How to Guide

How to conduct Feasibility Study

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Appendix A – Sample report of XYZ Company (Widget Part Design)

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EXECUTIVE SUMMARY

In the uncertain economic environment encompassing the businesses, it is becoming increasingly important that business owners like you are given the appropriate tools to succeed in value-adding initiatives. Preparing a feasibility report is one such tool and is an essential part of business to know whether your business idea is worth pursuing on a large scale and determines how successful your business will be. Many businesses, particularly small ones, operate without a feasibility report. Having a feasibility report provides an opportunity to organize your thoughts and allows you to see probable pitfalls and helps you recognize your own strengths and weaknesses.

This guide on “How to conduct feasibility study?” begins with a definition of feasibility assessment, its purpose and provides a value-chain framework for systematically performing a feasibility assessment process. The guide is organized into following sections.

Chapter 1 is an introduction to preparing a feasibility report. Since you can’t produce a product if there is no demand, Chapter 2 discusses the demand and competitors’ aspects of your product. Chapters 3-4 discuss the feasibility of inbound logistics involved in your project. Chapters 5-6 deal with operational and service aspects of your project. Chapter 7 is very important and integrates the findings from earlier chapters to evaluate the economic and financial feasibility of your project. This will set the tone for your future plans as to whether you should continue with your project idea or take a different path. It is thus hoped that the feasibility report guides you at the very early stage of your project conception, in minimizing unforeseen risks by way of loss of resources and time.

In major sections of this guide, examples are used to convey the concept and some advice has been provided. Additional references for developing feasibility report have been provided for more interested readers. The appendices to the guide include two sample-feasibility reports for your ready reference.
1. INTRODUCTION

1.1 Background

Too often, people invest money in a business only to find out later that there is insufficient demand for the product or that it is not the type that customers want to buy. An idea for a business is not a sufficient reason to begin production straight away, without having thought clearly about the different aspects involved in actually running the business. To reduce this risk of failure and losing money, project aspirants should go through different aspects of running their business in discussions with friends and advisers before they commit funds through undertaking a feasibility study.

1.2 What is a feasibility study?

A feasibility study is an analysis of the viability of an idea and focuses on helping answer the essential question “should you proceed with the proposed project idea?” All activities of the study are directed toward helping answer this question. Further, it should be sufficiently accurate to facilitate project decision-making by you, your financiers, and others interested in the development of the particular project. The feasibility study involves a disciplined and documented process of thinking through an idea from its logical beginning to its logical end to determine its practical viability potential, given the realities of the environment in which it is going to be implemented. While feasibility studies are conducted for engineering and educational program initiatives, our discussion in this guide is limited to the feasibility of business initiatives. In that vein, feasibility studies help entrepreneurs to decide if their business idea can be viable given its domain conditions.

The environment within which the feasibility is conducted is critical since it defines the external factors that influence the feasibility of the initiative. For example, an initiative that is feasible in a community with a rail line may be infeasible in one without a rail line if rail transportation is a bottleneck in the initiative’s value chain. For this reason, it is important to proceed with the development of a feasibility study within the framework of the proposed business initiative’s value chain.

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Figure 1.1 Value Chain Framework

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1 The value chain concept was developed by Michael Porter of Harvard in his 1985 book, Competitive Advantage.
1.3 What is a value chain?

A value chain is a linked set of value-creating activities beginning with basic raw materials coming from suppliers (inbound logistics) moving on to a series value-added activities involved in producing and marketing a product or service, and ending with distributors getting the final goods into the hands of ultimate consumer (outbound logistics).

The value chain of most industries can be split into 2 segments, upstream and downstream halves. In the petroleum industry, for example, upstream refers to oil exploration, drilling, and moving the crude oil to the refinery, and downstream refers to refining the oil plus the transporting and marketing of gasoline and refined oil to distributors and gas station retailers. Even though most large oil companies are completely integrated, they often vary in the amount of expertise they have at each part of the value chain. Texaco, for example, has its greatest expertise downstream in marketing and retailing. Others such as British Petroleum (now BP Amoco), are more dominant in upstream activities like exploration.

The feasibility of an industrial project can be analyzed in terms of the profit margin available at any one point along the value chain. For example, the U.S. auto industry’s revenues and profits are divided among many value chain activities, including manufacturing, new and used car sales, gasoline retailing, after-sales service and parts, and lease financing. From a revenue standpoint, auto manufacturers dominate the industry, accounting for almost 60% of total industry revenues. Profits, are however a different matter. Auto leasing is the most profitable activity in the value chain followed by insurance and auto loans. The core activities of manufacturing and distribution, however, earn significantly smaller shares of the total industry profits than they do of total revenues. For example, since auto sales have become marginally profitable, dealerships are now emphasizing service and repair. As a result of various differences along the industry value chain, manufacturers have moved aggressively into auto financing. Ford for example, generally has half its profits from financing, even though financing accounts for less than 20% of the company’s revenues (Gadiesh and Gilbert).

In analyzing the feasibility of a product it is important to note that the firm usually has an area of primary expertise where its primary activities lie, even if the firm operates in the up and down halves of the value chain. A firm’s center of gravity is the part of the chain that is most important to the firm and the point where its greatest expertise and capabilities lay – its core competencies. According to Galbraith, a firm’s center of gravity is usually the point at which the firm initially started.

The value chain approach in Figure 1.1 to feasibility study of a project facilitates an increased understanding and appreciation of the domain’s effects on the different stages from input sourcing and procurement to customer service and support. Under this framework, a manufacturing firm’s primary activities usually begin with inbound logistics (raw materials handling and warehousing), go through an operations process in which a product is manufactured, and continue on to outbound logistics (warehousing and distribution), marketing and sales, and finally to service (installation, repair, and sale of parts). Several support
activities, such as procurement (purchasing), technology development (R&D), human resources management, and firm infrastructure (accounting, finance, strategic planning), ensure that the primary value-chain activities operate effectively and efficiently. The systematic examination of individual value activities can lead to a better understanding of a project’s strengths and weaknesses to determine the feasibility of the project.

1.3.1 Why does one need a feasibility study?

A feasibility study reduces the risk of making poor decisions and increases your success. It gives you an objective and independent view of your idea’s potential and enables you to make informed decisions about how it could be launched.

1.3.2 What does a feasibility study involve?

Using the value chain framework, the feasibility study involves (Myers, Lawless, & Nadeau 1998) some or all of the following:

- An assessment of the current market
- An assessment of your potential position in the market
- An evaluation of the possible options for entry into the market
- An evaluation of the resources available for the project
- A short list of the possible options for funding
- An evaluation of value proposition of the business idea through technical, economic and financial analysis

1. 4 Stages of conducting a Feasibility Study

Feasibility study or assessment is conducted at three levels. The first level involves operational feasibility and the question that is asked at this level is “Will it work?” The second level involves technical feasibility and its associated question is “Can it be built?” Sometimes, the first and second levels are addressed together and simply referred to as technical feasibility. The third and final level is economic feasibility and it brings the operational and technical levels together into a common unit by asking “Will it make economic sense if it works and if it is built?”

Conducting a feasibility study need not be difficult or expensive, but all important aspects should be taken into account to ensure that potential problems are addressed. Following are the questions that can be answered in a feasibility study:

- Is there a demand for the product / service?
- Who else is producing similar products / offering similar services?
• What technical requirements and skills are needed to make / offer the product / service?
• What is the likely profit?

