67
RM % Sales	6%	6%	6%	6%	6%	6%
End RM	0.26	1.38	4.08	8.74	10.67	11.03
Change in RM (Units)	0.26	1.12	2.70	4.66	1.93	0.36
Raw Mat/Unit	190	190	190	190	190	190
Direct Labor/Unit	60	60	60	60	60	60
Man OH/Unit	50	50	50	50	50	50
No Units Sold	4.28	22.94	68.01	145.67	177.90	183.89
No Units to FGI	0.43	1.87	4.51	7.77	3.22	0.60
No Units to WIPI	0.34	1.49	3.61	6.21	2.58	0.48
No Units to RMI	0.26	1.12	2.70	4.66	1.93	0.36
Total RM Units	5.31	27.42	78.83	164.31	185.64	185.32
RM($)/Unit	$190	$190	$190	$190	$190	$190
RM Costs ($000)	$1,009	$5,210	$14,977	$31,219	$35,272	$35,211
% Labor/WIP Unit	35%	35%	35%	35%	35%	35%
No Units Sold	4.28	22.94	68.01	145.67	177.90	183.89
No Units FGI	0.43	1.87	4.51	7.77	3.22	0.60
No Units WIPI	0.34	1.49	3.61	6.21	2.58	0.48
Total DL&MOH Units	4.83	25.33	73.78	155.61	182.03	184.65
DL/Unit	$60	$60	$60	$60	$60	$60
MOH/Unit	$50	$50	$50	$50	$50	$50
DL Costs	$290	$1,520	$4,427	$9,337	$10,922	$11,079
MOH Costs	$241	$1,267	$3,689	$7,781	$9,102	$9,233
Total Labor	$531	$2,786	$8,116	$17,117	$20,023	$20,312
Total Costs ($000)	$1,540	$7,997	$23,093	$48,336	$55,295	$55,523
Change in RMI	$49	$213	$514	$885	$367	$68
Cost to Manufacture	$1,491	$7,784	$22,580	$47,451	$54,927	$55,455
Change in WIPI	$78	$341	$824	$1,420	$589	$109
Cost of Goods Manufactured	$1,413	$7,443	$21,756	$46,031	$54,338	$55,345
Change in FGI	$128	$560	$1,352	$2,330	$967	$179
Cost of Goods Sold	$1,284	$6,883	$20,404	$43,702	$53,371	$55,166
COGS/Unit	$300	$300	$300	$300	$300	$300
INVENTORY VALUES						

Begin RMI	$0	$49	$262	$775	$1,661	$2,028
Change RMI	$49	$213	$514	$885	$367	$68
End RMI	$49	$262	$775	$1,661	$2,028	$2,096
Begin WIPI	$0	$78	$419	$1,243	$2,663	$3,252
Change WIPI	$78	$341	$824	$1,420	$589	$109
End WIPI	$78	$419	$1,243	$2,663	$3,252	$3,361
Begin FGI	$0	$128	$688	$2,040	$4,370	$5,337
Change FGI	$128	$560	$1,352	$2,330	$967	$179
End FGI	$128	$688	$2,040	$4,370	$5,337	$5,517
Begin Inventory	$0	$256	$1,369	$4,059	$8,694	$10,617
Change Inventory	$256	$1,114	$2,690	$4,635	$1,924	$357
End Inventory	$256	$1,369	$4,059	$8,694	$10,617	$10,974
SALES FACTORS						
Number of Units (000)	4.28	22.94	68.01	145.67	177.90	183.89
Revenue/Unit	$693	$644	$620	$577	$634	$601
Revenue ($000)	$2,968	$14,765	$42,157	$83,987	$112,774	$110,546
Inventory Turn	11.62	10.78	10.39	9.66	10.62	10.07
Cost of Goods Sold	1284	6883	20404	43702	53371	55166
Inventory	256	1369	4059	8694	10617	10974

o Number of Units Sold: This represents the total product sold in a set year. Let us say for example 4280 as is the case for the product in year 1.

o Change in Units: There are three elements that will be viewed during the year; Finished Goods (FG), Work in Process (WIP), and raw materials (RM). These will be viewed as the amount in terms of units at the beginning of the year and the amount in units at the end of the year. We shall use units of RM, WIP and FG as the base measure because it will allow for easier calculation of inventory. We now must make a management decision that says how much of our annual sales, in percent, we want to have in inventory at the end of the year, in each of these areas, to assure that we can meet our customer's needs. Note that too little may result in long delays to the customer and a loss in business. Too great an inventory may result in excessively high carrying costs and the risk of not selling the items.

In the model we show the beginning inventory, and for each of the three elements provide a percent needed at the end of the year. Management must decide on that percent. This

then gives the end of year number of units of RM, WIP and FG. It also states how threat number increases since we may be carrying some over from year to year.

o Inventory Units: We can now determine the units sold, and those that go to inventory. There are three types of inventory, raw materials inventory, RMI, work in process inventory, WIPI, and finished goods inventory, FGI.

o Unit Costs: We can now determine the costs of each unit of product manufactured and those sent to inventory. To do so we must allocate three costs:.

o Raw Material Cost per Unit: This is the cost of the parts and purchased elements for each unit.

o Average Labor per WIP Unit: The labor consists of direct labor and manufacturing overhead. Since WIP is not completed, we must assign a fraction of the completed costs to this unit. In this example, we assign 35% of the total to the average WIP unit.

o Average Labor per FG Unit: This includes the total labor per unit that is directly expended and the total per unit manufacturing overhead.

o Total Costs: The total costs are the cost of all raw materials for sold goods and all elements that go into increasing the inventory, plus all direct labor and manufacturing overhead costs for sold units and inventory units. In the example we see that the calculations are on all units sold and into inventory. The reader should note that the Total Cost is the cash flow that goes into the manufacturing process. From this we will now assign costs to the product sold and also assign an inventory number to the products that we anticipate selling. Inventory will not appear as an expense but will be a transaction on the balance sheet.

o Cost to Manufacture: This cost is the Total Cost less the cost that resulted from increasing the raw materials. It is a measure of all of the costs that go into the process of creating a product in the manufacturing process. It includes not only sold goods but also WIP and FG.

o Cost of Goods Manufactured: This is the total cost to manufacture finished and sellable goods. It is the Cost to Manufacture less the increase in WIPI. Note that the WIPI does not have sellable units, but the units have had a manufacturing allocation. Thus the Cost of Goods Manufactured reflects the cost of units that are finished.

o Cost of Goods Sold: This is the essential number that reflects the allocation of costs to the sale of the items that are actually transferred to a customer in return for revenue. It is the Cost of Goods Manufactured less the Change in FGI.

o Inventory Values: We can now take the above elements and determine the value of the inventory. Using the units and unit costs, we show in the table the beginning and ending inventory values for RMI, WIPI and FGI.

o Sales Factors: Typically the sales factors are also calculated. These include the Revenue per unit and the Inventory turn numbers. In this example we see variation in the revenue per unit and also see a variation in the inventory turn. Note in this case the turn is quite high. Some business have a lower turn and thus a higher inventory.

The business strategy can be influenced by the type of manufacturing needed, on shore (e.g. in the United States) or off shore (i.e. in the Far East), the impact in inventory needs, the response time of a third party manufacturer or other such factors. Inventory is carried on the balance sheet and does not appear as an expense. However as we shall see, the carrying of excess inventory will impact the working capital needs which in turn will impact the return to the investor. Excess inventory is a poor way to operate and it must be carefully controlled.

In the financial section of the business plan, the discussion on the cost of goods typically focuses on the issue of achievability and comparability to other similar businesses. As is typically found, the sales price is 2.0 to 3.5 times the cost of goods number. Thus the cost of goods (COG) number will be used as a benchmark. As discussed in the operations chapter, we need to have an operational justification of the COG number.

In this section of the plan, the focus on COG is financial. The facts to be highlighted are:.

o Sensitivity to inventory turn. How many days inventory is necessary.

o Risks to overstock and under stock of inventory.

o Impact of labor prices as well as the availability and price stability of key items.

o The ability to ramp up or grow the production line.

o The ability to get customer financing of inventory through the factoring of the receivable accounts.

The cost of goods issue is frequently paid little in most plans. It is the experience of many business operators however that it lends greater credibility to the business.

8.4 OPERATING EXPENSES.

We have already developed the operating expense model in significant detail in Chapter 7 and have provided significant emphasis on the importance of the revenue drivers and the

productivity factors. In this section, we are providing the view of the expense model as is necessary for the financial section of the business plan and note that its major impact will be on assuring the investor that the income statements reflects the total set of true costs.

The operating expenses reflect several factors of the way the business is operated:.

o Organization:.

First the operating expenses reflect the organization of the business. They should be broken down into functions as they would appear in the business operations. That is there should be such major functions as;.

o Marketing and Sales.

o Engineering.

o Operations and Maintenance.

o Network Operations.

o General and Administrative (G&A).

For example, in Business 2 (OpTel), Table 8.5, we have the major areas as indicated. We then further divide these into functional areas, to a level which is necessary to effect the business properly. In this case we have the following elements;.

o Marketing and Sales: These are divided into the elements necessary to support these functions.

o Engineering: This supports the ongoing development support for the business.

o Operations and Maintenance: This element provides for the installation of the equipment.

o Network Operations: This provides for the network management and support to the customer.

o General and Administrative: This is the general management and support services.

o Overhead: These are all of the expenses necessary to support the daily operations of the business.

Table 8.5 Expenses for OpTel.

Year	1	2	3	4	5	6

M&S Exp	$680	$1,053	$1,703	$2,661	$3,738	$5,057
Engr Exp	$95	$673	$794	$1,008	$1,279	$1,618
Net O&M Exp	$239	$239	$239	$239	$239	$239
Plant O&M Exp	$379	$589	$377	$439	$505	$587
G&A Exp	$189	$369	$414	$539	$704	$904
OH Exp	$2,407	$5,393	$5,835	$7,355	$9,399	$11,922
NOE	$3,990	$8,316	$9,362	$12,242	$15,863	$20,327

We can further detail these elements of the organization as follows.

1.0 Marketing and Sale.

1.1 Marketing.
1.2 Sales.
1.3 Customer Service.
1.4 Billing.
1.5 Advertising.

2.0 Engineering.
2.1 Systems.
2.2 Software.
2.3 Hardware.

3.0 Network Operations and Maintenance.
3.1 Operations.
3.2 Maintenance.

4.0 Plant Operations and Maintenance.
4.1 Operations.
4.2 Maintenance.
4.3 Construction Management.
4.4 Construction Engineering.

5.0 General and Administrative.

Each of these organizations are broken down into specific functional blocks. It will be on these blocks that detailed specifications will be made. It is critical to do this step because most plans provide all these numbers on percentage basis only and fail to understand how the business works.

The next step is the development of the revenue drivers. As we have discussed in Chapter 7, these drivers provide for the impact that the revenue requirements have on the

business. This approach also reflects the market driven approach that the business plan has.

o Revenue Drivers In each functional area there are drivers that drive the need for personnel in that area. In the sales area for example the driver is the number of new companies. In the construction blocks the driver is the amount of new capital. In the network operations area the driver is the total number of customers, and in the plant area the total number of drops. These drivers reinforce the functional nature of the first breakout. It now allows us to answer who does what.

o Productivity Factors We now know who does what but not how well they do it. For example, how many new customers can a sales person sell in a year. In the example of Business 2 it starts with only one new sale per year and grows to 4. These numbers should be judged against industry standards. If you had used 20 per year it would be highly unrealistic.

o Cost Factors The final element is how much does each unit cost. These are the direct salaries per staff person. Again they must be realistic. They also are only base salary. We shall include the overhead in a different element.

o Overhead Once the base expenses that are people dependent are developed, the overhead expenses are to be added on. These expenses are those expenses that relate to the people and the items necessary to support the people. For example in Table 8.6 for Business 1 (Infotel), we have the following overhead expenses:.

o Travel

o Auto Rental

o Rent

o Direct Overhead(FICA, taxes, health etc.).

o Bad Debt

o Professional Expense (Legal etc)

o Insurance.

Table 8.6 Expenses for Infotel.

Year	1	2	3	4	5	6
M&S Exp	$623	$1,421	$3,046	$5,302	$7,041	$7,378
Telco Suppt Exp	$143	$470	$1,307	$2,439	$2,909	$3,627

Engr Exp	$280	$594	$853	$1,141	$1,907	$2,037
Manuf Suppt Exp	$80	$160	$200	$200	$400	$400
Operations	$106	$204	$292	$328	$390	$416
Field Service	$180	$230	$248	$278	$330	$353
G&A Exp	$181	$361	$594	$863	$1,147	$1,290
OH Exp	$1,815	$4,111	$8,043	$13,453	$17,727	$18,894
Net Operating Expense	$3,408	$7,550	$14,582	$24,003	$31,851	$34,394

These then all add to the total operating expense. As shown in Tables 8.5, 8.6, we can the allocate amounts and percentages to these expenses. To see how the business works it is essential to see the allocation of these expenses and compare them to the expenses for a similar operation. Perhaps it is possible to compete on a cost basis if there is a way to reduce the costs of the product by better efficiencies or productivity or by structuring the business differently.

The expenses have been typically detailed in the operations section of the plan. In the financial section they may be presented in the context of the differing revenue scenarios as well as indicating the labor intensiveness of the business. Generally the operating expense are summarized in simple tabular form in the financial section of the plan. The detailed breakout that we have presented in Table 8.5 is not required for the plan but is essential for the development of the numbers in the operating expenses. In evaluating the validity of the plan, however, it is essential that the validation of the expenses be available in the operations section of the plan.

8.5 INCOME STATEMENT.

The income statement is straightforward and contains the elements of the business cash generating capacity. The income statement is the first statement that provides the for an agglomeration of the revenue, cost of goods, capital (via depreciation) and operating expense model. The income statement consists of the following items:.

o Revenue: The gross revenue of the business. We generally give the revenue for a minimum of five years and a maximum of ten.

o Cost of Goods: This is relevant only in a manufacturing business. As we have discussed, the cost of goods reflects the costs associated with the manufacture of the products that are sold. It does not reflect the total cost to manufacture.

o Gross Margin: The cost of goods subtracted from the revenue gives the gross margin. In most manufacturing businesses the gross margin must be fairly high, ranging from 50% up to 80%. In general, the gross margin should be high since the remaining portions of the revenue must go to the operating expenses and to profit.

o Net Operating Expenses: These are the expenses we developed before. They represent the costs of all salaries and indirect costs associated with the operations of the business.

o Net Operating Income (NOI): This is the most important variable. It represents the free cash flow generated from the business and is a measure of debt and capital carrying capacity. The NOI is the difference of the Gross Margin and the Operating Expenses.

o Depreciation: Depreciation is an expense element on the income statement. Although it does not represent the flow of cash from the business, it does reflect the impact on the value of the assets that have been used in generating the revenue. The reader is cautioned in selecting the appropriate depreciation schedule. Depreciation is also used to generate a tax reduction and it also is a measure of the flow of funds to new capital.

o Profit Before Interest: This is the NOI less the depreciation costs. It may also be called the gross profit.

o Interest: In most cases some form if interest is needed for the business due to the carrying of debt. The amount of interest and its form will be dependent upon the nature of the investment in the business.

o Profit before Tax: This is the Profit before Interest less the interest. It is also called the pre-tax profit.

o Taxes: These are the taxes on the business. There may be a difference in taxes that are actually filed from those in the plan. Care must be taken to seek professional guidance on the actual tax filing.

o Dividends: These are paid in after tax dollars and can be significant. In Chapter 10 we shall develop the implications of these in greater detail.

o Profit After Tax: This is the ultimate bottom line of the business. It is the actual funds that are paid into the business and are the funds that are used to finance the business growth.