Each of these aspects should be looked integratedly in the value chain framework. When all the information has been gathered and analyzed, it should be possible to make a decision on whether your proposed business idea is worthwhile or whether your money could be better spent doing something else. The same considerations should be taken into account when an existing entrepreneur wishes to diversify production or make a new product. Following are the key stages in conducting the feasibility study:

1.4.1 Pre-Feasibility Study

A pre-feasibility study may be conducted first to help sort out relevant scenarios. Before proceeding with a full-blown feasibility study, you may want to do some pre-feasibility analysis of your own. If you find out early-on that the proposed business idea is not feasible, it will save you time and money. If the findings lead you to proceed with the feasibility study, your pre-feasibility work may have resolved some basic issues. A consultant may help you with the pre-feasibility study, but you should be involved. This is an opportunity for you to understand the key issues involved with the business idea development.

1.4.2 Initial Screening of Business Ideas

A feasibility study is usually conducted after the entrepreneur has discussed a series of business ideas or scenarios. The feasibility study helps to “frame” and “flesh-out” specific business scenarios so they can be studied in-depth. During this process the number of business alternatives under consideration is quickly reduced. During the feasibility process one may investigate a variety of ways of organizing the business and positioning your product in the marketplace. It is like an exploratory journey and you may take several paths before reaching your destination. Just because the initial analysis is negative does not mean that your project idea does not have merit. It suggests that you may need to organize your idea in a different fashion or market conditions may need to change for the idea to be viable. Sometimes limitations/flaws in the proposal can also be corrected.

1.4.3 The Feasibility Analysis

Whether you plan to expand an existing business, acquire an existing business, start your own new business or a new enterprise for an existing business, in performing your feasibility analysis, you will:

- Evaluate whether you and your management team possess the characteristics most common to entrepreneurial success
- Assess technological requirements / production processes used in your field
- Assess the market for your new business idea
- Estimate the basic financial feasibility of your business, including potential sales revenues, fixed and variable costs, and break-even figures
- Identify the pitfalls many new small businesses encounter—and study how you can avoid them; and
- Finally, make an informed choice about whether or not your idea is still attractive, feasible and practical.

There are four objectives that should be met by the feasibility study in order for the study to be of value using the value chain framework. The first is to learn more about your prospective client’s needs. Once the needs of the client are determined, the second objective is to clearly define the product or service that you wish to offer these clients. In other words, find a need and fill it. The third objective is to determine how much revenue this product or service will generate. Revenue and expense information is then incorporated in a cash flow projection, which gives you a measure of the feasibility of the venture. The fourth objective is to find out about the technical cost and the total budget requirements.

1.5 How does one format and write a Feasibility Plan?

The format of feasibility report can be broken down into following sections:

a) Executive Summary: The main purpose in this section is to gain the reader's attention by giving a brief and clear overview of the key points of each section of your report. While it is the first section, it is the last to be written. Two pages are more than enough!

b) Product/Service: This section describes the benefits of your product or service from the customer's point of view. Specifically it addresses as to: What is your product or service? How is it different from what's already available? If it is a product, will you manufacture it and how? Who are your suppliers? What are your distribution channels? Describe patents, trade secrets, or other information. You must also determine if the concept is a working and tested one.

c) The Market: This section requires research and is perhaps the most difficult section, but also most important. It addresses questions such as: Is there a market for your idea? Can this be proven? Describe the size of your market (both in terms of customers and finances). What is your target market? What is your estimated market share percentage? Describe also seasonal fluctuation, the potential annual growth of the total market for your product or service, and factors affecting that growth.

d) Human Resource Requirements: For some projects which are industrial / technical in nature, the determination of human resource requirement is very critical. This is addressed in this section.

e) Industrial Projects: For such projects, it is important to clarify details of the raw material requirements, their availability, supply chain, reviewing the production process and
packaging, besides operation's objectives. If lease options are available for machinery, they should be mentioned. Payback chart for machinery are also recommended.

f) Price and Profitability: This section addresses issues such as: How will you price your product or service; at a discount, at a premium or somewhere in between? The gross margin must be high enough to at least cover your expenses. Community businesses do make profit, but it’s what they do with the surplus that differentiates them.

g) Plan for Further Action - the future! Does the feasibility report show that the idea is worthwhile? If yes, then only the investor can proceed further to develop a business plan. Determining early that a business idea will not work saves time, money and headache later. A feasible business venture is one where the business will generate adequate cash-flow and profits, withstand the risks it will encounter and remain viable in the long-term and meet the goals of the founders like you.

Thus, a feasibility study is only one step in the business idea assessment and development process. The information in the following sections will help you appreciate the role of the feasibility study.
2. MARKET ANALYSIS AND MARKETING CONCEPT

2.1 Market Analysis

As mentioned in the "Introduction" section above, market analysis research is one of the most important part of any feasibility study. The market analysis should be conducted first because it is critical to the success of the business. Market analysis results in information about the market potential, which is the basis for accurate sales forecasts and, marketing strategy. If one cannot substantiate through research that adequate sustained demand for a product or service exists, or if one cannot obtain sufficient quantity to meet expected demand, then the project is not feasible. In such case one should not continue with the next step of the feasibility study. The basic components of market analysis include:

- an estimate of the size of the market for the product/service
- projected market share
- information about your target market; and
- analysis of the competition

The key questions that should be answered in this section of the feasibility study are presented below. If these questions cannot be answered adequately, the project is not feasible:

1. Do prospective customers have a need for your product or service?
   a. What segment of the population does your product or service appeal to?
   b. Are there enough people who want the product or service?
   c. What is the purchasing power of the population base?
   d. Will your chosen market continue to support your business?

2. Will the business be able to compete?
   a. Who are the competitors and how many are there?
   b. How well are the competitors doing?
   c. What are the strengths and weaknesses of the competitors?
   d. Where are the competitors located?
   e. What are the hours of operation of competitors?
   f. What advantages does your product or service provide?

3. Is the proposed location of the business adequate?
   a. How accessible is the location to the market population?
   b. What is the availability of labor in the area?
   c. What are the costs of obtaining, developing and maintaining the site?
   d. What are the current or future community developments?
2.2 Market Research

Market research involves activities designed to obtain data about the market, and falls into two main categories (Reilly & Millikin):

Primary research is that which collects new data through market surveys and other field research -- specific studies that are conducted on behalf of your company; and

Secondary research includes gathering pre-existing information from published sources.

Some basic market research needs to be performed in order to answer the above mentioned questions with any degree of accuracy. There are primarily three types of research that can be utilized:

I. Informal Research
   a. Canvassing: This can be done informally by simply approaching potential customers or clients and discussing their needs in regard to the product or service the new business will offer.
   b. Observation: Observing current businesses and potential customers can be a very insightful way of gaining valuable information into the market.
   c. Word of Mouth: Listening to people, such as potential suppliers, advisors and people, who are already in the business, is also a valuable tool.

II. Secondary Data
   a. Newspaper articles: Newspaper articles on established businesses, current issues affecting business, statistical and demographic information.
   b. Public filings: Annual reports, patents, copyrights, trademarks, business names.
   c. Government agencies: Local, State, and Federal Government Agencies such as the Dubai Chamber of Commerce and Industry (DCCI) and Dubai Economic Department, Bureau of the Census etc.
   d. Commercial publications: Telephone books (access information about who your potential competitors are through advertisements in the yellow pages, and community information pages).
   e. Trade journals: These journals specialize in issues and trends affecting different industries in the region, for example “Gulf Business Review”, it provides other current information as well. For industrial projects, industrial journals of the specific industry, provides very useful and updated information about the trends, new technological advances, and any environmental aspects of the proposed project.
   f. Trade associations: The research departments at trade associations collect data on sales, expenses shipments, stock turnover rates, bad debt losses, collection ratios, returns and allowances, and net operating profits.
   g. Public libraries: A wealth of information on various topics related to business including laws, industry and market information, trade publications etc.
h. Commercial banks and financial institutions: Information about economic factors influencing communities.

i. Internet: Provides access to current information on marketing opportunities and connects with various government agencies, businesses or sites for many of the sources listed above.

III. Primary Data

Surveys - Demographics, psychographics, geographic location, pricing, the most effective means of media for reaching your target market, household income, and if there is a need for your product all these aspects can be determined through following types of primary surveys:

a. Personal interviews: Personal interviews with prospective customers are a great way to find out information about your product, competitors, pricing and the market.

b. Telephone surveys: Telephone surveys are very similar to personal interviews but are more anonymous.

c. Written questionnaires distributed by mail or by other means: Written questionnaires may be a more cost effective means of obtaining survey results, but response rates to unsolicited mailings are typically low.

The surveys could also be used to finalize the decision regarding location for setting an industrial unit or a new retail outlet etc. In addition to conducting research, you can rely on your own opinions and observations, especially if they have to do with your local community. No one knows a community like the people who’ve spent their lives there. However, it is important to back up your opinions with facts. It is important not to rely solely on your gut feelings; they’re probably not enough to convince the investors or banks.

All this information goes into estimating the sales that your company will achieve during its first few years of operation. The rest of the feasibility study is built upon these estimates. It is worth making an investment in market research as it is one of the principal tools for determining whether the business will work or not. The quality of information in the market analysis is dependent on the amount of energy that went into obtaining it.

You need to be as specific as possible about the dimensions (size, trends) of the opportunity your business faces. Since a new business doesn’t have a track record, your research must be thorough to enable you to make realistic sales estimates. Much of this information can be obtained through secondary research. A lot of the information you need is available to the public, from government statistics, computerized data bases, and the Yellow Pages. Many public libraries now have access to the Internet, if you don’t have access to it. A lot of information exists out there; the best place to start is your local library. Note that a local business school or small business development center can guide you in conducting your market research. College students may be a good resource for conducting telephone or other type of interviews.

As an example, if you plan to open a convenience store, you can find the annual sales, net
margin, and lots of other financial information about retail convenience stores. These can be a very useful starting place for your sales estimates. Use them with some caution, however, as your sales may probably fall below those of more established businesses.

2.3 Marketing Concepts

Some marketing concepts which are very useful for feasibility studies are described below:

2.3.1 Target Markets

One of the advantages you gain from targeting a particular niche is the ability to respond quickly when customer tastes and needs change. In order to serve your customers, you have to know who they are, where they live and what their behavioral characteristics are. For this purpose, answers to the following questions will be helpful:

a. What are the target markets for this product or service?
b. What demographic characteristics do these potential customers have in common?
c. How many customers are there in your target market?
d. How many units of your product or services is each customer likely to buy monthly?

Identifying a target market allows you to focus your efforts on marketing to a distinct class of customers. This is also called market segmentation. It is the act of dividing a large potential market into smaller groups, which are more easily approached. So describe your target market in terms of:

- Geographic Characteristics. Do your customers live primarily in a certain area or region?

- Demographic Characteristics. (Age, sex, family status, education, income, class, occupation, education; and, if relevant, religion and race.)

- Psychographic Characteristics. (Life style, personality types; attitudes; interests, and buying motives.)

As an example, a manufacturer of educational computer games might identify its target market as primarily at-home users, with a secondary market segment of schools. Then the manufacturer would describe each target market in terms of its typical demographics (household income, education, family status, and using habits). Their description might read something like this: The typical buyer in our target market is married, living in a two-income household with an average of two children, has a college education, is employed as a professional, and has at least one personal computer at home. They buy our computer games to provide educational, yet fun experiences for their children.
If you find that you have more than one target market, you should discuss the relative importance of these target market segments. Do the in-home users generate a higher margin than the small businesses? Is the market among small businesses growing faster than that of home users? Will this relative importance change over the next few years?

2.3.2 Competition Analysis:

Competitors are very important to the success or failure of a new business and the entrepreneur should recognize that there are different types of competitors. Using the example of someone wishing to make fruit juices, it is helpful to think how the consumers might view the available products: for example when they are thirsty, they have a choice of hot drinks (tea, coffee etc.), cold soft drinks such as milk, juices, squashes or other drinks. These are all general competitors, who are able to satisfy the consumers' thirst. Supposing the consumers choose cold soft drinks that can be drunk straight from the bottle, they then have a choice between carbonated (fizzy) soft drinks, and juices. These are known as type competitors or different kinds of soft drinks.

Finally, on choosing juices, there are different juices and different brands of the same type of juice, which are brand competitors. Although the appearance and quality of products are important, competitors do not just compete with their products. They also compete with the profit margin and level of service that they offer to retailers and with special offers or incentives to customers. New entrepreneurs must therefore assess each of these factors when deciding what the competition is and how to deal with it. This is conveniently done using a SWOT analysis, where SWOT stands for Strengths, Weaknesses, Opportunities and Threats.

The SWOT technique involves looking at each aspect of the new business and comparing it to other producers, particularly type and brand competitors. Many new entrepreneurs do not appreciate the importance of finding information about competitors and even if they do, they may not know where to find it. In addition to the direct questions to consumers in market surveys described above, entrepreneurs can get information about competitors from the following sources:

1. Discussing with retailers the amount of sales of different brands and any seasonality in demand. What are the trends in consumers' buying, what is getting popular and what is going down? What types of consumers buy particular products and how often? Does the retailer put on any special displays for some suppliers? What do they think about the idea for a new product and do they think they will sell a lot of it? What are their plans for the future?

2. Looking at competitors' advertising and retail displays and getting a copy of their price lists.
3. Asking the local Chamber of Commerce e.g. DCCI for any information they have on the market for similar products.

4. Visiting trade fairs and talking to other producers and their customers.

5. Looking in trade journals, manufacturers' association magazines and newspapers for information about the market and the activities of competitors.

It is recommended that you identify 3-4 leading competitors and specifically explain how your company will be able to compete effectively with them. You should be realistic and as specific as possible; stay away from generalizations about your competition. Try to find out market share of each of the competitors. Also make an assessment of their strengths and weaknesses; and how your product or service stacks up against each of them.

6. Also, finding the answers to the following questions about the Competition would be important:

a. What competition exists in this market?

b. Can you establish a market niche which will enable you to compete effectively with others providing this product or service?

c. How much are your competitors charging for similar product?

d. How crowded is the market? If your market is already crowded with competitors, what market share would be available to a new company?

If the overall market is growing, then one may be able to capture part of the new market.

2.3.3 Demand Analysis

Here, following two types of information are needed:

1) Information about the product and its quality and
2) Information about how much people will buy, how often and for what price.

It is important to think in advance about the type of information that is needed and to ask people the same questions each time, so that their answers can be compared and summarized. This should be a short exercise to keep the costs low and in-depth market research is not necessary for most products.

Although initially, new products have the advantage that there will be no competitors, the process of assessing demand takes time and costs more than for products that are already known. In addition, as up to 80% of new products fail, the risks are higher and it may be more difficult to get a loan for this type of work.
A different set of questions may be needed when assessing the size of the market for a particular type of product and the value of the market. At the same time it is possible to gather information about the types of people who buy a particular product and where they buy it.

2.3.4 Market Size and Share

Assessing the market size for a new business is tricky but a critical part of feasibility analysis. For a business idea to work, you must have enough customers willing to spend enough money on your product or service to provide sales revenue that covers your expenses and, hopefully, earn you a profit. Accordingly, determining how many potential customers exist might be an essential part of discovering whether your business idea is going to work.

The first thing consumers usually do when they hear of a new product or service is compare it to existing alternatives. Customers through comparison will buy from a new business only if they perceive that the value provided by new business is greater than the value provided by existing competitors. Perceived value is a judgment. To attract customers, you must convince them that you are providing something better, more convenient, healthier, more durable, cheaper, or of a higher quality at the same price. In short, you must create a perception that you have a competitive advantage. This advantage can be based on many different characteristics: location, a specific product line, technology or exclusive access to some supplier. No matter what it is, there must be something about your business that makes your product distinctive, different, add value, and competitively superior to that of your competitors.