Tables 8.7 and 8.8 depict the Income statements for the two businesses. We shall examine each in detail to see the difference in the operations of the two businesses.

Table 8.7 Income Statement for Infotel

Year	1986	1987	1988	1989	1990	1991
Revenue	$2,968	$14,765	$42,157	$83,987	$112,774	$110,546
Cost of Goods	$1,284	$6,883	$20,404	$43,702	$53,371	$55,166
Gross Margin	$1,684	$7,882	$21,753	$40,285	$59,403	$55,381
Margin %	57%	53%	52%	48%	53%	50%

Expenses	$3,408	$7,550	$14,582	$24,003	$31,851	$34,394
Net Oper Income	($1,724)	$331	$7,171	$16,282	$27,551	$20,987
Margin %	-58%	2%	17%	19%	24%	19%
Depreciation	$87	$138	$198	$264	$349	$426
Profit Before Int	($1,811)	$194	$6,974	$16,019	$27,202	$20,561
Margin %	-61%	1%	17%	19%	24%	19%
Interest	$0	$0	$0	$0	$0	$0
Profit Before Tax	($1,811)	$194	$6,974	$16,019	$27,202	$20,561
Margin %	-61%	1%	17%	19%	24%	19%
Taxes	$0	$0	$2,624	$7,849	$13,329	$10,075
Dividends	$0	$0	$0	$0	$0	$0
Profit After Tax	($1,811)	$194	$4,349	$8,169	$13,873	$10,486
Margin %	-61%	1%	10%	10%	12%	9%

Table 8.8 Income Statement for OpTel.

Year	1986	1987	1988	1989	1990	1991
Revenue	2700	12131	12645	18327	25039	33436
Expense	3990	8316	9362	12242	15863	20327
Net Oper Income	-1290	3815	3283	6085	9175	13109
Margin %	-48	31	26	33	37	39
Depreciation	728	1361	1419	1520	1647	1805
Profit Before Int	-2018	2453	1864	4565	7529	11304
Margin %	-75	20	15	25	30	34
Interest	480	720	720	240	0	0
Profit Before Tax	-2498	1733	1144	4325	7529	11304
Margin %	-93	14	9	24	30	34
Taxes	0	0	0	1089	3588	5412
Dividends	0	0	0	0	0	0
Profit After Tax	-2498	1733	1144	3236	3941	5891
Margin %	-93	14	9	18	16	18

Business 1 (Infotel).

The gross margin in this business starts at 57% This is not uncommon in a start up of this type. It is reduced to 52% as the business matures. The gross margin must be compared to industry standards which for this case is comparable.

The largest element of expenses is the set of operating expenses which leaves a NOI margin of (58)% for the first year and up to 28% for latter years. The problem is that the NOI margin does drop to 19% of the sixth year as the business starts to ramp itself up. The business planner must carefully account for this phenomenon. It should be noted that this effect would not have been observed if the analysis had used margins rather than the more detailed approach that we have developed for the set of operating expenses.

It is assumed that there is no debt but only non-dividend bearing equity in this business. Note also that depreciations is small because the business does not require excessive capital plant.

The after tax profit margins are from (61)% to 14%. The latter margin for profit is optimistic. The margins in this business are more likely to be 6-9%, roughly half those projected in this model. The reason for this is that as competition comes into the business, the prices per unit sold are reduced and this hits the bottom line directly. It is this effect that must also be considered.

The planner should look at the income statement and be certain that it reflects the true expenses for the early years and that it also reflects the impact of competition on the revenue on the latter years.

Business 2 (OpTel):.

In this case the business is service oriented and has no cost of goods. The first difference is the large negative NOI for the first year. This is a direct result of two factors. First the customer is paying a fixed amount for a long period and thus the revenue stream is paced over several years. Second, in order to get a service business started, there are significant up front expenses in securing the customer base. Unfortunately many venture capitalists do not understand these two fundamental differences in these two business forms. Thus the venture capital community does not invest heavily in service businesses.

However, the NOI margin grows to 51%, a dramatically different number from that of the hardware business. Depreciation is greater, especially as a percent during the early years.

In this case there is an interest rate due to the method of financing the business. We shall discuss that in detail latter. The tax situation is different. Here we have a negative income and thus establish a tax credit. That credit can be applied against latter taxes of the business. As the business matures, the after tax profits rise to 25%, a dramatically higher

number. The problem of price is not as significant in a service business because the switching costs are much higher.

8.6 CASH FLOW.

The cash flow profile starts with the income statement and addresses the issue of how much cash is needed to run the business. Tables 8.9 and 8.10 depict the cash flows for the two businesses. The elements of the cash flows are as follows:.

o NOI: This is the major positive source of cash from the business. It may be negative during the early years and it will be this factor that will result in the large negative cash flows in the early years.

o Interest: This is a use of cash. The interest will be used to pay off debt from the loans that are made to finance the growth of the business.

o Taxes: The taxes are those that are actually paid to the appropriate government institutions.

o Dividends: These may be dividend payments to the preferred shareholders or they may be actual dividends issued to shareholders of record.

o Capital: Unlike depreciation, capital is a negative cash flow to the business. In the cash flow statement, capital is included at its total amount and not just the depreciation.

o Long Term Debt (LTD) Reduction: This is a payment to reduce the long term debt. It does not appear on the income statement but is a real outflow of cash to the company. As we shall see, it does appear on the balance sheet.

o Change in Working Capital (WC): As we shall see in further detail latter, the concept of working capital is generally simple but plays an important role in the cash needs of the business. WC is defined as the difference in current assets less current liabilities. For example, one current asset is the accounts receivable. A current liability is the accounts payable. Thus the working capital on these two items is the difference in the receivable and payables. If the receivables can be kept small and the payable stretched out, then the business generates cash on this working capital float. Good management tries to manage WC. Unfortunately for new businesses, payables are kept short due to lack of credit and receivable are long due to poor customer leverage.

Table 8.9 Cash Flow for Infotel.

Year	1986	1987	1988	1989	1990	1991
NOI	($1,724)	$331	$7,171	$16,282	$27,551	$20,987

Interest	$0	$0	$0	$0	$0	$0
Taxes	$0	$0	$2,624	$7,849	$13,329	$10,075
Dividends	$0	$0	$0	$0	$0	$0
Capital	$874	$503	$598	$661	$853	$769
LTD Reduction	$0	$0	$0	$0	$0	$0
Chg WC	($503)	$1,555	$3,644	$6,220	$2,237	$76
Cash Flow	($2,096)	($1,727)	$305	$1,552	$11,132	$10,067
Cum CF	($2,096)	($3,823)	($3,518)	($1,966)	$9,166	$19,233

Table 8.10 Cash Flow for OpTel.

Year	1986	1987	1988	1989	1990	1991
NOI	($1,290)	$3,815	$3,283	$6,085	$9,175	$13,109
Interest	$480	$720	$720	$240	$0	$0
Taxes	$0	$0	$0	$1,089	$3,588	$5,412
Dividends	$0	$0	$0	$0	$0	$0
Capital	$7,280	$6,335	$578	$1,011	$1,264	$1,580
LTD Reduction	$0	$0	$0	$0	$0	$0
Chg WC	($2,584)	($177)	$1,411	($375)	($399)	($480)
Cash Flow	($6,466)	($3,063)	$575	$4,120	$4,722	$6,596
Cum CF	($6,466)	($9,530)	($8,955)	($4,835)	($113)	$6,483

Let us examine the flow of cash in a typical business. The revenue in year k+1 is defined as R(k+1) and is defined as the revenue booked in that year. Remember that we can book revenue but not receive it as cash since the revenue may still reside as a receivable. The receivables are accounts that represent money due but not received.

Let us define AR(k+1) as the accounts receivable at the end of the year k+1. These are the amounts that are booked as revenue in that year but not yet converted to cash. Let A(k) be the accounts receivable at the year k and we shall assume that they are converted into cash in year k+1. Thus we can say that the cash inflow in year k+1 is CI(k+1) and is given by.

$$CI(k+1) = R(k+1) - AR(k+1) + AR(k).$$

That is the cash in is the revenue booked, less the revenue not yet converted to cash in that year, plus the revenue converted to cash from the previous year.

Now let us look at the cash outflow in year k+1. Let us define it as CO(k+1). It is the sum of all expenses in that year, E(k+1), plus the capital in that year, C(k+1). As with the revenue we do not pay all the expenses in cash flow since some of them may still reside in an account called the accounts payable. Thus at the end of the year we may still owe an amount AP(k+1). This reduces the cash flow. However the accounts payable from the

preceding year, AP(k), are due payable as cash in that year and these are cash outflows. Thus we have:

CO(k+1) = E(k+1) + C(k+1) - AP(k+1) + AP(k).

The cash flow then become.

CF(k+1) which is CI(k+1) less CO(k+1):

CF(k+1)= R(k+1)-E(k+1)-C(k+1)- { [AR(k+1)-AP(k+1)] - [AR(k)-AP(k)] }.

where we define the working capital as WC(k+1):

WC(k+1) = AR(k+1) - AP(k+1.

Then we can write the cash flow as.

CF(k+1)=R(k+1)-E(k+1)-C(k+1)-[WC(k+1)-WC(k)].

This simple example can then be expanded to include all the expense elements as well as other non cash current assets and liabilities. This will lead to an expression for the cash flow from the business. The cash flow, CF, is then defined as follows:

CF(k+1) = NOI(k+1) - INT(k+1)- TAX(k+1)- DIV(k+1)- CAP(k+1)- LTD(k+1)-(WC(k+1)-WC(k)).

The cumulative cash flow is the sum of the CF, called CCF. There are several cash flow measures that relate to the performance of the business. They are.

o PNCCF: This is the peak negative cumulative cash flow. It says how deep the business will go into debt and also how much financing will be needed for the business.

o NPV: This is the net present value. It is a discounted version of the CF where the discounting is done at some cost of money. It represents the present value of the business assuming some cost of capital. We shall develop this concept in further detail in the next chapter. The NPV for a cost of money of COM, is given by:.

NPV = CF (1+COM)**.

o IRR: This is the internal rate of return. It is the cost of money that makes the NPV equation 0. It is a measure of the potential return that is expected on the investment on an annualized basis. For venture capitalists, an IRR of 50% is typical. For a large corporation, an IRR of 20% is acceptable. Thus it is essential to understand the needs of the investor and the operations of the business.

It is important in performing the NPV and IRR calculations to do so in the absence of any debt financing, dividends or prior sunk costs. The evaluation of these items is done in the absence of any financing alternatives or their impact on the tax situation. They are all done under 100% equity financing. See the books by Weston and Brigham, Copeland, or Brealy and Myers for a more detailed description of the calculations of NPV and IRR.

We can now consider each of the business in terms of the cash flow analyses.

Table 8.9 and 8.10 present the cash flows for the two businesses. For the Infotel business, there is no significant capital and it takes three years for the business to have a positive operating income. The management of the working capital has added a positive cash flow for the first three years. This is due to collecting the receivables in a short period and extending long term credit on the payables. It is also a reflection of the management of the inventory of the cost of goods model. This results in an NPV of $4.7 million and an IRR of 43%. This is quite an attractive IRR for the business.

Example (OpTel):.

For the OpTel business as shown in Table 8.10, we have the extreme of a capital intensive business. The first year alone require &7.2 million. Again the management of the working capital allows a $2.5 million credit. This business has an IRR of 39% and an NPV of $7 million. The peak cumulative cash flow is $8.9 million. From this business cash flow profile we can understand certain key facts about capital intensive businesses:.

o Initial large losses: The first years are typically the most dangerous. They are the years that have the largest losses due to the reduced revenue and the large amounts of capital required.

o Working Capital Management can generate cash: We see that the change in working capital allows for a positive cash floe, e.g. the change in working capital is negative. This is a result of paying bills latter then we collect receipts for service. Generally this may be a positive cash flow item if the business is well managed. However, it ,ay be possible that the vendors may want up front payments and thus reverse the situation. Thus the entrepreneur should be very wary of this element of the cash flow.

o Capital is the greatest element: The company may want to perform a lease back analysis to determine if the IRR can be improved with better cash flow management through a lease program. The lease will improve the cash flow but will not impact the balance sheet.

Example (Infotel):.

Table 8.9 depicts the cash flow for Infotel. In contrast to the capital intensive service business, Infotel is inventory intensive and is product oriented. Thus the cash flow statement highlights the differences. These are:.

o Cash Flow is generally positive earlier: This is particularly true for the business where it peaks in the second year and goes positive on a cash flow basis in the third year and on a cumulative basis in the fifth year.

o Working Capital is harder to manage: This is a direct result of the inventory requirements. In the previous example, we noted that the business could actually obtain cash from working capital management. In this business the inventory eliminates that opportunity. In fact, remember that the inventory turn in this business was about 10. If we find that the turn is less, as it may easily be 5, we can have a significant working capital management problem.

In summary the cash flow analysis should contain the following information:.

o The IRR of the investment.

o The NPV of the investment.

o The peak cumulative negative cash flow.

o The turn around year.

o A discussion of the working capital management.

Generally the presentation of the cash flow is in chart form as has been demonstrated in the Tables (8.9, 8.10).

8.7 BALANCE SHEET .

The balance sheet represents the worth of the company in terms of its assets and liabilities. The balance sheet is divided into three areas. The first is the set of assets, both short term or current and longterm. The second part is the set of liabilities or, in other words, what the company owes. These are also divided into short term and long term. The difference between the assets and liabilities and is the net worth or owners equity.

We shall see in Chapter 10 how this owners equity plays an important role in valuating the company. In this section, we shall develop the balance sheet and relate it to the sources and uses statements. In many start up ventures, the balance sheet is neglected and all that is shown is the income statement. It is the balance sheet that shows how well the company can survive in the long term and what borrowing power it may have from more

standard financing sources. Let us begin by considering the balance sheet for the manufacturing business, Business 1 (Infotel). This is shown in Table 8.11. Its contents are as follows:

ASSETS

o Current Assets The current assets of the business are divided as follows:.

o Cash: This is cash on hand at the end of the fiscal year for which the balance sheet is representing. Remember the balance sheet is for a particular date in time, unlike the income statement which represents the events between two dates in time. Thus the cash may be in a non interest bearing account such as the company checking account.

o Short Term Investments: These are cash assets that may be in Treasury notes or CDs that are readily accessible. In the case in point, the company has put $904,000 in its checking account and nothing in short term instruments. This gives instant liquidity but is not good business practice. Typically we would expect the treasury function to keep 80% or more in a short term investment.

o Accounts Receivable: These are assets that relate to revenue not yet received. The receivables are usually measured in days with the base being the revenue. For example if the annual revenue is $36 million and there are 90 days receivables, this represents $9 million in receivables. We have booked the revenue and it is reflected in the income statement, but it exists only as a receivable. This is one of the most important factors in the financial management of the business. An investor will typically look at the revenue and the receivables to determine how credible the business is. If the receivables are a large percent of the revenue, then there is suspicion of possible mismanagement.

o Inventory: We have discussed this item before in connection with the cost of goods model. This represents the materials that are manufactured but not yet sold. They have value but this value has not yet been converted into cash income.