Next, determine whether or not you can communicate your competitive advantage simply and convincingly to the marketplace. It is not enough just to be better—you have to convince potential customers that you are better.

Market surveys and the calculation of market size and value are important to find out whether the demand for a product really exists, but these figures should not be assumed to represent the scale of production that could be expected. Even if no-one else is currently making a product locally, it is likely that once a new business starts production and is seen by others to be successful; they too will start up in competition. It is therefore important from the outset, to estimate what is the proportion of the total market that a new business could reasonably expect to have. This is known as the market share. It is often difficult to estimate a realistic market share and the figure depends on a large number of variables. In many cases, new entrepreneurs overestimate the share that they could expect, with the result that production operates at only a small proportion of the planned capacity. So when analyzing data collected about market size and value, it is often helpful to find official statistics about the people who are expected to be the customers for a new product.

There are only two ways to get customers. One way is to create them from people who were never customers before. An example might be kids turning 16 and getting a driver’s
license. They now become gasoline customers (who never were before). The second way is taking customers away from the competition. Every day someone has an unhappy experience with a business and they change to the competitor.

The above market analysis done during feasibility study ensures that customers do exist for your products / services and your new proposed business can satisfy their needs so that you can retain them.
3. RAW MATERIALS AND SUPPLIES

After finding out that there exists market, the next thing in the value chain framework of the feasibility study is to analyze the inbound-logistics of your project idea. Assuming that your project idea is a “manufactured product” this section analyzes and describes inputs required and its availability for the operation of the plant.

3.1 Input Sourcing and Procurement

Your assessment of availability of raw materials involves an evaluation of cycles and trends for both quantity and quality of the inputs and physical movement of the inputs from their origination points to the facilities where they will be processed. Different sources of raw material supplies are required to be evaluated for their quality and quantity as well as cycles/trends in these characteristics. If specific human resources and technologies are required to facilitate the effectiveness of the input sourcing and procurement stage, their availability is assessed within the domain of the project. Likewise, the infrastructure support for effectively procuring inputs from origination points to processing facility is also assessed.

The economics of input sourcing and procurement emanates directly from the technical assessment. The prevailing market prices of inputs as well as costs associated with the procurement are assessed at the input sourcing and procurement stage. The objective is not to determine the price but the range of prices that have been typical in the domain over a reasonable period of time to allow for the capture of the trends and cycles in the prices. The price trends and cycles can be matched against the quantity and quality trends and cycles to provide insights into potential bottlenecks in the input sourcing and procurement function of the business initiative under consideration.

For value-added initiatives, secondary data can suffice for the input sourcing and procurement segment of the feasibility assessment. The sources of these secondary data include industry and trade publications as well as statistical data of industry associations. Additionally, a number of government departments collect, analyze and publish some of these data. In special cases, primary data collection may be necessary and this may be done through formal surveys or interviews. For example, different suppliers may be asked to provide information on their products — prices, quantities and qualities — as well as the stability of their quotes, e.g., the frequency with which they change their prices, quantities and quality. In most cases, where potential suppliers feel the project initiative is credible, they will invest their best efforts to provide the required information.

There is a close relationship between the definition of inputs requirements and other aspects of project idea formulation such as the definition of plant capacity, location and selection of technology and equipment, as these inevitably interact with one another. The selection of raw material and supplies depend primarily on the technical requirements of the project and the
analysis of supply markets. It is also important to recognize that selection of raw materials and factory supplies should conform to environmental and pollution concerns.

3.1.1 Types of raw materials and supplies

Following are the types of inputs:

a. Basic raw materials: (such as iron ore, manganese, silicon, sulphur, phosphate etc). For these raw materials, detailed information on the proposed exploitable deposits (proven reserves) is essential. The feasibility study should give details of the viability of opencast or underground mining, the location, size, depth and quality of deposits. These raw materials differ widely in their physical and chemical composition. Raw materials from any two locations would rarely be uniform, and the processing of each type may involve distinctly divergent methods and equipment. It is frequently necessary to obtain a detailed analysis of physical, chemical and other properties of the raw materials incorporated in the feasibility report.

b. Factory supplies as raw materials: These include chemicals, additives, packaging materials, maintenance materials, oil, grease and cleaning materials. The requirements of such auxiliary materials and supplies should be accounted for in the feasibility study.

c. Utilities: A detailed assessment of the utilities required (electricity, fuel, water, packaging, recycled waste, and others) can only be made after analysis and selection of location, technology and plant capacity, but a general assessment of these is a necessary part of the feasibility study.

3.1.2 Requirements of raw materials

The requirement of raw materials can be assessed using the following check-list:

a. Quantities required: In order to allow greater flexibility in the preparation of the feasibility study (for example, sensitivity analysis of variations in assumptions and input data), express the quantities required in the following terms:

- *Unit's product*: Items applicable to raw materials, intermediates, components, auxiliary materials etc. expressed in tons, cubic meters etc.
- *Machine or labor hours*, applicable to factory supplies, spare parts, etc.

b. Qualitative properties: The qualitative analysis may have to cover various features and characteristics of raw materials and factory supplies such as the following:

---

2 Facilities for analysis and testing mineral products for their physical, chemical and other properties are available in most developing countries.
- **Physical properties**: size, dimension, form (olate, rod etc.), density and melting and boiling points.
- **Mechanical properties**: formability, machinability, compressive and sharing strength, elasticity and resistance.

3.1.3 Cost of Raw Materials

Besides the availability if inputs the unit cost of basic materials has to be analyzed in detail, as this is a critical factor for determining economic feasibility of the project idea. In the case of domestic materials, current prices have to be viewed in the context of past trends and future projections of the elasticity of supply. The lower the elasticity (i.e., inelastic), the higher is the price as related to growing demand for a particular material. For domestic inputs the costs of alternative means of transport should also be considered. For imported material inputs, c.i.f. (including costs, insurance and freight) prices should invariably be adopted together with clearing charges (including loading and unloading), port charges, tariffs, local insurance, taxes, and costs of internal transport to the manufacturing plant. The prices of imported inputs generally fluctuate during volatile international markets; prevalence of monopolistic or oligopolistic conditions; linkage of supplies to a particular source as between a foreign subsidiary and its parent firm or between a licensee and a licensor; and governmental control by way of tariffs or duties.

The impact of domestic manufacture of a material that is a basic input for an industrial project may be significant. In most cases, domestic production costs and consequently prices of such inputs, particularly during initial production years, can have substantial effects on production costs of user industries. The extent of impact of price adjustments in the final product on the demand for the product should be assessed.

3.2 Operations and Production

The transformation of inputs into outputs occurs at the operations and production stage of the value chain. This is also the stage that will generally absorb the lion’s share of your investment capital. Therefore, from capital resource allocation perspective, the feasibility requirements at the operations and production stage must be conducted.

The objective of the technical feasibility assessment at operations and production stage of the value chain is to determine if the technology being envisaged for the proposed project idea is suitable for the desired quantity and quality of product you want to present to the marketplace. It also seeks to determine if the operational scales of the equipment and their associated technologies are at the appropriate operational scale, and whether the lay out of the physical process from input receipts to packaging, transfer to storage and warehousing and/or delivery is optimal.
Because of the level of specialized knowledge required to do justice to the operations and production aspects of the feasibility study, it is pertinent that the professionals with the required knowledge and experience are recruited to provide the intellectual content to the process. It is important that you do not lock yourself into a technological jam by myopically focusing only on a single technology. Instead, you must encourage engineering and technical professional input providers to provide you with the full range of their knowledge about the technologies and equipments available. They must also look at the physical layout of the equipment and its impact on operational efficiency.

Additionally, the scalability of the equipments and associated technologies must also be assessed to ensure that the project is not locked into a scale that does not allow it to take advantage of its success and expand without massive rebuild or recapitalization. These professionals must also be encouraged to provide insights into how the different technologies compare with respect to the number of people and their requisite skill level required to operate them from beginning to end as well as their attendant operational inputs — electricity, natural gas or gasoline, maintenance protocols and shut down protocols, availability and turnaround of technical support, etc.

The foregoing information provides the foundation for the economic assessment of the alternative technical solutions that can be used in the production process and their attendant operational requirements. The technical efficiencies of the alternative technologies should be weighed against their economic efficiencies to determine their overall effectiveness in the project’s feasibility. The best sources of the economic data to support the assessment of the technologies and operations are the suppliers of the equipment. Such primary data can be collected by providing a detailed description of the product under consideration in your proposed business initiative to potential suppliers in a Request for Quote (RFQ) offer.

The principal advantage of using RFQ is to improve the proponents’ knowledge about alternative solutions which they may be unaware of should they settle on the supplier they know. Given the rate of technical obsolescence, it is imperative that capital investments in technologies are made to maximize their longevity given technical and economic efficiency considerations. You should not overlook the alternative of not making direct investment in operations and production technologies, but you should seek to assess the possibilities of allying with a company with processing and operation capacity and be open to such initiatives.

The technical nature of operations and production stage of the feasibility study demands that you hire unbiased, knowledgeable people about the operations and production processes to help review the responses to the RFQ. If deemed necessary, you should arrange for the responding suppliers to make presentations before the knowledgeable people so they can ask necessary questions. Although this process can be cumbersome and time consuming, it is worth every effort if the equipment, buildings and other operational inputs are a significant component of the proposed project’s capital outlay.
3.3 Warehousing Storage and Delivery

Generally, products of value-added initiatives are stored or warehoused prior to delivery to customers. Therefore, the feasibility study should assess the implications of warehousing, storage and delivery systems for the project. It is important that the feasibility study assesses alternative sources of warehousing and storage - from own building through renting to strategic alliance opportunities. The objective of these alternatives is to provide the project with realistic alternatives for consideration should the project be found feasible, leading to the need to develop a business plan.

The feasibility study should not only focus on the physical facilities but also on the technologies that are enhancing the efficiencies of management of warehouse and storage facilities. The product tracking systems that facilitate maximization of space utilization and turnover are critical components of the assessment process. Additionally, available infrastructures to support the physical movement of products to warehouses or storage and then to customers must also be assessed. For example, transportation system’s infrastructure may influence how consumer-ready products and intermediate products can be shipped to further processors efficiently.

The economics of the physical buildings, location, infrastructure, technologies and other associated resources are brought to bear on the technical options to ensure that the most technically efficient and economically effective alternatives are those that qualify for consideration. The best sources for both technical and economic information are suppliers of warehousing and storage services. Trucking and rail companies are often very forthcoming in providing information on delivery charges for specific products from certain locations to certain destinations. The accuracy of the data supplied by these service suppliers is dependent on the clarity and precision of the input information they need to calculate their estimates.

Thus, the stepwise process of gathering information is important because it provide the requisite information that feeds into future steps. All these technical analysis presupposes the production site is optimally located and the environment surrounding the plant is conducive for operations. These issues are addressed in the next section.
4. SITE LOCATION AND ENVIRONMENT

4.1 Location Issues

Following the assessment of market demand, strategies with regard to the sales and production programs and plant capacity as well as input requirements, a feasibility study should determine the location suitable for manufacturing industrial project. An appropriate location could extend over a considerable area, such as along a river bank or a 20 kilometer radius around an urban area in a particular geographical district. Within a recommended location one or more specific project sites should be identified and assessed in detail for suitability. For each project alternative the environment impact of erecting and operating the industrial plant should be assessed.

In many cases, regulation requires the preparation of an environmental impact assessment in order to obtain the permits for the erection and operation of industrial plants. In case of industrial complexes with a significant impact on the environment, the socio-economic and ecological consequences have to be studied carefully in detail, and their evaluation should be instrumental in making the final decision not only on the choice of site, but also on the scope of the project and the selection of technology.

The integrated feasibility study in this guide requires the consideration not only of technical, commercial or financial factors, but also of the social and environment impact the project might have on the relative flexibility of the project. Relevant public polices need also be considered in the site location of industrial projects.

It is to be noted that, the choice of optimal site location is highly dependent on site’s close proximity to raw material sources, utility sources (electricity, water, and fuel), and the market. Besides, the prevailing transportation cost and prevailing law and taxes should be considered when selecting the site location.

The feasibility study should analyze and assess alternative sites based on the following key aspects and specific requirements for sites available within the selected area:

- Favorable ecological conditions on site (soil, site hazards, climate, etc…)
- Environmental impact (government restrictions / standard/ guideline)
- Socio-economic conditions (Government incentives / requirements).
- Local infrastructure at site location (existing industrial infrastructure, economic and social infrastructure, availability of critical project inputs such as labor, raw material and factory supplies).
- Strategic aspects (policy initiatives regarding possible future expansions, supply as well as marketing policies).
- Cost of land
- Cost of site preparation, development, and other requirements.
4.2 Environmental Issues

This section examines climatic, ecological and environmental aspects of the project’s feasibility.

4.2.1 Climatic Conditions

The environmental effects on the project cost may be significant due to installation of machinery for dehumidification, air-conditioning, refrigeration and special drainages. Therefore, information should be collected on temperature, rainfall, flooding, dust, fumes and other factors for assessing optimal site location.

Climatic conditions are relevant in different ways, depending on the type of project. Agro-industrial projects may experience fluctuating quantities and qualities of raw materials owing to extreme weather conditions. Transport and construction works are usually more complicated and expensive under extreme conditions, which may be a critical factor in projects with heavy transport and large construction works.

Climate conditions can be specified in terms of air temperature, humidity, sunshine hours, wind speed and direction, precipitation, hurricane, risk etc. Each of these can be specified in greater detail such as maximum, minimum and average temperatures, on an average day, in particular months or over a period of ten years. The feasibility study should specifically concentrate on the identification and analysis of climatic factors that can be expected to be of vital importance for the feasibility of the project in question.

4.2.2 Ecological requirements

Some projects may not have a negative environmental impact themselves. For example, an agro-industrial project clearly depends on the use of raw materials that have not been degraded by contaminated water and soil, a project using huge volume of process water with strict quality requirements will suffer if nearby industries use river/stream as a drainage for waste water. Management and labor may be reluctant to work in a factory located in a polluted area with health risks.

4.2.3 Environment impact assessment

The feasibility study should include a thorough and realistic analysis of the environmental projects. The environment impact analysis should be integrative and interdisciplinary assessing the overall impact of the project and its alternative (in terms of size,

\[3\text{ Means of transport may become less reliable in the case of heavy snow or rainfall, causing interrupted supplies of perishable products to distant markets.}\]
technology, etc.) on the surrounding area, including its population. They are designed to understand the environmental consequences of newly planned or existing projects and any project-related activities.

The general objective of environmental impact assessment in feasibility study is to ensure that the project is environmentally sound. This implies that the effects of the project over its projected life do not unacceptably degrade the environment, and that no residual effects are anticipated that would contribute to long term environmental deterioration.