Table 8.11 Balance Sheet for Infotel.

Year	1986	1987	1988	1989	1990	1991
Assets						

Current Assets						

Cash	$904	$1,677	$1,982	$3,534	$14,666	$24,733
Sht Term Invest	$0	$0	$0	$0	$0	$0
Accts Receivable	$366	$1,820	$5,197	$10,355	$13,904	$13,629
Inventory	$256	$1,369	$4,059	$8,694	$10,617	$10,974
Tot Cur Assets	$1,526	$4,867	$11,238	$22,583	$39,187	$49,337

Capital Plant-Dep	$787	$1,152	$1,553	$1,950	$2,454	$2,797
LT Invest	$0	$0	$0	$0	$0	$0
Sundry Assets	$0	$0	$0	$0	$0	$0
Total Assets	$2,312	$6,019	$12,791	$24,532	$41,641	$52,133
Liabilities						
Current Liab						
Accts Payable	$1,056	$1,986	$3,743	$6,081	$8,064	$8,670
Accrued Liab	$68	$151	$292	$480	$637	$688
Taxes Payable	$0	$0	$525	$1,570	$2,666	$2,015
Tot Cur Liab	$1,124	$2,137	$4,559	$8,131	$11,367	$11,373
Long Term Debt	$0	$0	$0	$0	$0	$0
Other Noncur liab	$0	$0	$0	$0	$0	$0
Total Liabilities	$1,124	$2,137	$4,559	$8,131	$11,367	$11,373
Owners Equity						
Shares @ Par	$0	$0	$0	$0	$0	$0
Adtl Paid-In Cap	$3,000	$5,500	$5,500	$5,500	$5,500	$5,500
Retain Earnings	($1,811)	($1,618)	$2,731	$10,901	$24,774	$35,260
Tot Owner Equity	$1,189	$3,882	$8,231	$16,401	$30,274	$40,760
Tot Liab/Own Equ	$2,312	$6,019	$12,791	$24,532	$41,641	$52,133

Table 8.12 Balance Sheet for OpTel.

Year	1986	1987	1988	1989	1990	1991
Assets						
Current Assets						
Cash	$534	$970	$1,545	$1,665	$4,387	$10,983
Sht Term Invest	$0	$0	$0	$0	$0	$0
Accts Receivable	$222	$1,100	$1,454	$2,074	$2,853	$3,829
Inventory	$36	$64	$61	$58	$57	$57
Tot Cur Assets	$792	$2,135	$3,059	$3,797	$7,297	$14,869
Capital Plant-Dep	$6,552	$11,525	$10,684	$10,175	$9,792	$9,568
LT Invest	$0	$0	$0	$0	$0	$0
Sundry Assets	$0	$0	$0	$0	$0	$0
Total Assets	$7,344	$13,661	$13,743	$13,972	$17,089	$24,436
Liabilities						

Current Liab						

Accts Payable	$2,779	$3,613	$2,451	$3,268	$4,223	$5,402
Accrued Liab	$36	$178	$236	$336	$463	$621
Taxes Payable	$27	$134	$177	$252	$347	$466
Tot Cur Liab	$2,842	$3,925	$2,864	$3,857	$5,033	$6,489
Long Term Debt	$4,000	$6,000	$6,000	$2,000	$0	$0
Other Noncur liab	$0	$0	$0	$0	$0	$0
Total Liabilities	$6,842	$9,925	$8,864	$5,857	$5,033	$6,489
Owners Equity						

Shares @ Par	$0	$0	$0	$0	$0	$0
Adtl Paid-In Cap	$3,000	$4,500	$4,500	$4,500	$4,500	$4,500
Retain Earnings	($2,498)	($764)	$379	$3,615	$7,556	$13,448
Tot Owner Equity	$502	$3,736	$4,879	$8,115	$12,056	$17,948
Tot Liab/Own Equ	$7,344	$13,661	$13,743	$13,972	$17,089	$24,436

The sum of these values represent the current assets of the business. These assets could hypothetically be rendered into cash at some factored amount. For example one could "factor" the receivables to raise cash. This is done by selling the receivables to a third party at a reduced factor and let the third party worry about collecting. Typical factoring results in 40% to 60% of the balance sheet value being reduced to cash. The same could be done with the inventory. Cash however is cash at full value. Thus the strength of the balance sheet is represented on the current assets side by the ratio of cash to other current assets.

o Capital Plant less Depreciation : This is a long term asset that takes all the plant and property and lists it at book value less all accumulated depreciation. In some companies, the property (including plant and real property) may actually have appreciated. However, for the sake of the balance sheet it is depreciated.

o Long Term Investments: These are cash or cash type investments that cannot be reduced to cash in less than a year. For example they may be long term notes or other such instruments. For the most part, start up companies do not have such assets.

o Sundry Assets: These are other long term assets that fit nowhere else.

o TOTAL ASSETS: The sum of the above represent to total assets of the company.

LIABILITIES:

The liabilities follow the assets by listing first current liabilities and then longterm liabilities. The current liabilities are:.

o Accounts Payable: These are the payments due vendors or suppliers but that have not been paid. They have been accounted for on the net operating expense line but have not really been accounted for in a cash flow. As the receivables, they result in a days payable number which is the ratio of total payables to total third party expenses, both expenses and capital.

o Accrued Liabilities: These may represent salaries or other expenses that are due but not yet paid. For example, employees may be paid monthly, and although expensed on NOE, the paycheck may not yet be issued.

o Taxes Payable: This is where expensed taxes not yet paid are accounted for. For example, taxes are paid quarterly, so that the fourth quarter taxes, although not yet paid are reflected as due. The current liabilities are the sum of these items. The ratio of current assets to current liabilities is called the current ratio and it represents how well the current debts can be paid out of what is readily available. In Business 1 in year 5 we have a current asset of $39 million and a current liability of $11 million. This is a current ration of 3.6, which is very comfortable, even if factoring is necessary. The other liabilities are non-current and composed of two elements:.

o Long Term Debt: This is the long term debt of the company. .

o Other: This may be any other long term liability which may even include pension or lease liabilities. As before the total liabilities are the sum of these numbers.

OWNERS EQUITY

This is essentially the difference between the assets and liabilities.

o Shares at Par: When stock is issued, the stock may have a par value such as $1 dollar per share. For the most part this is no longer the case, but if it were then the par value, times the number of shares would be represented here.

o Additional Paid in Capital: This represents the capital paid for stock in excess of par. For zero par, this is the money raised from stock offerings. In this example, the company raised $3 million in the first year and $1.5 million in the second year. Thus the additional paid is $4.5 million from then on out.

o Retained Earnings: This is exactly what it says, the earnings that are retained. If we go back to the income statement, we find that the business had an after tax profit which is added to the retained earnings for the year. That becomes the retained earnings.

The assets equal the liabilities plus the owners equity. They balance. Let us examine why this should be so by looking at the payables and receivables. If we do not get the receivables for 150 days, this reduces the cash pool because we must still pay our debts even if others do not pay theirs. However if we have no receivables and large payables, then we have a large cash reserve to offset the future debt. This continuously balances out the business operation.

This all leads to the concept of working capital. Working capital is defined as current assets less current liabilities. Companies with large working capital numbers look like good companies. However a closer look may alter that interpretation.

Example:.

In Business 1, Infotel, in year 5, the current assets are $39 million and the current liabilities are $13 million. The working capital is $23 million. However $14 million is in receivables and $10.6 million in inventory. If all goes bad, they may only collect 20% of the receivables for $4.8 million and the product may die leaving a useless inventory. However, the liabilities are still due. Thus the nature of the working capital is important. The working capital also represents a number of what the company needs to satisfy its operations. The change in working capital also represents how much additional free cash is needed to manage the company. This cash does not come from the net income, it is cash that must come from somewhere else. The change in working capital is the working capital of this year less the working capital of last year. If we focus on that change less cash, then that number represents the additional cash need of the company to fund its growth. That was the number that we used in the cash flow expression of the last section. For example, in Business 1, the change in WC less cash for year 5 is $6 million. That means that the company needs that money to support the receivables and inventory.

Example:.

If we look at Table 8.12 for Business 2, OpTel, we see a different situation. The WC less cash is negative. This means that there is a real cash flow because the company pays late and collects early. In this case the company manages its working capital in a much better fashion. Thus the strategic issue on working capital is that there must be a good control of current asset growth, less cash, otherwise it has to be financed by the company.

8.8 SOURCES AND USE.

The final financial statement is that of the sources and uses. This statement provides a view of where the money comes from and where it goes. Table 8.13 depicts the S&U statement for the Business 1 (Infotel) example.

Table 8.13 Sources and Uses for Infotel.

Year	1986	1987	1988	1989	1990	1991
Sources						

Beginning Cash	$0	$904	$1,677	$1,982	$3,534	$14,666
Net Oper Income	($1,724)	$331	$7,171	$16,282	$27,551	$20,987
Senior Debt	$0	$0	$0	$0	$0	$0
Junior Debt	$0	$0	$0	$0	$0	$0
Equity(Common)	$3,000	$2,500	$0	$0	$0	$0
Equity(Prefrd)	$0	$0	$0	$0	$0	$0
Total Sources	$1,276	$3,735	$8,848	$18,264	$31,086	$35,653
Uses						

Purchase	$0	$0	$0	$0	$0	$0
Capital Req	$874	$503	$598	$661	$853	$769
Int Senior Debt	$0	$0	$0	$0	$0	$0
Int Junior Debt	$0	$0	$0	$0	$0	$0
Taxes	$0	$0	$2,624	$7,849	$13,329	$10,075
Dividends(Com)	$0	$0	$0	$0	$0	$0
Dividends(Pref)	$0	$0	$0	$0	$0	$0
Chg In JnDbt	$0	$0	$0	$0	$0	$0
Chng Work Cap	($503)	$1,555	$3,644	$6,220	$2,237	$76
Chng In LTD	$0	$0	$0	$0	$0	$0
Total Uses	$372	$2,058	$6,866	$14,730	$16,419	$10,920

The sources are described as follows.

SOURCES:

o Beginning Cash: In the first year, the business has no cash in its internal coffers. It has to raise all the cash externally. In latter years, the beginning cash must always be positive. The business must find other sources in order to keep the beginning cash in the positive range. .

o NOI: This is the net operating income as described before. It is the cash that the business generates. In this example the NOI is negative, and is thus a negative source or use.

o Senior Debt: This is the senior debt acquired in that year. It is not the accumulated debt. In this business, there is no senior or secured debt.

o Junior Debt: This is unsecured junior debt and may involve debentures. More on this will be said in Chapter 10.

o Equity (Common): This is the cash generated from the common debt in that year.

o Equity (Preferred): This is the preferred equity capital raised.

USES:.

o Purchase: This applies if the business is purchased in a year. It generally does no apply to a start up unless it in latter years the company buys a new business. It does apply if the business is bought from an existing company.

o Capital: This is the capital required in the year.

o Interest: This is interest on both senior and junior debt.

o Taxes: All taxes.

o Dividends: All dividends on common and preferred stock.

o Change in Debt: This includes the payment of both junior and senior debt. Note that the debt repayment plans may be fixed or variable. In a variable plan, the company has a fixed number of years to repay debt and the annual amounts may vary.

o Change in Working Capital: This is the additional amount of money needed to support the working capital needs. The total sources must equal or exceed the uses. The excess of sources over uses is placed into the cash for next year. If we compare Business 1 to Business 2 we see that in 2 the WC needs actually generate cash. This then reduces the needs for additional capital and in turn reduces interest payments and increase the value of the company. We shall expand upon the sources and uses in detail when we develop the financing of the business. It is important to note that the sources and uses are similar to cash flow but they include where the money is coming from. Typically the business plan does not have a sources and uses since that is a negotiating position to be taken during financing. However it must be work out to develop the financing strategy.

8.9 KEY FACTORS.

In the summary of the business in the financial section, there should be a review of the key financial factors. The list developed in this section shows the potential investor the snapshot view of the total business outlook. The factors are as follows:.

o Internal Rate of Return: The IRR provides the analyst of the business with a measure of how effective an investment the business is. The reader must remember that the IRR is a measure of the effective interest rate that the investment will provide, averaged over its lifetime. Implicit in the determination of the IRR is the size of the investment that is necessary to support the business. The IRR is also calculated on the after tax cash flow

from the business and not the before tax number. Thus an IRR of 8% is an after tax number and if it were a secure investment it would represent an excellent return. However, in a start up company, the investors are typically looking for IRRs that exceed 25% because of the significant risk associated with any start up venture.

o Net Present Value: The NPV represents the increase in the value of the firm that will occur if this investment is made in the new business. In simplistic terms, it says that if the NPV is $12 million, then by acting on the business opportunity now, we could arguably have increased our wealth by that amount. However, the investor will always use a significant discount factor in the NPV calculation and thus will reduce the NPV a great deal. We shall see in Chapter 10 that the NPV is one of several measures use for the valuation of the business. In this chapter we have demonstrated that it is one measure of the company's performance.

o Profit after Tax in Final Year: The after tax profit provides a measure of the size or scale of the business. Using the revenue for the appropriate year it also yields the profit margin. Care must be taken to ensure that the profit is not too small or too large. Too small a profit may mean that there is no room for error. Too large a profit means that the prices are too high or that the expenses have been underestimated. The after tax profits provide a critical measure of success. The market value of the firm can also be determine from the after tax profits, based upon a Price to Earnings ratio approach. Specifically, if the Price to Earnings (P/E) is 20, then if the after tax profits are $10 million, the market value of the firm is $200 million. It is for this reason that the after tax profits are so critical.

o Revenue in Final Year: The typical venture capital funded deal is one in which the investor would like to see $100 million in the fifth year. However, such opportunities are not always possible. Yet the revenue in a target year is a critical measure of the business. First, the choice of the target year is critical. Most investors do not want to see their investment wait until 20 years. However, it is unrealistic to get a return in two years. Thus a balance must be met. The result is that the target year is typically 5 to 7 years. In addition the target revenue should be appreciable to match the interests of the investor.

o Book Value in Final Year: The book value is the results of the assets less the liabilities. Typically the book value is a conservative measure of the value of the firm. Another ratio that is important and can be calculated directly is the ratio of the market to book value. As we discussed, the market value is based on the after tax profits and the P/E. The ratio of the market to book values is a measure of the future expectations in the business.

o Peak Negative Cumulative Cash Flow: The Peak Negative Cumulative Cash Flow (PNCCF), is a measure of the total investment to be made in the business. It gives the investor a quick look at how much capital will be required.

o Peak NCCF Year: This is the year at which the PNCCF occurs. It is a measure of how long investments are to be made in the business. Typically, we seek to have this not exceed 3 years.

o Turn Around Year: This is the year in which the CCF (cumulative cash flow) is positive for the first time. In effect it is a measure of how long the investor will have to wait until the business, by itself, will flow cash outwards.

o Total Cumulative Capital: This is the total amount of money required over the investment period for the business. It is a measure of the capital intensiveness of the business.

o Revenue/Asset First and last Year: The revenue per asset dollar is a measure of the capital intensiveness of the business. As we have discussed in Chapter 2, this ratio describes the nature of the business and is a measure of the need for future financing to replace the capital.

o Revenue/Employee: This ratio is a measure of how effective the employees generate revenue, and how people intensive the business is.

o NOI/Employee: This is the most critical employee related ratio. It depicts the ability of a single employee to generate profit for the company.

o Capital/Employee: This is a measure of how heavily each employee is leveraged by capital. It should be remembered that for each dollar of capital there will be an associated depreciation dollar eventually. Also it should be remembered that we can cut back on people but that a company cannot fire depreciation or interest.

o Inventory Turn : For the hardware related businesses, the inventory turn is a critical measure of the business vitality and the effectiveness of the management. As we have stated, the inventory turn will impact the working capital requirements as well as the need for financing.

o Current Ratio: As we have already discussed, the current ratio is the ration of current assets to current liabilities. It reflects the vitality of the company as well as a measure of the working capital.

Table 8.14 depicts the summary of these key factors, their meaning and the use to which they are put.

Table 8.15 is a set of these key factors for the OpTel business plan.

Table 8.14 Key Factors Summary

Factor	*Meaning*	*Use*
IRR	Annualized Return	Acceptable Range
NPV	Net Value to Firm	Valuation
PAT%	Profitability	Reasonable
Revenue	Size of Business Investment	Final Year
Book Value of Business	Investment	Value
PNCF	Capital Required	Safety of Investment
PNCF Length of Investment	Time before return	Year
Turn Time	Risk exposure	Around supporting Year
Cumulative Capital	Intensity Investment	Intensiveness Capital
Rev/Asset	Capital Intensity Return Potential	
Rev/Employee	Labor Intensity	Growth Potential
NOI/Employee	Profitability	Rate of Return
Cap/Employee	Capital Intensity	Leverage
Inventory Ratio	Ratio of Sale/Inventory Risk of Leverage	Turn
Current Ratio	Current Assets/ Ability to pay	Ratio Current Liabilities Debt

Table 8.15 Key Ratios for OpTel.

8.10 CONCLUSION.

In this chapter we have developed the basic concepts of the business plan financials. The financials are the basis of the evaluation of the total business opportunity. The focus the questions as to how the business will function and do so in a quantitative fashion. As we have seen they require first an understanding of the business and then a detailed understanding of the operations of the business.

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APPENDIX DETAILS OF FINANCIAL MODEL.

The financial models developed in this chapter have significant structure and can be directly applied to many of the available spreadsheet programs. To do this it is essential to have an analytical model of the financials. This appendix develops a set of such models. The reader is cautioned to use these with care since the implementation in different spreadsheet programs may vary.

Tables A8.1 to A8.8 detail each of the key financial statement sheets and present in a quantitative fashion the drivers of the business model. We develop each of these models in a recursive fashion where the variable k, or (k), represents the year k in the simulation. The uppercase letter represents major variables that we have already presented.

The approach taken in this appendix differs from most accounting texts in that it tries to understand the financials as a dynamic system, which it is indeed. This approach should be familiar to most entrepreneurs who have been trained as technical individuals.

Table A8.1 Revenue Driver.

R(k) = P(k)*U(k)*MS(k)*TM(k.

N(k)=U(k)*MS(k)*TM(k.

where.

1. P= Price/Uni.
2. U= Use Factor (unit/driver.
3. MS = Market Share Facto.
4. M= Market Drive.
5. TM= Total Market.
6. N= Total Number of Unit.

Table A8.2 Capital Mode.

C(k)=CU(k)*CE(k)*CR(k).

where.

1. CU= Capital/Uni.
2. CE= Use Factor (unit/driver.
3. CR= Capital Revenue Drive.

Table A8.3 Expense Mode.

E(k)=S(k)*EP(k)*ER(k)*(1+OH(k).

where.

1. E=Expense.
2. S=Salary.
3. EP= Productivity Drive.
4. ER= Revenue Drive.

5. OH=Overhead Facto.

Table A8.4 Cost of Goods Mode.

FG(k+1)=FGP*US(k+1.

WIP(k+1)=WIPP*US(k+1.

RM(k+1)=RMP*US(k+1.

where.

FGP, WIPP, RMP are the percents of FG, WIP, RM required at year end.

US is the units sol.

FGIU(k+1)=FG(k+1)-FG(k.

WIPIU(k+1)=WIP(k+1)-WIP(k.

RMIU(k+1)=RM(k+1)-RM(k.

where.

FGIU, WIPIU and RMIU are inventory units at year en.

RMC(k+1)=RMUC*(US(k+1)+FGIU(k+1)+WIPIU(k+1)+RMIU(k+1).

TLC(k+1)=(DLC+MOHC)*(US(k+1)+FGUI(k+1)+AL*WIPIU(k+1).

TC(k+1)=RMC(k+1)+TLC(k+1.

where:.

1. RMC= raw materials costs.
2. TLC= total labor costs.
3. TC= total costs.
4. RMUC= raw material unit cost.
5. DLC= direct labor unit cost.

6. MOHC = manufacturing overhead unit cost.

7. AL= allocation percent to of labor to WIP.

CRMI(k+1)=RMUC*RMIU(k+1).

CTM(k+1)=TC(k+1)-CRMI(k+1).

where:.

1. CRMI= cost of raw material inventory.

2. CTM= cost to manufacture.

CWIPI(k+1)=(RMUC+AL*(DLC+MOHC))*(WIPIU(k+1) CGM(k+1)=CTM(k+1)-CWIPI(k+1).

where:.

1. CWIPI= cost if WIP inventory.

2. CGM= cost of goods manufactured

CFGI(k+1)=(RMUC+DLC+MOHC)*FGIU(k+1) COGS(k+1)+CGM(k+1)-CFGI(k+1).

where:

.
CFGI= cost of FG inventory.
COGS= cost of goods sold.

CI(k+1)=CRMI(k+1)+CWIPI(k+1)+CFGI(k+1).

where:.

CI= inventory increase.

Table A8.5 Income Statement Model.

GM(k)=R(k)-COG(k).

o GM= Gross Margin.
o R= Revenue.
o COG= Cost of Goods.

NOI(k)=GM(k)-NOE(k).

o NOI= Net Operating Income.
o NOE= Net Operating Expense.

PBIT(k)=NOI(k)-DEP(k).

o PBIT= Income before tax and interest.
o DEP= Depreciation.

PBT(k)=PBIT(k)-INT(k).

o PBT= Income before tax.
o INT= Interest.

PR(k)=PBT(k)-TX(k).

o PR= Profit.
o TX= Taxes.

P(k) = PR(k)-DIV(k).

o P= Profit.
o DIV= Dividend.

Table A8.6 Cash Flow Model.

CF(k)=NOI(k)-INT(k)-TX(k)-DIV(k)-CAP(k)- [WC(k)-WC(k-1)]

Table A8.7 Sources and Uses Model

S(k)=BC(k)+NOI(k)+SD(k)+JD(k)+CE(k)+PE(k).

where:.

1. S = Sources.
2. BC = Beginning Capital.
3. NOI = Net Operating Income.
4. SD = Senior Debt.
5. JD = Junior Debt.
6. CE = Common Equity.
7. PE = Preferred Equity.

U(k) = PUR(k)+CAP(k)+INT(k)+TX(k)+DIV(k)+ CHGDB(k)+ CHGWC(k).

where:.

1. U = Uses.
2. PUR = Purchases of Company.
3. CAP = Capital.
4. INT = Interest.
5. TX = Taxes.
6. DIV = Dividends.
7. CHGDB = Change in Debt.
8. CHGWC = Change in WC.

NC(k) = S(k)-U(k).

NOTE:.

o In all cases S>=U.

o If SD,JD,CE,PE=0 CHGDB=0 AND: S>U Increase CHDB to make S=U.

o If SD,JD,CE,PE=0 CHGDB=0 AND: S<U Increase SD,JD,CE,PE to make S=U.

o If SD,JD,CE,PE=0 CHGDB=0 NO Debt AND: S>U Increase Net Cash

Table A8.8 Balance Sheet Model.

A(k)=CA(k)+LTA(k).

CA(k)=CASH(k)+STI(k)+AR(k)+INV(k).

LTA(k)=CAP(k)-DEP(k)+LTI(k).

where:.

1. A(k) = Assets.

2. CA(k) = Current Assets.
3. LTA(k) = Long Term Assets.
4. CASH = Cash.
5. STI = Short Term Investments.
6. AR = Accounts Receivable.
7. INV = Inventory.
8. CAP = Capital.

9. DEP= Accumulated Depreciation.
10. LTI = Long Term Investments.

L(k) = CL(k)+LTL(k)

CL(k) = AP(k)+AL(k)+TXP(k)

LTL(k)= LTD(k)+OL(k).

where:.

1. L = Liabilities.
2. CL = Current Liabilities.
3. LTL = Long Term Liabilities.
4. AP = Accounts Payable.
5. AL = Accrued Liabilities.
6. TXP = Taxes Payable.
7. LTD = Long Term Debt.
8. OL = Other Liabilities (e.g. Leases etc>).

OE(k) = SP(k)+APIC(k)+RE(k).

1. OE = Owners Equity.
2. SP = Stock Valued at Par.
3. APIC = Amount Paid In Excess of Par.
4. RE = Retained Earnings.

A(k)=L(k)+OE(k.

The model developed in this chapter has been developed so as to apply to many of the available spreadsheet programs that are in practice at this time. It also follows the spreadsheet overlay provided with the text called BASELINE and discussed in the appendix.

One of the major factors that the business plan developer should keep in mind is that the financials are a set of interconnected models. What is done to one part of the financials will have an impact on the other elements. What we have strived to do in this chapter is to allow the reader to develop the model in this context.

PART III

CHAPTER 9 FINANCING THE VENTURE.

What we have seen thus far is the development of the business and the quantification of what is needed to develop the business. There has been a limited description of how the business is to be financed. This chapter develops a strategy to do that financing. It is the author's opinion that the entrepreneur must develop that strategy before dealing with the venture capitalist or other sources of capital. In addition, the entrepreneur must have alternatives to that plan and be prepared to say no to offers that will leave him with too little of the business. Another factor that must be considered is when and how the entrepreneur can cash in his chips in the business to get the rewards of his investments. This chapter does just that.

We start the chapter with the most important element of the business, the valuation of what the entrepreneur brings to the source of the capital. The venture capitalist wants to get as great a portion of the business as is possible. The entrepreneur wants to give away as little as possible. Valuation is a logical process that allows the entrepreneur to deal effectively with the source of capital.

Once this is done, there is the process of how the capital is raised and from whom. This may include the venture capitalist, private placements, secured debt, licensing, or many other factors.

The financing alternatives vary from debt, common stock, preferred stock or other means. These are discussed in detail and also tied directly into the business plan financials to see what is when entrepreneur decides to back out and cash in his earnings. The focus is always towards what will the entrepreneur get at the end.
These alternatives are then evaluated and strategies developed to suggest which alternative is best for the entrepreneur at what time in the life of the new venture.
We conclude with strategies and sequencing of the debt.

9.1 VALUATION.

For well developed companies, there is a standard method of evaluation that depends on the book or the market value of the company. The book value is defined as the value of the company as recorded on its balance sheet in terms of assets less liabilities. Its market value is defined as the stock price times the number of shares outstanding.

These simple means of valuing a new company are not readily available. There is no stock to see what the market value is at nor is there a solid asset base to judge the company against. For the most part there is an idea, a business plan, and possibly a small amount of revenue and a large need for capital.

There are five methods for valuing a new company that the author has used with start ups. They are;.

REPRODUCTION VALUE:.

This is the simplest and is what many venture capitalists use in their first cut at valuation. It looks at the venture, estimates how many man months have been spent in getting the business plan written and multiplies that by a weighted cost per man month.

As an example a small company wanting to build a fiber optic business had spent a year with six people investigating the business and preparing the plan. Estimating the reproduction cost at $15 per man month and totaling the number of months at 72, this results in an evaluation of $1,080,000. Thus if the venture capitalist gives the company $500,000 to start, they want 50%.

This totally ignores the assets that may have been developed in the process. It ignores what the business potential is and even ignores the risk of that potential. It also gives the company away before it gets out of the starting gate.

PRESENT ASSET VALUE:.

This method looks a little bit deeper into the business. It asks what are the assets of the start up venture.

Not only does it include the business plan but includes the following items:.

Patents: These may be granted or filed for. They represent a substantive representation of what the principals can do and also present a possible barrier to entry to the competition.

Prototypes: These demonstrate that the item could really work. This prototype may be in hardware or software. It also represents a selling tool to talk to the customer and assess the market potential.

Profits/Revenues: These show that there is really a market for the service and that the entrepreneur has gotten to the first step of delivering the product. In most cases the profit may not exist and the revenue may be minuscule.

Nevertheless, this is the most important element of the present asset value.

Clients: These are potential customers. This asset may be demonstrated in binding letters of intent, non binding letters of intent or even contingent purchase orders. This shows that the entrepreneur has contacted a customer and the customer has been willing to commit in writing to the product.

Contracts: These are actual contracts to purchase the product and represent possible revenue streams. Business Plan: This is the plan as we have developed it in the text.

Contingent Capital Commitment: In this case the entrepreneur may have found some source of capital which is contingent upon getting a large capital supplier.

We can now value the previous company using this method. The following are available to the company;.

Business Plan valued at $1 million.

Letters of Intent for five year revenue of $20 million. At an after tax profit margin of 10% these are valued at $2 million.

Rights of way at a 50% discount and on an exclusive basis. The rights of way would normally be worth $4 million per year but are available at $2 million. This is valued at $2 million. Agreements with a construction company to get access to buildings at a guaranteed rate. This is valued at $500,000.

These items then lead to a valuation on an Asset basis of $5.5 million. This is dramatically larger than the first approach. It leaves the company with over 90% of the equity for the $500,000 financing first proposed.

NET PRESENT VALUE BASIS.

This method is based solely upon the business plan. It assumes that the business is financed solely by debt. It then calculates the Net Present Value (NPV) at a discount rate that contains a risk factor. Recall that the NPV is given by the following;.

$$NPV = \sum_{i=1}^{N} CF(i)/(1+k)**i.$$

where CF(i) is the cash flow from the business in year i, and where the cost of capital, k, is a sum of risk free values typically of, 14% plus a risk premium. The risk premium must reflect the risk of revenue, capital and operating expense. If the revenue can be assured in a fashion by agreements, if the capital estimate can be assured by prior experience in both the industry and by the experience of the entrepreneurs, and if the operating expense can be assured in a similar fashion, then the risk may be estimated.

The k value can be given as;. = k0 + k rev + k cap + k exp.

In the above example we can estimate the k values as follows;. k 0 is a risk free rate of 14%. k rev is the revenue risk rate estimated to be 10% due to the presence of agreements. k cap is the capital risk rate estimated to be 5% due to the known base in the industry. k exp is the expense risk rate estimated to be 6% due to the fact that the entrepreneurs have done this before.