A technically and economically feasible project can fail when confronted with certain government policies and/or regulations. Therefore, the feasibility study should assess the existing and/or planned regulatory initiatives that impinge on the project. For example, environmental regulations that are in place and their technical and economic compliance effects on the project must be analyzed to assess their implications for technology, location, and other decisions. Similarly, there is need to assess the implications of specific policies targeted to the industry of interest and evaluate changes in these policies. For example, policies that offer significant competitive advantage to the industry but are subject to change by administrative fiat need to be assessed for the potential effect on the viability of the proposed project.
5. ENGINEERING AND TECHNOLOGY

While chapters 3 and 4 covered the technical aspects of the project in general aspects, this section specifically deals with detailed technical factors in order to build a successful establishment that is able to survive, and be able to generate income during its production life. Key items to be considered in this technical study are:

5.1 Engineering factors (such as construction - current and future expansion)

- Engineering plans and drawings of construction (offices, manufacturing halls, stores etc…)
- Approval of licensing departments on the plans and drawings.
- Construction cost and engineering fees (check whether it is as per the prevailing market prices).
- Alternative uses for the building in case of project liquidation.
- Who will construct and how competent are they?
- Is the building suitable to be used as guarantee to part of the loan, if the project owners are borrowing funds?
- Depreciation rate.

5.2 Machinery and Equipment

Upon deciding the market share during the marketing phase, your consultant should start to communicate with the technology holder for the supply of the economic size machinery and equipment. The consultant should also ask the suppliers to prepare a full quotation through a request for quote (ROQ) containing the following:

- Is the supplier capable of supplying the plant machinery and is he competent in providing other required machinery in the future?
- Details of offers, catalogs, payment conditions, insurance, and installation expert (to compare it with other offers).
- Arrangement of equipment & machinery to meet the following requirements:
  - Flow of material and products.
  - Labor movement.
  - Communication between project selections.
  - Future expansion.
  - Maximum capacity, utilization, capacity & number of shifts.
  - Cost of shipping clearance, insurance & installation.
  - Share of locally produced equipment.
  - Purpose of each machines and equipment.
  - The fitness of machinery and equipment for the purpose of production, and how the technical team is able to manage and maintain the intended project.
  - Depreciation rate.
5.3 Technology or Manufacturing process

The consultant should explain:

- The manufacturing process in detail from the stage of raw materials entry (in-bound logistics) to shipping the final products (out-bound logistics) using a flow chart.

- Percentage of nonconforming products which might come out of the process, and how it could be utilized.

Because of the knowledge, tools, equipment, and work techniques used in the project in delivering its product or service, two critical aspects of technology to be assessed are technological complexity and technological interdependence.

5.3.1 Technological Complexity

Following three different types of technology reasonably predict the structural practices of the project idea:

- In unit and small-batch production, products are custom-produced to meet customer specifications or they are made in small quantities primarily by craft specialists. Examples are diamond cutting in New York’s diamond centre and the production of stretch limousines.

- In large-batch and mass production, products are manufactured in large quantities, frequently on an assembly line. Examples, are the production of most automobiles and the manufacture of microchips used in computers and related products.

- In continuous-process production, products are liquids, solids, or gases that are made through a continuous process. Examples are petroleum products, such as gasoline, and chemical products.

Table 5.1 Structural Characteristics and Technology

<table>
<thead>
<tr>
<th>Structural characteristics</th>
<th>Small Batch</th>
<th>Mass production</th>
<th>Continuous process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of management</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Executive span of control</td>
<td>4</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Supervisory span of control</td>
<td>23</td>
<td>48</td>
<td>15</td>
</tr>
<tr>
<td>Industrial workers vs. staff (ratio)</td>
<td>8:1</td>
<td>5.5:1</td>
<td>2:1</td>
</tr>
<tr>
<td>Formalization</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>
Technologies are increasingly becoming complex to manage, with small-batch and unit production being the least complex and continuous-process production being the most complex. The increasing complexity stems mainly from the use of more elaborate machinery and its greater role in the work process. The technological complexity, in turn, appeared to help explain the differences in the structural practices (see Table 5.1) in terms of level of management, span of control and organizational structure.

5.3.2 Technological interdependence

This refers to the degree to which different parts of your proposed organization must exchange information and materials in order to perform required activities. There are three major types of technological interdependence: pooled, sequential, and reciprocal.

The type that involves the least interdependence is known as pooled interdependence, in which units operate independently but their individual efforts are important to the success of the organization as a whole. For example, when you go to the local branch of your bank, there is rarely a need for the branch to contact another branch in order to complete your transaction. If, however, the branch performs poorly and loses you and other customers, its problems will ultimately have a negative effect on the health of the bank as a whole.

In contrast, with sequential interdependence, one unit must complete its work before the next unit (in sequence) can bring work. For example, a strike over a local issue at one General Motor’s plant frequently causes workers at other plants to be laid off temporarily. The layoffs occur when parts manufactured by the striking plant are needed for the sequentially interdependent assembly process at non-striking plants.

Finally, the most complex situation is reciprocal interdependence, in which one unit’s outputs become inputs to the other unit and vice versa. For example, in a fruit processing project, varieties of fruits (outputs) produced by agricultural producers become inputs to fruit juice manufacturers. These two systems are highly interdependent for continued existence and successful operation. As a result, you as project promoter need to give some thought to technological interdependence, as well as complexity in the feasibility study. This also brings to the fore the key issues of organization and human resources management. This is covered in greater depth in the next section.
6. ORGANIZATION & HUMAN RESOURCE MANAGEMENT

6.1 Management Issues

As discussed in the previous section, success of any business idea depends crucially on organization and management. Therefore this section considers the following issues in preparing a feasibility study as extremely important:

- Do you and your management team have the motivation and technical skills to make the products or services you envisage?
- Do you and your management team have all the skills needed to look after the administrative side of the business?
- Does your organization have the ability to sell you goods or services to the potential customers you have identified?
- Are you prepared to modify your business plans in the light of what people will want to buy?
- Are you confident that you and your key managers will be able to manage skills and time to full effect?
- Do you have access to the information technology skills you need?
- Have you and your management team developed the approach needed to deal with the officials of public funding bodies – if that is required.
- Does your management team have the ability to cope with the multitude of demands for compliance with the law, for example in terms of taxation, employment, contracts, and environmental issues?

6.1.1 People profile

The objective of profiling is to review the skills and knowledge needed to run the business, to plan to succeed through ensuring that the business has the following people skills available and to encapsulate this information in a “people statement”:

- Recognize the importance of people in your report
- Itemize the key tasks and areas of decision
- Identify the people concerned and the skills needed
- Decide what option to take to meet the need in each case
- Summarize your decisions in a “people statement”

6.1.2. The people you need to succeed

It is important to decide what skills you and your key people will need to make the business a success. Since the success of your business depends on the skills of the people in charge, this step is vital. People who invest in your business or lend you money will want to know how you intend to cope. The only way you can convince people is to spell out the key tasks and decisions and state why you think the people you have, or will have, can together
deliver the goods. The following checklist could be used to start you thinking about each aspect of the business. There are many tasks to be performed and you need to list the ones which are crucial to your success, and identify the people who will make the key decisions and who will perform these tasks.

**Technical skills**
- What knowledge and skills do you need in connection with your particular business?
- What machinery will you use and who will run it and maintain it?
- What procedures and documentation will be used?
- Who will ensure that your firm complies with all the laws and regulations relevant to your trade?

**Quality assurance skills**
- How will you monitor quality? Who will do it?
- Will you seek official recognition for your quality assurance methods?
- How will you train your people to maintain quality?

**Marketing skills**
- What do you need to know about the market-place, the sources of information?
- Who will interpret the data about your potential customers, your competitors and the shifts in demand?
- Who will identify your potential customers?
- Who will ensure that your products and services match the needs of the market-place?
- Who will set the targets?