Using these four factors for total risk, the sum is the total risk for a resulting k of 35%, the NPV is calculated and shown to be $4.2 million.

We now have three estimates. The first is $1 million, the second $5.5 million and the third $4.2 million. The entrepreneur now has a basis to estimate his company worth.

RETURN ON INVESTMENT VALUATION.

This valuation method is based upon the projected financials but includes the impact of the initial investment made by the venture firm or other entity. It proceeds as follows. The initial investment of $I is made for $S per share. Although this results in P% of the company, that value is irrelevant at this point.

Using the after tax cash flow and the other investment dilutions, and EPS is determined for each year of the business. Using examples of similar businesses, the P/E ratio (Price to Earnings Ratio) is estimated for the cash flow and a market value is determined for each year k. The value of the equity on a per share basis in year k is $E(k). The investor then sets a return on his investment annualized so as to say that in year k for a return of R% annual, the per share value $S is
given by;.

$$\$S = \sum_{i=1}^{N} \$E(i)/ (1+R\%)**i.$$

where the discount factor is the denominator.

As an example let the investor make a $500,000 initial investment. Let him desire a 50 % annualized return. Let him desire to get a payout in year 5. Then the discount factor is 1/ (1.5)5 or 1/7.59 or 0.13 times the selling price in year 5.

In our previous example, the selling price is estimated to be $7.31. Thus the value per share is $0.96. This however assumed 14,000,000 shares outstanding. Thus the venture capitalist gets 520,000 shares or 4% of the company. This values the company at $13,400,000. This is the largest value. As the return rate increase however the value of the company decreases. Consider a 100% return. This gives a per share value of $0.23 or

a valuation of $3,154. The latter is most probably the better value given the desire of the investor to include a hefty risk premium.

BOOK VALUE VALUATION.

This is the last valuation method. It uses the concept that the company can be sold at a multiple of the book value and that the investor still wants to get the return on the sale as in the previous method.

Consider the investment that was discussed above. The company in year five has a book value of $31 million. If the multiples for companies in this range at that time is 1.5 time book, this gives a book based value of $46.5 million. The investor places $500,000 in the company and expects a 100% return so that by year 5 the investment is worth $16 million. This represents 34% of the company. Projecting backwards it says the company is worth three times the investment or $1.5 million. It is important to note that the driving factors here are the expected rate of return, and the multiple of book value.

Table 9.1 depicts the analytical tools and the assumptions that go into the valuation methods discussed.

To summarize the valuation methods for this example, we have the following;.

1. Reproduction Valuation: $1.1 million.
2. Present Asset Valuation: $5.5 million.
3. NPV Valuation: $4.2 million.
4. Return on Investment Valuation: $3.2 million.
5. Book Value Valuation: $1.5 million.

These results indicate that the easiest method is the reproduction method which is usually used by venture capitalists. It also gives the lowest value consistently to a business. The present asset method often overvalues the assets with no accounting for the risk. The NPV method accounts for the business and the risk but does not give a market premium. The market premium is usually given in the ROI method but it may be discounted by the excessive risk premium of the investor. Table 9.2 presents the advantages and disadvantages for each of the schemes.

Table 9.1 Details of Valuation Method.

1.0 Reproduction Valuation.

1. Number of Man Months of Effort.
2. Cost per Man Mont.
3. Valuation based on product

2.0 Present Asset Valuation.

1. Reproduction Valuation PLUS.
2. Estimated Values of Contracts, Patents, Revenue/Profits, Contracts etc.
3. Valuation Based on sum.

3.0 NPV Valuation.

1. Cash flows from Business plan.
2. Risk free cost of capita.
3. Risk values due to revenue, capital, expense.
4. Evaluate NPV using sum of risk value in NPV discounting.
5. Valuation based on NPV.

4.0 ROI Valuation.

1. Determine Investors annual anticipated return.
2. Determine target year for capital recovery through public offering.
3. Determine Investors equity using target year, return rate and initial investment.
4. Determine P/E of the business and use EPS to project market value in target year.
5. Determine ratio of market value to investors target year equity.
6. Valuation is product of investors amount times the ratio of market to target equity value.

5.0 Book Value Valuation

1. Use Investors Annual Return o Use target yea.
2. Determine Investors equity at target year.
3. Determine book value multiple at target year for company purchase.
4. Use multiple time target year book value to get market value.
5. Determine market value to investors target year equity ratio.
6. Valuation is product of investors amount times ratio of market to target equity value.

Table 9.2 Comparison of Valuation Methods

Advantages Disadvantage.

Reproduction Value.

1. Easy to calculate.
2. Does not count assets

3. Measures current expenditure.
4. Does not include business value
5. Good for investor.
6. Gives lowest value.

Present Asset Value.

1. Counts intangible asset.
2. Does no reflect business
3. Values revenue potential.
4. Does not count risk.

NPV Value.

1. Based upon business potential.
2. Does not count market value
3. Factors on risk.
4. May overvalue certain risks
5. Quantitative.

ROI Value.

1. Based on business concept.
2. Requires high risk premium
3. Factors in market premium.
4. Targets IPO liquidation
5. Uses controllable factor.
6. May give away too much.

Book Value.

1. Uses business concept.
2. Requires high risk premium
3. Conservative method.
4. Does not factor in market factors
5. Lower risk.
6. Assumes a buyout to liquidate

9.2 SOURCES OF FINANCING.

The entrepreneur will be interested in obtaining financing from alternate sources at different times in the venture development. This section will discuss the several sources of financing that are available and the advantages and disadvantages of each of the

methods. In Section 10.5 we shall discuss the sequencing of the financing that is appropriate at the different stages of the venture.

There are many types of financing that are available to the venture company. The first step is to see what phase the company is in. There are four general rounds of financing defined by the phase that the business is in.

FIRST ROUND.

This is the seed money financing stage. During this phase the entrepreneur might only have the draft business plan and may need up to $200,000 in capital to get the key ingredients together. This is the riskiest stage and also the stage in which the majority of the equity is lost. Some venture firms are willing to invest in this phase due to an interest in the business area or due to a belief in the principals that make up the venture firm.

In one case, a large and reputable venture firm had invested
one million for 50% of a firm that had no business plan, no operational management, no marketing or sales skills, just what appeared to it to be the right technical people to generate the right product. This form of financing is rare and depends upon a blend of chemistry and luck.

In another case a small company used their personal funds to generate the business plan, create the first product, and to get their first contract. The net result was that they avoided the first round of financing and held onto 100% of the company. In addition the company was valued at in excess of $5 million by the time it needed real expansion financing.

The choice of first round depends upon the ability of the entrepreneurs to finance their own venture.

SECOND ROUND.

In this round there is a plan and a potential market but no developed product. The financing is needed to develop the product to the stage where it could be marketed. Typically it is a complicated product that requires a manufacturing skill, software that requires significant development, or a service that requires an infrastructure.
In this round, the entrepreneur has the capability of identifying and even working with the end user customer in the development of the product. Typical among these efforts is the beta site testing of a new software product. As an example, consider a software company that has developed a new financial analysis package that used an artificial intelligence approach of expert systems. This is really a well developed set of "if-then-else" loops, however, it was very user friendly and satisfied an important need. This was developed by internal financing. To test it out before financing, the firm went to several

large Accounting firms and investment bank houses. Three agreed to beta test the product if they could subsequently purchase it for a 25% discount. The firm agreed and not only had a tested product, but letters of recommendation and three orders. However they needed a round of financing to maintain the company and hire the additional software personnel that were needed.

THIRD ROUND.

In this round there is a product, a well thought out business plan, and even some customers. There may even be a revenue stream and some profit. At this point, the entrepreneur may need expansion capital to expand and capture and secure market share. sample of this was a small computer terminal company that had manufactured and beta tested the product for use with distributed sales organizations. These companies now wanted to purchase 20,000 units if they could be purchased for $150 per unit in volume. The company needed special assembly equipment for final assembly. They had developed a relationship with a Korean company to do off shore manufacturing of the product. They needed $4 million for the new equipment and for working capital. At this point the company was valued at $16 million and it was possible to get the $4 million with at most 25% dilution and the issuance of warrants.

FOURTH ROUND.

At this point the company is established, it may have $2 -$5 million in revenues and may even have a strong profit position. Yet it is not generating adequate internal funds for growth. It may need considerable capital to maintain market share in what may at this point be a growing industry.

This is the point at which the company can go public with its IPO (Initial Public offering). The company has high growth, rising profits, is in a growth industry, and can demand a large multiple.

As an example, in the telecommunications switching market for PBXs, there was great activity in the late 70's early 80' with large demand and high market interest.

These are the for phases of financing. The following are the possible sources. We will then relate the finance sourcing to the phases and provide some insight as to what goes best in which phase.

The following are the financing possibilities;.

PRIVATE PLACEMENT.

In the venture business this means that the entrepreneur will attempt to directly or through some intermediary raise capital from individual investors. This means that he must put a package together for the total amount and sell interests in that package to interested parties. The person or firm doing the placement must be aware of the SEC requirements that limit what can be done under such a placement.

Basically the limits that the SEC places are along two major lines:.

RULE 504 REGULATION D:.

This is for offering up to $500,000. It requires a filing of the Reg D form and has the following major constraints;. No more than 35 non-accredited investors. o Restricted stock to be held two years. o No general solicitation. o Follow standards of full disclosure. o Adhere to Blue Sky State rules.

RULE 505 REGULATION D:.

This is for offerings up to $5,000,000. The requirements are as above but now expand to a larger base of investors. Typically Rule 505 is used by investment houses or venture capital firms.

With a good lawyer and the right support it is possible to raise seed money under Rule 504. The restrictions need some explanation. First a non-accredited investor is anyone who does not have $1,000,000 in assets. It may be friends or family who believe in you. Restricted stock is quite common. It is a form of stock which cannot be traded in any form for two years. It is typical that venture entrepreneurs get restricted shares. When they go public this may still be the case.

The Blue Sky laws are state laws that require a review by a state committee to assure the buyers that there is no overt fraud or unstated risk. There are some states that do not have such laws and we suggest that the entrepreneur check with their attorneys to determine the present status of the states.

PRIVATE CORPORATE PLACEMENT.

In this case the entrepreneur can go to a large company or set of companies who may have a strategic interest in the product area and provide the company with funds. This works well where the corporate funds provider has an interest in a new product area and

desires to take a position in the company as a means for guaranteeing a source of technical information and supply of product.

Funding levels in a private corporate placement are varied and may be able to meet the entrepreneurs requirements. The problem is that many times the interest on the part of the larger company may be too intense and can result in over-management.

A typical example is the set of companies funded by Exxon Enterprises. Prime amongst them was INTECOM, a very successful switch manufacturer. It was almost managed out of existence by the over reaching of the corporate founders. Venture Capital.

This is the most widely known source of funding. Such books as those by Silver, Gladstone and O'Flaherty can give the reader a better understanding of the workings of the venture capital firm. These firms generally have a fund that they work with and then apportion out the funds accordingly. Their objective may be to get a 50% or grater annual return on their investments.

The advantage for many a start up is that a good firm may bring some management support. The bad part of that is that it may not want the present management to stay around too long. The venture capital firm has an interest in getting out of the investment in at most five years and sooner if possible. The venture agreement is also often very restrictive and may require the entrepreneur to personally be responsible for the debt of the company.

LIMITED PARTNERSHIPS.

In certain investments where there are large tax losses in the early years, there may be an interest in setting up a limited partnership to fund the venture. In this case the assets may be transferred to the partnership, then leased to the company. The partnership than can allocate the depreciation and tax losses as tax benefits to the limited partners. This source of funding requires a syndication of a partnership and generally does not work unless there are appreciable up front losses and the at risk rules of the IRS are adhered to. R&D Tax Shelters.

This form of financing has developed as a result of IRS tax codes that allow for rapid write offs for tax purposes on R&D efforts. They are usually used for large corporations but can also be applied to ventures. There are tax considerations that require a high level of sophistication and may also need an oral reading from the IRS to assure the investors that their investment is eligible for the tax credit. This also requires that a syndication be performed.

PUBLIC OFFERING.

This may be done in a variety of ways. The IPO or initial public offering is usually handled by the venture firm or the investment banker. These offerings are OTC offering and are passed by all states on the Blue Sky basis. second form of public offering is the so called "Denver" deal. These are penny stock deals that are done in states that do not have Blue Sky laws such as Colorado (whereby the name comes). They are usually done for companies with little if any assets, that are highly speculative, and may have one to five employees. They are done by regional investment houses. typical Denver deal was for a company with one employee, a business plan, and raising $1,500,000, of which $750,000 went immediately to pay debts that were 180 days in arrears. The stock sold for $0.10 per share and there were 15 million shares issued in the offering with 30 million outstanding. The company had no revenue.

DEBT.

This is the simplest but possibly the hardest form of financing to obtain. It requires an asset base to secure the debt and results in a freezing of those assets against the security. The debt can be obtained from banks or other financial institutions. Other Forms.
There are still other creative forms of financing such as licensing agreements, prepayments on contracts, leasing, and prepayment combined with R&D contracts. These are financing alternatives that relate to the specific business and the entrepreneur should have a hold on several of these alternatives, especially in meeting with a venture capitalist.

9.3 FINANCING ALTERNATIVES.

The previous section discussed the phases of financing and the sourcing. In this section we shall discuss the type of financing that could be obtained in any one of these phases or through any one of the sources. The financing alternatives discussed below can be used separately or in conjunction with one another. The next section goes into detail as to the impact that these will have on the business.

The alternatives that are available are as follows;. Common Stock. Preferred Stock. Warrants. Options. Convertible Debentures. Secured Debt.

Each of these have different effects on the cash flows, profitability and book values of the company.

COMMON STOCK.

Common stock is the simplest form of financing. The company has shares issued at various times. These share can be authorized or outstanding. Authorized shares are authorized by the board for subsequent issuing. They may or may not be issued or held by a person. Outstanding shares are issued. Treasury shares are shares that were once outstanding but have been repurchased by the firm. third type of common is founders shares which are obtained by the founders at inception of the business.

If shares are issued beyond the founders shares for some value, it will be for the per share value of the stock at the time of offering or greater. This then establishes a market value for the company, e.g. the product of the total shares outstanding times the price per share.

For example, a company has 1 million founders shares and no other stock. It has a book value of $2 million. It sells 1 million shares of stock at $5 dollars per share. The company now has a market value of $10 million and the entrepreneurs now own 50% of the company.

Common stock may also issue dividends at a fixed rate of dollars per quarter. This dividend is purely optional. There are various theories as to how best to deal with dividend policy but that is beyond the scope of this text.

PREFERRED STOCK.

Preferred stock has no voting rights for the holders. However, it does have a guaranteed dividend payout, assuming the company can afford the cash flow. Many times the dividend may follow as a percent of the purchase price of the share of preferred and remain fixed.

Preferred holders have recourse above common in the event the company goes into bankruptcy.

Preferred stock is not reflected in the ownership of the company in shares outstanding. If there is no par value, it appears only as value in excess of par in the balance sheet.

WARRANTS.

Warrants are options to purchase stock for a fixed period of time. They allow the holder to exercise the warrant and pay the company the agreed to price and, thus gain common shares in the company. The disadvantage of warrants is that they are usually issued in conjunction with some other form of financing and are structured to provide to the purchase.

capital gains exclusion on the gains but also dilute the earnings per share of the stock of the firm. The exercise of warrants can cause a dilution at the wrong time. However, they are used as incentives to the financing entity. Options.