**Selling skills**
- What methods will you use to reach people and to close the sale?
- What will you need to know about advertising, mail-shots, mailing lists, etc?
- To what extent will you need to use cold calls, or telesales methods?
- Who will converse with your customers, demonstrate products, describe services, establish customers’ needs and desires, deal with objections and close the sales?
- Who will ensure that your sales and marketing efforts are matched by prompt delivery and adequate after-sales service?
- Who can affect the way your firm appears to the potential customer (the ‘image’), who will train them and monitor their performance?

**Negotiating skills**
- What skills and abilities will you need in presenting your case and negotiating with customers, suppliers, bankers, and officials of public bodies?

**Planning skills**
- What knowledge and skills will you need in forecasting, budgeting, route planning, critical path analysis?
Financial skills
- What skills do you need to know about costing your anticipated expenses, costing your overheads, costing your products and services?
- How will you manage your money, monitor your cash flow and profitability, control expenditure, ensure payment for goods and services provided?

Storage, transport and distribution (Logistics)
- Who will manage the storage of goods?
- Are you aware of any special conditions required or particular precautions to be taken in your industry?
- How will you ensure proper stock rotation?
- Will you need a license to manage heavy goods vehicles? Who is qualified to do this?
- How will you optimize your vehicle routing?
- How will you manage distribution costs?

Health and safety
- How will you ensure compliance with the demands of the law and take all reasonable precautions?
- Will you need a first-aider?

Information management
- How will you set up your management information systems?
- Who will maintain these systems and alert management when necessary?
- What do you know about information storage and retrieval?
- Will you need computer systems? Databases? Spreadsheets? Financial management software?
- How will you choose your systems? Who will use them? Who will interpret the data generated?
- Will you need to access the Internet for information? Will you want to use the Internet for advertising, for selling or to provide a service?

6.1.3 Planning human resources (recruiting the right candidate)

Job specification: In recruiting people, you will need to prepare a job specification. This is a list of tasks, duties, and responsibilities that a job entails to see how the time of an employee will be spent and the contribution he or she will make to the business. See Text 6.1 in the footnote for an example.4

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4 Text 6.1 Sample Job Description for a Sales Associate
Customer service and interaction with customers are key responsibilities of this position. A sales associate must work effectively with customers and other store associates and provide information about products and/or projects. This position also involves stocking merchandise, stocking tools and equipment, and maintenance duties (e.g., sweeping aisles, down-stocking shelves, etc.). Major tasks and responsibilities are:
- Presenting a consistent, pleasant, and service-oriented image to customers
Person specification: You also need to prepare a person specification. This is a list of the knowledge, skills, abilities, and other characteristics that an individual must have to perform the job for recruitment purposes. See text 6.2 in the footnote for an example.

To get the right candidate, you will need to research the market to find how much you will need to pay, how long it might take to find the right person and what the recruitment costs will be.

In planning for your human resources it is extremely important to consider the following questions:

- What areas of knowledge and skill are crucial to its success?
- What you and your management team have to offer against this?
- How you intend to cope with any shortfall?

Bankers and creditors may want more details about yourself and other key people in your organization. In such cases you may need to draw up and present a curriculum vita for each key person. This should focus on the individual’s qualifications and experience, and indicate how these relate to the needs of the business.

6.2 Organizational issues

In this section, you address the legal status of your organization, style and structure of the organization, and the issues of regulatory requirements, taxes, insurance, and intellectual property. Your legal advisor will assist you in designing an organization that meets the needs of your group of promoters. You will formalize the initial board of directors at this time, so that you

- Listening and asking appropriate questions to assist customers in completing projects
- Assisting and working with other store associates in order to complete job tasks
- Using computers, phones, and other equipment
- Cleaning and maintaining shelves, end caps, and aisles

5 Text 6.2. Sample Job Specifications for Sales Associate

Major skills and competencies are:

- Customer focus: ability to maintain a positive customer service orientation when dealing with customer on the phone and in person
- Stress tolerance: ability to work effectively under stressful work conditions (e.g., dealing with multiple customers who need help quickly)
- Teamwork: ability to work well with others to achieve common goals
- Listening/communicating: ability to listen attentively to others, ask appropriate questions, and speak in a clear and understanding manner

Minimum job requirements are:

- 18 years or old
- Be able to work flexible schedule including weekends, evenings, and holidays
- Pass a sales associate test
can identify board members with board officers. You should answer the following simple questions with the help of your legal advisor to develop your organizational documents:

- **Who do you want to own the organization?** How will your organization be capitalized? Where will your equity come from?

- **Who do you want to control the organization?** Should the organization be a democratic one, with one-member/one vote? Or should voting rights be based upon level of investment? Who will make decisions?

- **Who do you want to benefit from the organization?** How will contributors of equity capital benefit from the organization? Will rewards come through stock dividends? How will profits be distributed – returned to investors, reinvested in the business to fund operations or future expansion, or returned on the basis of patronage?

These questions could be easily answered by specifying an organizational structure to your business idea. The organization chart depicts the broad outlines of an organization’s structure. Organization charts vary in detail, but they typically show the major positions or departments in the organization. They also indicate the way the positions are grouped into specific units, the reporting relationships from lower to higher levels, and the official channels for communicating information. Some charts show titles associated with the positions, as well as the current position holders. An overall organization chart indicating the major managerial positions and department in sample companies are provided in Figures 6.1 to 6.5.

Such charts are particularly helpful in providing a visual map of the chain of command. The chain of command is the unbroken line of authority that ultimately links each individual with the top organizational position through a managerial position at each successive layer in between. The basic idea is that each individual in an organization should be able to identify his or her boss and trace the line of authority through the organization all the way to the top position. This ensures organizational effectiveness.
Figure 6.1 Organization Chart for the Acacia Mutual Life Insurance Company

Figure 6.2. Organization chart - Seven Divisions of the Bell Atlantic Corporation
Figure 6.3 Organization chart - Divisional structure by product

Chief Executive Officer

President Bell Atlantic – New Jersey

President Bell Atlantic – Pennsylvania

President Bell Atlantic – Delaware

President Bell Atlantic – Maryland

President Bell Atlantic – Washington, D.C.

President Bell Atlantic – west Virginia

President Bell Atlantic – Virginia

President

Vice President

Vice President

Vice President
Figure 6.4 Organization chart - Divisional structures by Geography

President

Vice President
Eastern region

Vice President
Central Region

Vice President
Western Region

Figure 6.5 Organization chart - Divisional structures by customer

President

Vice President
Consumer Products

Vice President
Commercial Products

Vice President
Institutional Products
6.3 Emerging organization structures

Although many different types of organization structures are possible as organizations experiment with new ways of doing things, two emerging types of structures are of particular interest: the process structure and the networked structure or the virtual organization.

**Process structure** is a type of departmentalization in which positions are grouped according to a complete flow of work. The basic idea is that individuals from each function who work on a process are grouped into process teams and given beginning-to-end responsibility for that process or identifiable work flow. Under this type of structure, divisions might have names like new product development; order fulfillment, or customer acquisition and maintenance - signifying the processes for which they are responsible. The process structure is sometimes referred to as the horizontal organization, because the structures tend to be relatively flat. Functional specialists work together in a team environment facilitating most operating decisions at relatively low levels in the organization by the teams. Recently General Motors Acceptance Corporation (GMAC), which offers financing for consumer purchases of GM automobiles and trucks and also for dealer inventories, reorganized by process. Before the organization, GMAC had a geographical structure with 220 all-purpose offices handling all aspects of financing. To fight aggressive lending competition from banks, GMAC organized into four types of offices focused on:

(a) specialized processes: sales purchase, which serves only dealer needs;
(b) customer service: which answers questions from car buyers;
(c) field support: which handles accounting, administration,
(d) collection processes: on loans made and salvage collection, which takes over bad accounts and repossessions.