Options are typically granted as options to the employees or others in the firm. They are like warrants in that they give the holder the right to purchase stock in a certain time period for a given price. However, employee warrants are generally priced higher and are employee incentives.

CONVERTIBLE DEBENTURES.

These are junior debt notes that carry an interest payment but which are subordinated to secured debt. For the most part, convertible debentures are unsecured debt. They have a provision, however, that allows the holder, for a fixed period, to convert them to common stock at a fixed conversion price. A non dilution clause typically accompanies them so that the conversion is kept at the rate that was in place at the time of issue. The advantage of convertibles is that the interest is lower and that it does not encumber senior or secured debt. However, the conversion clause can have the same effect as warrants with no additional cash flow. What is allowed, is the forgiveness of the remaining convertible debt. The result is a lowering of the earnings per share.

SECURED DEBT.

Secured or senior debt is a loan that is secured by assets of the firm. It generally carries the highest interest rate and may be required to be amortized over a fixed period. This form of financing is usually obtained from banks or financial institutions.

In the next section we shall see how these may be combined to provide an overall package.

Table 9.3 shows the advantages and disadvantages of these various forms of financing.

Table 9.3 Financing Alternatives

Type	*Advantages*	*Disadvantages*
Common Stock	No Interest	Dilutes Ownership
Preferred Stock	No Liability	Dilutes Ownership, Requires Dividend.
Warrants	No Liability	Dilution Loss of Conversion Control
Options	No Liability	Dilutes Ownership Poor Conversion Timing

Convertible	Less Dilution	Liability
Debentures	Reduces Ownership	High Total Cost
Secured	No Dilution	Fixed Debt Payment
Debt	Early Repayment	Negative Cash Flow Impact

We can expand upon the details that we have presented for the financing schemes in the financing schedule. This is presented in Table 9.4. The table begins with Common Equity and starts with 1,000,000 shares to the owners in founders shares. The company then issues new common shares at a per share value. This then provides cash into the sources statement of the business. The increase in the shares dilutes the owners equity percent of the company. In this specific example, we have included the earnings per share (EPS) and the Price to Earnings (P/E) so as to determine an effective market value. In this specific example, we see that the market value of the firm increases.

The second element of the Financing Schedule is the Preferred Equity. As with common, the number of new shares and the price per share are essential values. However. preferred does not dilute the owner's equity directly. The issue with preferred, however, is the need, often, to issue dividends on the stock. In addition, many preferred shares may come with a conversion clause.

The third element of the Financing Schedule is the Warrants. Warrants can be issued at any time and by themselves do not generate cash to the uses statement. They also come with a conversion factor of how many shares of common each warrant will buy and at what price. When a warrant is exercised, it generates cash for the sources of cash and also generates an increase in the common shares outstanding. Thus in the Financing Schedule, we start with the issuance of warrants, and terminate them when they are converted to common. In some cases, warrants are never exercised because the exercise price may be too high.

Options provide the next entry on the Financing Schedule. Like warrants, options generate cash only when exercised and the result is cash and the increase in common shares outstanding.

Convertibles are also called Junior Debt. In the convertible element of the Financing Schedule, we typically issue junior debt, a debt that generates an interest requirement. The debt has associated with a conversion clause that says that it can convert the debt to common shares at a conversion price per share. For example, if the debt is $1,000,000 and the conversion price is $1 per share, then at conversion, the debt is eliminated and the balance sheet reflects a reduction in debt but an increase in the owners equity. The debt is converted to cash in excess of par. The advantage of conversion is evident if and only if the stock price is well above the conversion price.

The final elements of the financing schedule are the senior debt elements and the purchase price element. These do not impact the equity values of the company.

Table 9.4 Financing Schedule.

9.4 IMPACTS OF FINANCING.

We have discussed the various times, types and sources of financing of the new venture. In this section we shall demonstrate the different effects and impacts of using the different types of financing that were just described upon the firm.

There are certain areas of impact that the entrepreneur should focus upon when evaluating the impact of financing. They are;. Impact on the equity of the firm. Risk to the firm in cash exposure. Impact on the value of the firm. Return of cash from the investment. Impact on breakeven year and CCF peak negative year.

All types of financing are burdens, albeit necessary ones, on the firm. Thus they should be evaluated from the firms perspective. The venture capitalist will be evaluating them from his perspective.

We shall proceed by using an example of the company whose revenue, new capital and expenses are shown in Table 10.5 a,b,c. The company grows from a $1 million per year company to over $100 million in ten years. It does not require a great deal of capital overall, but it does require up front capital to get it going.

Table 9.5 Company Financials (Revenue,Capital,Expenses)

The company has a net operating income margin of 35% by year ten and as such can be highly profitable. The business needs financing to get it over the first three to four years. With the types of numbers shown, it could be a very health investment.

We shall now consider six types of financing for this company.

For each of the cases we shall look carefully at the income statement, the financing schedule and the balance sheet. We shall also summarize the results in terms of the key factors.

The cases are as follows;. Case 1: Common Stock.

Common stock is issued in years 1,2,3 of operation. In year 1 the stock is issued at $1 per share with 2 million shares, year two at $2 per share and 1 million share and year three at $4 per share with 500 thousand shares. The founders have 1 million shares in all cases. This raises $6 million.

Case 2: Secured Debt

We assume that the company can get secured debt financing at 15% annual rate. In this case the balance sheet does not indicate that there are the assets but we shall assume that there was some benevolent benefactor willing to sign for the debt. The debt is $2.5 million the first year and $3 million the second and third years. This is a total of $8.5 million, $2.5 million over what was needed in the case of common equity funding.

Case 3: Preferred.

This case assumes a preferred price of $2, 3, 4 for each of the first three years, with 1.5, 1 and 0.5 million shares issued with an dividend rate of 12%. This raises a total of $8 million. Less than that for debt, but it is important to remember that dividends are paid after taxes and not before.

Case 4: Convertible Debentures.

In this case, $2.5, 2.0 and 2.5 million are raised through convertibles, with conversion prices of $2 for each year. The interest rate is 10%. We assume that they are converted in the fifth and sixth years.

Case 5: Preferred and Convertibles

This is a more typical case. Convertible debt of $1 million in the first and $2 in the third year are made at a conversion price of $1 per share with conversion in year 5. Preferred is issued in years 1 and 2 at $2 and $3 respectively for 1 million in year one and the same number in year two. This raises a total capital of $8 million.

Case 6: Debt and Warrants.

This is also a typical case. Here the debt is at 12% and is $2.5,2.5 and 2.5 for the first three years. Warrants are issued at $1 per warrant in the amounts of 1 million for each of the years. A total of $10.5 million can be raised in this case, yet the latter $3 million occurs at the exercise of the warrants in year 5.

Tables 9.6 through 9.17 present the income statements and balance sheets for these six cases. Table presents the key financial factors comparing the six cases. Before proceeding, let us assume that the company goes public in year 6 and that the founders still have their 1 million shares. The payout to the founders under these cases is the baseline to evaluate the impact of the financing schemes.

Table 9.6 Income Statement: Case 1

Year	1986	1987	1988	1989	1990	1991
Revenue	$1,000	$2,500	$5,000	$9,500	$14,250	$21,375
Expense	$1,400	$2,750	$4,500	$7,600	$9,263	$13,894
Net Oper Income	($400)	($250)	$500	$1,900	$4,987	$7,481
Margin %	-40%	-10%	10%	20%	35%	35%
Depreciation	$400	$620	$896	$817	$753	$703
Profit Before Int	($800)	($870)	($396)	$1,083	$4,234	$6,778
Margin %	-80%	-35%	-8%	11%	30%	32%
Interest	$0	$0	$0	$0	$0	$0
Profit Before Tax	($800)	($870)	($396)	$1,083	$4,234	$6,778
Margin %	-80%	-35%	-8%	11%	30%	32%
Taxes	$0	$0	$0	$0	$1,593	$3,321
Dividends	$0	$0	$0	$0	$0	$0
Profit After Tax	($800)	($870)	($396)	$1,083	$2,641	$3,457
Margin %	-80%	-35%	-8%	11%	19%	16%

Table 9.7 Balance Sheet : Case 1

Year	1986	1987	1988	1989	1990	1991
Assets						

Current Assets						

Cash	($47)	$130	$667	$1,875	$4,876	$8,904
Sht Term Invest	$0	$0	$0	$0	$0	$0
Accts Receivable	$205	$514	$1,027	$1,952	$2,928	$4,392
Inventory	$100	$155	$224	$204	$188	$176
Tot Cur Assets	$259	$799	$1,918	$4,032	$7,993	$13,472
Capital Plant-Dep	$1,600	$2,480	$3,584	$3,267	$3,014	$2,811
LT Invest	$0	$0	$0	$0	$0	$0
Sundry Assets	$0	$0	$0	$0	$0	$0
Total Assets	$1,859	$3,279	$5,502	$7,299	$11,006	$16,283
Liabilities						

Current Liab						

Accts Payable	$559	$699	$1,068	$1,332	$1,605	$2,366
Accrued Liab	$100	$250	$500	$950	$1,425	$2,138
Taxes Payable	$0	$0	$0	$0	$319	$664
Tot Cur Liab	$659	$949	$1,568	$2,282	$3,348	$5,168
Long Term Debt	$0	$0	$0	$0	$0	$0
Other Noncur liab	$0	$0	$0	$0	$0	$0
Total Liabilities	$659	$949	$1,568	$2,282	$3,348	$5,168
Owners Equity						

Shares @ Par	$0	$0	$0	$0	$0	$0
Adtl Paid-In Cap	$2,000	$4,000	$6,000	$6,000	$6,000	$6,000
Retain Earnings	($800)	($1,670)	($2,066)	($983)	$1,658	$5,115
Tot Owner Equity	$1,200	$2,330	$3,934	$5,017	$7,658	$11,115
Tot Liab/Own Equ	$1,859	$3,279	$5,502	$7,299	$11,006	$16,283

Table 9.8 Income Statement : Case 2

Year	1986	1987	1988	1989	1990	1991
Revenue	$1,000	$2,500	$5,000	$9,500	$14,250	$21,375
Expense	$1,400	$2,750	$4,500	$7,600	$9,263	$13,894
Net Oper Income	($400)	($250)	$500	$1,900	$4,987	$7,481
Margin %	-40%	-10%	10%	20%	35%	35%
Depreciation	$400	$620	$896	$817	$753	$703
Profit Before Int	($800)	($870)	($396)	$1,083	$4,234	$6,778
Margin %	-80%	-35%	-8%	11%	30%	32%
Interest	$375	$813	$1,209	$1,159	$1,152	$684
Profit Before Tax	($1,175)	($1,683)	($1,605)	($76)	$3,081	$6,095
Margin %	-118%	-67%	-32%	-1%	22%	29%
Taxes	$0	$0	$0	$0	$0	$2,272
Dividends	$0	$0	$0	$0	$0	$0
Profit After Tax	($1,175)	($1,683)	($1,605)	($76)	$3,081	$3,823
Margin %	-118%	-67%	-32%	-1%	22%	18%

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Table 9.9 Balance Sheet : Case 2

Year	1986	1987	1988	1989	1990	1991
Assets						

Current Assets						

Cash	($47)	$130	$667	$1,875	$4,876	$8,904
Sht Term Invest	$0	$0	$0	$0	$0	$0
Accts Receivable	$205	$514	$1,027	$1,952	$2,928	$4,392
Inventory	$100	$155	$224	$204	$188	$176
Tot Cur Assets	$259	$799	$1,918	$4,032	$7,993	$13,472
Capital Plant-Dep	$1,600	$2,480	$3,584	$3,267	$3,014	$2,811
LT Invest	$0	$0	$0	$0	$0	$0
Sundry Assets	$0	$0	$0	$0	$0	$0
Total Assets	$1,859	$3,279	$5,502	$7,299	$11,006	$16,283
Liabilities						

Current Liab						

Accts Payable	$559	$699	$1,068	$1,332	$1,605	$2,366
Accrued Liab	$100	$250	$500	$950	$1,425	$2,138
Taxes Payable	$0	$0	$0	$0	$319	$664
Tot Cur Liab	$659	$949	$1,568	$2,282	$3,348	$5,168
Long Term Debt	$0	$0	$0	$0	$0	$0
Other Noncur liab	$0	$0	$0	$0	$0	$0
Total Liabilities	$659	$949	$1,568	$2,282	$3,348	$5,168
Owners Equity						

Shares @ Par	$0	$0	$0	$0	$0	$0
Adtl Paid-In Cap	$2,000	$4,000	$6,000	$6,000	$6,000	$6,000
Retain Earnings	($800)	($1,670)	($2,066)	($983)	$1,658	$5,115
Tot Owner Equity	$1,200	$2,330	$3,934	$5,017	$7,658	$11,115
Tot Liab/Own Equ	$1,859	$3,279	$5,502	$7,299	$11,006	$16,283

Table 9.10 Income Statement: Case 3

Year	1986	1987	1988	1989	1990	1991
Revenue	$1,000	$2,500	$5,000	$9,500	$14,250	$21,375
Expense	$1,400	$2,750	$4,500	$7,600	$9,263	$13,894
Net Oper Income	($400)	($250)	$500	$1,900	$4,987	$7,481
Margin %	-40%	-10%	10%	20%	35%	35%
Depreciation	$400	$620	$896	$817	$753	$703
Profit Before Int	($800)	($870)	($396)	$1,083	$4,234	$6,778
Margin %	-80%	-35%	-8%	11%	30%	32%
Interest	$0	$0	$0	$0	$0	$0
Profit Before Tax	($800)	($870)	($396)	$1,083	$4,234	$6,778
Margin %	-80%	-35%	-8%	11%	30%	32%
Taxes	$0	$0	$0	$0	$1,593	$3,321
Dividends	$360	$720	$960	$960	$960	$960
Profit After Tax	($1,160)	($1,590)	($1,356)	$123	$1,681	$2,497
Margin %	-116%	-64%	-27%	1%	12%	12%

Table 9.11 Balance Sheet: Case 3

Year	1986	1987	1988	1989	1990	1991
Assets						

Current Assets						

Cash	$593	$1,050	$627	$875	$2,916	$5,984
Sht Term Invest	$0	$0	$0	$0	$0	$0
Accts Receivable	$205	$514	$1,027	$1,952	$2,928	$4,392
Inventory	$100	$155	$224	$204	$188	$176
Tot Cur Assets	$899	$1,719	$1,878	$3,032	$6,033	$10,552
Capital Plant-Dep	$1,600	$2,480	$3,584	$3,267	$3,014	$2,811
LT Invest	$0	$0	$0	$0	$0	$0
Sundry Assets	$0	$0	$0	$0	$0	$0
Total Assets	$2,499	$4,199	$5,462	$6,299	$9,046	$13,363
Liabilities						

Current Liab						

Accts Payable	$559	$699	$1,068	$1,332	$1,605	$2,366
Accrued Liab	$100	$250	$500	$950	$1,425	$2,138
Taxes Payable	$0	$0	$0	$0	$319	$664
Tot Cur Liab	$659	$949	$1,568	$2,282	$3,348	$5,168
Long Term Debt	$0	$0	$0	$0	$0	$0
Other Noncur liab	$0	$0	$0	$0	$0	$0
Total Liabilities	$659	$949	$1,568	$2,282	$3,348	$5,168
Owners Equity						

Shares @ Par	$0	$0	$0	$0	$0	$0
Adtl Paid-In Cap	$3,000	$6,000	$9,000	$11,000	$11,000	$11,000
Retain Earnings	($1,160)	($2,750)	($4,106)	($3,983)	($2,302)	$195
Tot Owner Equity	$1,840	$3,250	$4,894	$7,017	$8,698	$11,195
Tot Liab/Own Equ	$2,499	$4,199	$6,462	$9,299	$12,046	$16,363

Table 9.12 Income Statement : Case 4

Year	1986	1987	1988	1989	1990	1991
Revenue	$1,000	$2,500	$5,000	$9,500	$14,250	$21,375
Expense	$1,400	$2,750	$4,500	$7,600	$9,263	$13,894
Net Oper Income	($400)	($250)	$500	$1,900	$4,987	$7,481
Margin %	-40%	-10%	10%	20%	35%	35%
Depreciation	$400	$620	$896	$817	$753	$703
Profit Before Int	($800)	($870)	($396)	$1,083	$4,234	$6,778
Margin %	-80%	-35%	-8%	11%	30%	32%
Interest	$250	$450	$700	$700	$700	$0
Profit Before Tax	($1,050)	($1,320)	($1,096)	$383	$3,534	$6,778
Margin %	-105%	-53%	-22%	4%	25%	32%
Taxes	$0	$0	$0	$0	$221	$3,321
Dividends	$0	$0	$0	$0	$0	$0
Profit After Tax	($1,050)	($1,320)	($1,096)	$383	$3,313	$3,457
Margin %	-105%	-53%	-22%	4%	23%	16%

Table 9.13 Balance Sheet : Case 4

Year	1986	1987	1988	1989	1990	1991
Assets						

Current Assets						

Cash	$203	($70)	$267	$775	($2,826)	$1,476
Sht Term Invest	$0	$0	$0	$0	$0	$0
Accts Receivable	$205	$514	$1,027	$1,952	$2,928	$4,392
Inventory	$100	$155	$224	$204	$188	$176
Tot Cur Assets	$509	$599	$1,518	$2,932	$290	$6,044
Capital Plant-Dep	$1,600	$2,480	$3,584	$3,267	$3,014	$2,811
LT Invest	$0	$0	$0	$0	$0	$0
Sundry Assets	$0	$0	$0	$0	$0	$0
Total Assets	$2,109	$3,079	$5,102	$6,199	$3,304	$8,855
Liabilities						

Current Liab						

Accts Payable	$559	$699	$1,068	$1,332	$1,605	$2,366
Accrued Liab	$100	$250	$500	$950	$1,425	$2,138
Taxes Payable	$0	$0	$0	$0	$44	$664
Tot Cur Liab	$659	$949	$1,568	$2,282	$3,074	$5,168
Long Term Debt	$2,500	$4,500	$7,000	$7,000	$0	$0
Other Noncur liab	$0	$0	$0	$0	$0	$0
Total Liabilities	$3,159	$5,449	$8,568	$9,282	$3,074	$5,168
Owners Equity						

Shares @ Par	$0	$0	$0	$0	$0	$0
Adtl Paid-In Cap	$0	$0	$0	$0	$0	$0
Retain Earnings	($1,050)	($2,370)	($3,466)	($3,083)	$230	$3,687
Tot Owner Equity	($1,050)	($2,370)	($3,466)	($3,083)	$230	$3,687
Tot Liab/Own Equ	$2,109	$3,079	$5,102	$6,199	$3,304	$8,855

Table 9.14 Income Statement : Case 5

Year	1986	1987	1988	1989	1990	1991
Revenue	$1,000	$2,500	$5,000	$9,500	$14,250	$21,375
Expense	$1,400	$2,750	$4,500	$7,600	$9,263	$13,894
Net Oper Income	($400)	($250)	$500	$1,900	$4,987	$7,481
Margin %	-40%	-10%	10%	20%	35%	35%
Depreciation	$400	$620	$896	$817	$753	$703
Profit Before Int	($800)	($870)	($396)	$1,083	$4,234	$6,778
Margin %	-80%	-35%	-8%	11%	30%	32%
Interest	$100	$100	$300	$300	$300	($450)
Profit Before Tax	($900)	($970)	($696)	$783	$3,934	$7,228
Margin %	-90%	-39%	-14%	8%	28%	34%
Taxes	$0	$0	$0	$0	$1,054	$3,542
Dividends	$240	$600	$600	$600	$600	$600
Profit After Tax	($1,140)	($1,570)	($1,296)	$183	$2,280	$3,086
Margin %	-114%	-63%	-26%	2%	16%	14%

Table 9.15 Balance Sheet : Case 5

Year	1986	1987	1988	1989	1990	1991
Assets						

Current Assets						

Cash	$613	$1,090	$727	$1,035	($3,933)	($124)
Sht Term Invest	$0	$0	$0	$0	$0	$0
Accts Receivable	$205	$514	$1,027	$1,952	$2,928	$4,392
Inventory	$100	$155	$224	$204	$188	$176
Tot Cur Assets	$919	$1,759	$1,978	$3,192	($816)	$4,444
Capital Plant-Dep	$1,600	$2,480	$3,584	$3,267	$3,014	$2,811
LT Invest	$0	$0	$0	$0	$0	$0
Sundry Assets	$0	$0	$0	$0	$0	$0
Total Assets	$2,519	$4,239	$5,562	$6,459	$2,198	$7,255
Liabilities						

Current Liab						

Accts Payable	$559	$699	$1,068	$1,332	$1,605	$2,366
Accrued Liab	$100	$250	$500	$950	$1,425	$2,138
Taxes Payable	$0	$0	$0	$0	$211	$708
Tot Cur Liab	$659	$949	$1,568	$2,282	$3,241	$5,212
Long Term Debt	$1,000	$1,000	$3,000	$3,000	($4,500)	($4,500)
Other Noncur liab	$0	$0	$0	$0	$0	$0
Total Liabilities	$1,659	$1,949	$4,568	$5,282	($1,259)	$712
Owners Equity						

Shares @ Par	$0	$0	$0	$0	$0	$0
Adtl Paid-In Cap	$2,000	$4,000	$7,000	$7,000	$7,000	$7,000
Retain Earnings	($1,140)	($2,710)	($4,006)	($3,823)	($1,543)	$1,543
Tot Owner Equity	$860	$1,290	$2,994	$3,177	$5,457	$8,543
Tot Liab/Own Equ	$2,519	$3,239	$7,562	$8,459	$4,198	$9,255

Table 9.16 Income Statement : Case 6

Year	1986	1987	1988	1989	1990	1991
Revenue	$1,000	$2,500	$5,000	$9,500	$14,250	$21,375
Expense	$1,400	$2,750	$4,500	$7,600	$9,263	$13,894
Net Oper Income	($400)	($250)	$500	$1,900	$4,987	$7,481
Margin %	-40%	-10%	10%	20%	35%	35%
Depreciation	$400	$620	$896	$817	$753	$703
Profit Before Int	($800)	($870)	($396)	$1,083	$4,234	$6,778
Margin %	-80%	-35%	-8%	11%	30%	32%
Interest	$250	$500	$750	$750	$750	$0
Profit Before Tax	($1,050)	($1,370)	($1,146)	$333	$3,484	$6,778
Margin %	-105%	-55%	-23%	4%	24%	32%
Taxes	$0	$0	$0	$0	$123	$3,321
Dividends	$0	$0	$0	$0	$0	$0
Profit After Tax	($1,050)	($1,370)	($1,146)	$333	$3,361	$3,457
Margin %	-105%	-55%	-23%	4%	24%	16%

Table 9.17 Balance Sheet : Case 6

Year	1986	1987	1988	1989	1990	1991
Assets						

Current Assets						

Cash	$203	$380	$667	$1,125	$3,052	$7,374
Sht Term Invest	$0	$0	$0	$0	$0	$0
Accts Receivable	$205	$514	$1,027	$1,952	$2,928	$4,392
Inventory	$100	$155	$224	$204	$188	$176
Tot Cur Assets	$509	$1,049	$1,918	$3,282	$6,169	$11,942
Capital Plant-Dep	$1,600	$2,480	$3,584	$3,267	$3,014	$2,811
LT Invest	$0	$0	$0	$0	$0	$0
Sundry Assets	$0	$0	$0	$0	$0	$0
Total Assets	$2,109	$3,529	$5,502	$6,549	$9,182	$14,753
Liabilities						

Current Liab						

Accts Payable	$559	$699	$1,068	$1,332	$1,605	$2,366
Accrued Liab	$100	$250	$500	$950	$1,425	$2,138
Taxes Payable	$0	$0	$0	$0	$25	$664
Tot Cur Liab	$659	$949	$1,568	$2,282	$3,054	$5,168
Long Term Debt	$2,500	$5,000	$7,500	$7,500	$0	$0
Other Noncur liab	$0	$0	$0	$0	$0	$0
Total Liabilities	$3,159	$5,949	$9,068	$9,782	$3,054	$5,168
Owners Equity						

Shares @ Par	$0	$0	$0	$0	$0	$0
Adtl Paid-In Cap	$0	$0	$0	$0	$6,000	$6,000
Retain Earnings	($1,050)	($2,420)	($3,566)	($3,233)	$128	$3,585
Tot Owner Equity	($1,050)	($2,420)	($3,566)	($3,233)	$6,128	$9,585
Tot Liab/Own Equ	$2,109	$3,529	$5,502	$6,549	$9,182	$14,753

The results of these different types of financing on the performance of the firm are depicted in Table 10.18 wherein is depicted the market value of the company, the value of the founders share at the time of liquidation and the percent ownership of the founders. This is graphically depicted in Figure 9.1.

Table 9.18 Returns on Cases of Investment.

Case	Market Value	Founders Value	Ownership
1	$52,456	$11,540	22%.
2	$65,257	$65,257	100%.
3	$30,856	$30,856	100%.
4	$55,026	$12,105	22%.
5	$38,056	$8,372	22%.
6	$60,799	$15,199	25%.

Figure 9.1 Variation of Firm Valuation due to Financing

The key observation in the Table is that if you could get and carry all the debt, then the return from this form of financing is the greatest for the owners. This observation the typical motivation for the entrepreneurs to perform leveraged buy outs (LBO) on existing companies. However, the risk with this type of financing is the greatest.

The second observation is that convertibles and warrants dilute ownership in a significant fashion. The worst case is preferred and convertibles. It leaves the entrepreneur with the smallest amount. It penalizes the business by the after dividend hit plus dilutes the ownership that is left.

Unfortunately, the venture companies do best with the Case 6 scenario, in which the venture capital firm effectively generates a hedge against failure.

This is best shown in Table 9.19 and 9.20. Here we have expanded the previous table and have included the payback for the investor. As indicated, the highest value is to the case 6 scenario, wherein the investor gets an 118% annualized return. The lowest is the pure debt issue and it is as expected. The risk should be less since it is secured by the assets of the firm. The case of common stock is also one of the lower returns due to the long term payback required. Also note that we assumed that the company would by back the preferred at a multiple of 10 times its initial price.

This typically is the only way preferred holders can cash in their preferred stock.

Table 9.19 Detailed Comparison of Investment Schemes

Table 9.20 Impact of Investment on Company Performance

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9.5 SEQUENCED FINANCING.

As indicated in the last section, there are many types of financing and the impacts on the investor and the entrepreneur are dramatically different. The concept of sequenced financing is based upon the supposition that the entrepreneur will have the capability to have some selection over the means and methods and times at which financing will occur.

The sequences follow the approaches that we discussed in the development of first and subsequent rounds of financing. The plan should consider the effects of these sequenced financing schemes on the overall value of the business. One word of caution on financing in this mode. There are certain companies or brokers who bring companies public at the first round. This is a very dangerous strategy and oftentimes backfires. For example there is a company that was brought public at a $9 million valuation leaving the entrepreneur with 30% or $2.7 million. The company raised $3 million.

The first problem was that the company needed $3 million in capital at a minimum. However the broker took $250,000 for filing fees, $250,000 for legal fees, $500,000 for finders fee, a payment of $6,000 per month for three years for the broker and three friends for consulting plus 30% of the company.

Of the $3 million, only $1.7 million was left and this forced a second round at much lower rates. The founder held only 4% after the second round with the company valued at only $9 million. A third round would still be needed. He was bought out after three years for only $100,000 in cash.

9.6 CONCLUSIONS.

The most sensitive part of the business negotiations is developed around the financing. This includes the valuation and the sophistication of the entrepreneur. The most important piece of advice is to have thought out the total financing strategy and to have valued the company properly. Then and only then can the wealth generated by the entrepreneur be retained.

We have generated, in this chapter, a model and framework for generating a set of alternative financing proposals for the new business. These proposals can then be evaluated for the impact on the return to both the entrepreneur and the investors. This approach allows for more equitable and balance negotiating between the entrepreneur and

the investor. We have continually stressed the need for being prepared with alternative scenarios that are backed by detailed financials on their respective performance. The intent of this chapter was to provide the entrepreneur with that set of tools.

CHAPTER 10 CONCLUSION.

In the preceding chapters, we have developed the major concepts and presentations involved in that enter into the business plan for a start up company. As indicated in the beginning of the book, it is not just an academic treatise but includes actual results from the experiences of many companies in this level of development.

Once the company clears the first hurdle of getting started and becomes a living entity, there occur a new set of challenges that it must meet. These challenges are discussed in various other places and fall far beyond the scope of this book. However, by following the structured procedures and understanding the framework of the business development process, the start up team should have a better insight into the successful business venture. As the company grows through the idea and plan stage, it begins to take form as an organization.

During this phase the talents of the entrepreneur and his team get tested in ways in which they oftentimes have had very little, if any, exposure. It is during this phase that the principals are most vulnerable. The major risks come from the venture capitalists who may be seeking their payout on too unrealistic a time schedule or the risk may be due to a one product company that has no follow through and a new set of competitors. In this conclusion, we focus on the next steps that must be taken by the entrepreneur in the start up company. We further assess the risks that may be faced and discuss ways to overcome them. Getting the business created and started is only the first step. It brings the players to a new threshold and face to face with a new set of problems. If the principals can come to grips with these new problems and seek ways to manage them then, there is the chance for future growth and success. The most important factor in this management effort is the establishment of a firm foundation in the business development phase that we have just discussed in the body of this book.

10.1 DEVELOPING THE INFRASTRUCTURE.

As we have continuously stressed, the essence of the business is people. The proper selection of people is the most important part of the business. The second most important part is the allocation of those resources into the infrastructure of the business. The manager must continually monitor the needs of the enterprise and reassign the resources to meet the problems as they occur. No organization is static. In fact the people in an entrepreneurial organization are oftentimes the most fluid in their abilities to flow from one position to another.

As an example, in one start up company, the entrepreneur was the key technical person in the early days. He headed up the organization and took charge of all the technical developments. The company had a chairman who also handled the marketing role. As the

business developed, it found that the technical president had so many contacts and had such a drive to sell the product, that he evolved into the sales role, and the chairman took over the role of CEO.

The company acquired a new technical person to focus on that area. Change and redirection are important. The avoidance of internal conflicts are even more so. The internal conflicts oftentimes arise between the employees over roles that are being played in terms of the organization. To reduce these frictions there must be a clean definition of these roles and a decisive communications of these to all the employees. This is the simplest task. The CEO must also back up this organization with support of the key player in that role. The second part of managing the infrastructure is the management of the Board and Investors. The Board should usually be the responsibility of the Chairman, and he should be managing upwards.

The Chairman should communicate with the Board freely and should ensure that there are no surprises to the Board. With a tightly controlled Board, this may not be a problem. With a venture capital backed Board this can be a significant problem. Almost without exception, the companies that have gotten into trouble are those that have kept back facts from the Board that reflect adversely on the business progress.

If the Board was chosen wisely, then its assistance will be invaluable in the times of stress. Aside from the legal implications, the Board must be informed, and its guidance sought. The Board oftentimes has a shorter time horizon and in times of stress may be less likely to weather through and of the stresses. Management of the venture team is almost as important as managing the company.

10.2 MANAGING RISK.

The risks that will develop in the first few years as the business develops are predictable. As we discussed in previous chapters, risks and risk strategies are key to survival.

The risks that occur during the operations phase of the business are different than those during the development phase however. They can be anticipated in general terms and for the most part are predictable. These are the risks that result when the company is making revenue and may even be profitable. The following is a synopsis of those risks.

Risk 1 Unrealistic Goal.

This occurs when the business was anticipated to be $100 million with 50% pre-tax profit margins and it is $4 million with 7% pre tax margin. There is a certain amount of over-enthusiasm that accompanies a new business but in some cases the business does not take off as rapidly as anticipated. Depending on the backers there are many things that can happen at this point. The venture people may seek to sell off the business or the key

players may get disillusioned with the returns for their time. The managers should reassess their goals and reassess the strategies.

Perhaps the business can become a $20 million per year business with some effort. That is not really a bad business. It may not make the venture people happy but could make for a comfortable business base. One strategy is to continually reassess the goals. If the venture backers get dissatisfied, a buy out of their interests may be possible.

Risk 2 Only One Product.

The problem with most start ups is that they have one product. They may think about others, but there is only one in the stable. The problem occurs as the product life cycle comes to its end or when the revenue from that one product is saturated. The time to plan for the second product is as the first one is entering the development phase. Remember that products have life cycles and that the second product must follow in close step behind the first. Remember also that the second product may have less of a chance at success as the first and this must be anticipated. The classic example is the Apple computer line. The first product was the Apple II and the follow on the Apple II C , and then the LISA, followed on by the Mac.

There was a clear progression of the product, from the initial stage of conception to a continuing product introduction. What is essentials to have the vision of where the company will go and to develop a consistent product roll out plan for that vision. key fact to reexamine is the question of what business is the company in and to remember that the product that is first made is not the business. The product first introduced is only the initial manifestation of that business. The managers should strategically have a roll out of other products that manifest the business.

Risk 3: The End of The Money.

In the early phases the money raised came from the venture backers or their surrogates. In the more mature phase the money must come in larger chunks and must be used for working capital and expansion needs. This is a new source of money from places that are less willing to take risk. With a good line of credit, the issue of raising capital is reduced to borrowing from banks on the basis of a secured debt. The management of this process is critical. Money is readily raised at favorable rates when least needed. Thus, it is imperative to have the financial expertise available at as early a stage as possible. This does not mean that the start up company must have its own accountant or controller. It requires the presence of an experienced financial manager to set up the lines of credit and other necessary funds sources as soon as possible.

Risk 4: Not Enough People.

As the business grows the need for additional people grows significantly. This need is satisfied early on by contacts and the support of the Board members. The use of search firms may help for certain key people. As the business breaks through the 40 or 50 mark, it gets more difficult to attract the right type of people. When there is no more equity to share, there may be no more challenges to make for day to day risks. There are however the day to day challenges of managing a business.

The second element of this risk is the clash of cultures. The first group in the start up company will think of themselves as pioneers in a wilderness and have a certain camaraderie. The next flow of people are really employees. They must be integrated and motivated. This will take a new set of talents. It will also require a new set of management structures. The actual acquiring and recruiting of these people will be difficult. The original sales pitch of working for a start up is gone.

Now it is any other company and these employees will want competitive benefits and salaries. The use or recruitment firms will be necessary and this will increase the overhead since they will charge 25% of the first years salary as a finders fee. This may be a big jump in expenses which was never anticipated. Thus this risk has cultural, organizational and financial elements that must be managed. These risks are the common second phase risks that the business will experience. They are manageable but they must be anticipated and the organization must be prepared to respond to them.

10.3 BUDGET AND CONTROL.

The business develops along the line of meeting the many short term goals that have been set for it. It must develop an effective budgetary and control system to manage the expenses and growth. This will include the strategic planning process, the budget process and the management control systems that are typical of many larger corporations. The biggest drawback that the company will experience in introducing is that they take time and that the entrepreneurs have less time to do what they do best.

The importance of these factors cannot be understated. They are the lifeblood of the business. The larger the business becomes the longer the decision process is and the greater the impact will be of those decisions. The three elements that must be in place are.

o Strategic Plan.

This is an annual revival of the business plan. All of what we have been saying in this book must be duplicated in a structured form each year. The business must be re-evaluated and the products must be rediscovered. The process must be led from the top and must be an involving process including all the inputs of the players in the business.

o Budget.

Based on the strategic goals of the business, the budget is a document that details the expenses and capital required to achieve those goals. It becomes the agreed to game plan as to how much can be spent in what areas. It is a collaborative effort that requires the participation and consent of all the management team.

o Management Control System

As we had discussed with the PMCS, there must be a continuing MCS that controls the budget expenditures and other uses of capital. The typical entrepreneur will have had little exposure to this process. It is in this area that a good controller is essential. The net result of the above factors and the risk areas is that there is an expanding base of overhead functions that need to be provided as the business grows. These overhead functions were provided on an ad hoc basis during the development phase but now have become institutionalized. It is at this point that the entrepreneur must be cautious to accept these factors and learn to live with them. These overhead functions deal will increased personnel functions, closer controller functions, increased management concerns, and more complex marketing efforts.

10.4 CONCLUSION.

At this point the reader has developed an understanding of the fundamentals of the business development process. This process applies for the new business on a stand alone basis, as well as for new business which is in an existing corporation. This book has provided a framework to structure questions and decisions. It has stressed the importance of people as the major success factor in developing a new business. Finally the process developed here is applicable as part of an ongoing process of evaluating and evolving and growing business.

APPENDIX A BUSINESS PLAN

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Section 4 Development Program.

The development effort will entail the development of the system, the service and the customer base. It will also require the development of the management team and structure to support the ongoing sales and market support efforts.

4.1 Product Development.

The development of the product will encompass the following set of tasks:.

1.0 Marketing.

1.1 Commitment of a base of 400 B&B operators on a national basis for a prototype system.

1.2 Development of local agents to market the service in the top ten regions in the US. Agents will have the responsibility of signing up follow on B&Bs in areas of 80 mile radius. 1.3 Development of a national promotional strategy and its implementation to target the target market that has been determined.

1.4 Commitment of total of 2,000 B&B operators for the first operational effort.

1.5 Development and implementation of a customer service support function.

2.0 Technical/Operations.

2.1 Development and implementation of the on-line reservation system.

2.2 Telecommunications interface for the 400 prototype users.

2.3 Specialized software development.

2.4 Integration of the end user terminals.

2.5 Development of administrative software support.

2.6 Integration of credit card POS capabilities.

4.2 Schedule and Financials.

Table 4.1 depicts the schedule for the development program.

The major benchmarks are as follows:.

o Sign up of 400 B&Bs.

o Establishment of reservation system central facility.

o Placement of all end user terminals (400).

o Initialization of national promotion campaign.

o Sign up of 2,000 B&Bs.

o Initiation of national rollout promotion.

o Affiliations with card companies.

Table 4.1 Development Effort Schedule

The development effort will be closely coupled with the company's east coast and western offices. The technical and operations development effort will be focused in the east coast office in New Jersey. This will allow for easy access to all technical support and telecommunications interface. The western office will focus on the development of the market relations and will manage the development of the field sales force. The east coast office will manage the development of the promotional plan utilizing the advertising agency relationships that it has developed over the past several years.

The company management will consist of the following:.

o Chairman: Responsible for the east coast office operations. This will be an experienced entrepreneur who will have extensive computer development and operations expertise.

o President: This will be the western office and will be responsible for the implementation and operations of the field forces. The positioning in this area will allow for national coverage.

o Vice President, Engineering: This will be an east coast position that will support the development of the system operations. This executive will have had extensive experience with POS systems.

o Vice President, Marketing: This will be an east coast position that will focus on the promotional areas.

The major operational and development expenses are as shown in Table 4.2.

Table 4.2 Development Expenses

4.4 Risk.

The development effort is a phased effort and the risks are manageable.

The major risks are as follows.

o Acceptance by the B&Bs of the service. The company has already tested this concept and feels that the risks are low.

o Slow market penetration. The business can be profitable at a low penetration due to the highly variable nature of the expenses and capital requirements.

o Technical Delays. The company has a highly trained and experienced team that reduces this risk.

o Low consumer acceptance of the service.

This may the highest risk. The company has performed some preliminary research and feels that there will be acceptance if awareness is high. By carefully targeting the market, it is felt that the awareness can be met but possibly at a higher price.

Section.

Operations and Management

The business will operate with a real time computer system located in the East Coast region of the US and will have its corporate offices located in Santa Fe, NM and Florham Park, NJ. This section details the operations of the business and provides an outline of the management requirements. It also presents the details of the capital requirements as well as the expense model of the business.

5.1 Operations

The business will operate in the following fashion. Functionally it will perform:

o Marketing and Sales

This will include the remote sales force of Sales representatives managed by regional representatives who will be company employees. There will be six regional

representatives. The sales force will be functioning as the direct day to day B&B contact. BBI will support a separate 800 number for B&B interface and SR support.

The separate corporate marketing effort will be focused on obtaining new B&Bs as well as preparing for the franchising effort. The marketing effort will also be preparing the company promotional campaigns to target the consumer market.

A separate customer service facility will be in place to handle B&B interface calls. This efforts is separate from the interface for the consumer. It will be important to provide an ongoing marketing effort to support the B&B base to ensure that a low churn is kept and that resale of the exclusive franchise is high.

Billing and advertising are in this operations area.

o Development

This is the general technical area that will support the operations and development of the real time reservations service. It is composed of systems people who provide the high level systems support functions such as communications and data base services, hardware people that provide customer service support and who in turn interface with the RCA service company representatives, the software group which keeps the computer system developed and operational.

It will be important to continue to make modifications to the system and this is the major focus of the development group. It must also interface with the marketing people to ensure that the system meets the operational requirements.

o Operations

This area supports the real time operations of the business. It has a training effort that provides direct training of the new B&B entrants in the use of the system. This training function is essential for the operations of the business and must be supported at corporate. It must be clear that the system is to be used and any failure to use it will result in reduced revenue. Thus the training personnel will have close contact with marketing and the SRs.

Also the 800 number customer services number for reservations is supported in this operations area.

o Field Service

This is the field service expense fort the system. This may be supported from an RCA Service Company contract.

o G&A

This is the overall management support functions.

The operations of the service will follow the flow in the diagram in Fig 5.1. Information will flow from the terminal in the B&B location. The terminal will include a keyboard type computer, a screen, a credit card device and a printer. The terminal will be used to enter reservations that are received as well as to receive reservation requests from the central computer. The B&B will purchase the terminal equipment from RCA. The estimated price is $700. It includes an autodial modem for communications.

The terminal uses Telenet to communicate with the central computer. This is an IBM series 1 machine with communications front end software supporting a 56 Kbps data mode. The Series 1 will also support several video display terminals that work with the customer service workers who accept reservations. As reservations come in they are recorded and then downloaded to the individual B&Bs.

The credit card validation on reservations can be done at this central facility. Once the customer arrives at the B&B, the B&B will inform the central facility of the arrival. No shows will be billed on a guaranteed reservation basis.

The central facility will be able to provide audit trails and support statistics to all participating members. In addition, there will be monthly summary business status reports to all participating B&Bs to review the status of the business.

The expenses are depicted in Table 5.1. This expense breakout is derived along the functional lines just discussed. There are revenue drivers such as the total number of customers. Then there are productivity factors such as the number of customers per Customer Service Rep. Then there are cost factors of unloaded salaries per employee. This yields the number of employees in that functional area and the functional area direct expense.

Added to this is the overhead factors driven by the employee and are detailed in the expense breakout.

The capital requirements are depicted in Table 5.2. As with expenses that are driven by the revenue drivers. There are only two major capital requirements: computers and communications equipment. It is assumed that all other equipment is leased.

Figure 5.1 System Operations Diagram

Table 5.1 Expense Model

Table 5.2 Capital Model

5.2 Management

There are three key management positions that are to be filled. They are:

o President

The President and CEO must have the expertise of running a national reservations service business and must have a knowledge of the lodging business. The position requires a detailed exposure of real time computer operations as well as the ability to interface with a sales force.

o Vice President, Marketing

This position will be responsible for all the marketing, sales and customer service support. This person will have had experience with a direct sales force operation as well as dealing with an extensive real time customer service operations. This person must also be a demonstrated marketing executive.

o Vice President, Operations

This position will be responsible for all the computer operations as well as interfacing with all field service. This individual must be the key technical interface and must have a track record in operating a service bureau.

Section 6 Financial Analysis.

This section takes the results of the previous sections and presents the financial analysis of the business opportunity.

6.1 Income Statement.

Table 6.1 presents the income statement for the business. The NOI margin is negative for the first two years, indicating a need for initial capital to support development and sales. The margin grows to 40% indicating a highly profitable service business. In such a business, there is an ongoing revenue stream to support continued growth. In addition the cash will support the acquisition of B&Bs for the franchise operation.

6.2 Cash Flow.

Table 6.2 depicts the cash flow for this business. In the present analysis it was assumed that the financing included a debt service. This caused an additional $1.1 million in debt service accounting for the $2.7 million negative cumulative cash flow. With all equity financing, this would be $1.5 million. The IRR is 97% which is quite high and indicates that the business has significant leverage for price competition against competitors as the business evolves. This will act as a barrier to entry.

The NPV at a cost of capital of 22% is $21.5 million. This puts a large premium on this business from the outset. Table 6.3 depicts the sources and uses for the business rephrasing the cash flow.

6.3 Balance Sheet.

Table 6.4 depicts the balance sheet for the business. We assume that all the cash generated is kept by the business. The receivables and payables are kept short and do not lead to large working capital requirements.

The book value at year 5 is $25 million and yields a ten times return on the initial investment in that period. The company provides an excellent opportunity for a sale after that period. In addition there may be a public offering due to the continued growth.

6.4 Summary.

Table 6.5 depicts the summary of all the parameters of the business.

Table 6.1 Income Statement.

Table 6.2 Cash Flow.

Table 6.3 Sources and Use.

Table 6.4 Balance Sheet.

Table 6.5 Key Financial Factor.

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