In **Networked structure**, many functions are contracted out to other independent firms and coordinated through the use of information technology networks to operate as if they were within a single organization. Such structures are often called the virtual organization because it performs all functions as if it were virtually organization. For example, Benetton, the Italian clothing maker contracts its manufacturing to about 350 small firms, but achieves economies of scale by buying materials for all of them. By having many small firms do the labor-intensive sewing and packing, Benetton has a great deal of flexibility in making changes in response to rapidly shifting fashions. One major disadvantage of the virtual corporation is that proprietary information may need to be exchanged, possibly creating potential competitors.

Although it is not always obvious to the casual observer, spans of management or span of control (the number of subordinates who report directly to a specific manager) for various managerial positions directly influence the number of hierarchical levels in an organization. A tall structure is one that has many hierarchical and narrow spans of control. In contrast, a flat structure is one that has few hierarchical levels and wide spans on control. Because of many problems with tall structures, many companies have recently been downsizing. Downsizing is the process of significantly reducing the layers of middle...
management, increasing the spans of control, and shrinking the size of the work force for purposes of improving organizational efficiency and effectiveness. A closely related term that is often used synonymously with downsizing is restructuring. Restructuring is the process of making a major change in organization structure that often involves reducing management levels and possibly changing some major components of the organization through divestiture and/or acquisition.

6.3.1 Which is better “Centralization or Decentralization”?

To foster vertical coordination, managers also need to consider the appropriate level of centralization, the extent to which power and authority are retained at the top organizational levels. The opposite of centralization is decentralization, the extent to which power and authority are delegated to lower levels. The extent of centralization affects vertical coordination by influencing the amount of decision making at the upper and lower levels.

Given that both approaches have advantages, how does top management decide on the degree of centralization versus decentralization? There are four main factors that begin to tilt the scale away from the centralization side of the continuum and toward the decentralization side:

- Large size: it is more difficult for top-level managers in large organizations to have either the time or the knowledge to make all the major decisions.

- Geographic dispersion: top executives frequently find it impossible to keep abreast of the details of operations at various locations.

- Technological complexity: it is typically difficult for upper management to keep up technologically.

- Environmental uncertainty: the fast pace of change interferes with top management’s ability to assess situations with the speed required for timely decisions.

Size is one of the contingency factors that should be evaluated when developing the organizational structure. Following trends have been identified by studies (Astley, W. 1985) size effects on structure:

- As organization grow, they are likely to add more departments and levels, making their structures increasingly complex. With functional structures, such growth creates pressure for change to divisional structure.

- Growing organizations tend to take on an increasing number of staff positions in order to help top management cope with the expanding size. This tendency levels off when a critical mass of staff has been achieved.
Additional rules and regulations seem to accompany organizational growth. While such guidelines can be useful in achieving vertical coordination, the unchecked proliferation of additional rules and regulations may lead to excessive formalization and lower efficiency.

As organization grows larger, they tend to become more decentralized. This is probably due to the additional rules and regulations that set guidelines for decision making at lower levels.

Because of the potential size effects, many successful divisionalized companies try to ensure that subunits do not become too large by creating new divisions when existing ones become unwieldy. For example, in an effort to reap the advantages of smaller size and encourage innovation, Johnson & Johnson operates with more than 150 autonomous divisions. The approach taken by these companies is compatible with recent cases indicating that larger organizational subunits are often less efficient than their smaller counterparts.

Environment While size has a bearing on structural requirements; environment is also a major factor. One of the most famous studies on the effects of environment on organization structure was conducted by Burns & Stalker. In studying 20 British industrial firms, they discovered that the firms had following types of structural characteristics, depending on whether they operated in a stable environment with relatively little change over time or an unstable environment with rapid change and uncertainty:

Mechanistic and Organic characteristics: the firm that operated in a stable environment tended to have relatively mechanistic characteristics, such as highly centralized decision making, many rules and regulations, and mainly hierarchical communication channels. Much of the emphasis was on vertical coordination, but with very limited delegation from one level of management to the next. The firms were able to operate with these characteristics and still be reasonably successful because changes in their environment usually occurred gradually, making it possible for upper levels of management to stay on the top of the changes.

In contrast, the firms that operated in a highly unstable and uncertain environment were far more likely to have organic characteristics, such as decentralized decision making, few rules and regulations, and both hierarchical and lateral communication channels. Much of the emphasis was on horizontal coordination, with considerable delegation from one level to the next. The firms required these characteristics because their rapidly changing environments made it necessary for individuals at many levels to monitor the environment and help decide how to respond. The characteristics of mechanistic and organic organizations are summarized in Table 6.1.
### Table 6.1 characteristics of Mechanistic and Organic Organizations

<table>
<thead>
<tr>
<th>Mechanistic</th>
<th>Organic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work is divided into narrow, specialized tasks</td>
<td>Work is defined in terms of general tasks</td>
</tr>
<tr>
<td>Tasks are performed as specified unless changed by managers in the hierarchy</td>
<td>Tasks are continually adjusted as needed through interaction with others involved in the tasks</td>
</tr>
<tr>
<td>Structure of control, authority, and communication is hierarchical</td>
<td>Structure of control, authority and communication in a network</td>
</tr>
<tr>
<td>Decisions are made by the specified hierarchical level</td>
<td>Decisions are made by individuals with relevant knowledge and technical expertise</td>
</tr>
<tr>
<td>Communication is mainly vertical, between superior and subordinate</td>
<td>Communication is vertical and horizontal, among superiors, subordinates and peers.</td>
</tr>
<tr>
<td>Communication content is largely instructions and decisions issued by superiors</td>
<td>Communication content is largely information and advice.</td>
</tr>
<tr>
<td>Emphasis is on loyalty to the organization and obedience to superiors</td>
<td>Emphasis is on commitment to organizational goals and possession of needed expertise.</td>
</tr>
</tbody>
</table>

Management of foregoing organization and human resources issues are important areas to be analyzed in the feasibility report as they have a direct impact on the viability of your project idea.
7. FINANCIAL ANALYSIS AND INVESTMENT APPRAISAL

This section integratedly appraises the performance of your project idea by integrating the primary activities of the value chain covered in previous sections. Project performance appraisal is mainly two parts, economic justification and financial appraisal, with the latter being a subset of the former. Economic appraisal seeks to see impact of project on all stakeholders. Financial analysis seeks to determine investment’s worth for fund providers, owners, creditors, and or grant providers. Economic analysis may somewhat be subjective. Financial analysis, on the other hand, is usually thought of as the most objective part of the feasibility study.

7.1 Economic Justification

Economic Justification is broader than financial justification. It tries to measure, to the extent possible, impact of project on all stakeholders, not just stockholders. Its aim is to address following:

- Environmental impact of project
- Economic benefit of the project and spillover effect of the project on the local economy.
- Social impact of the project (cultural and other)

While conducting the economic justification, it is important to keep the following in mind:

a. Non-monetary but quantifiable considerations

To the extent possible, all impacts should be translated into monetary, dirham equivalent terms. Notwithstanding this, however, non-monetary, but quantifiable considerations can sometimes be an important part of the economic justification of a new project. Plans to open a new highway may have impact on the fuel consumption, number of accidents, new businesses willing to locate next to the highway and subsequent job creation.

b. Non-quantifiable considerations

To the extent possible, all impacts that can not be stated in Dirhams should be quantified in other understandable measures and listed in the analysis. Local cultures and moral values may have a great impact on the economic feasibility of certain projects. Building a mosque may not be financially profitable but mostly accepted from a social / religious point of view. It may even reduce juvenile delinquencies, crime rate in the area, and increase social awareness among neighboring businesses and residents.

7.2 Financial Analysis
The outcome of the financial analysis should be a **Go/No Go decision**. Is the project viable financially? If yes, then you should proceed to the implementation phase (it is advisable that you start by building a **business plan** before moving to bricks and mortar). For some projects, the social benefit may outweigh the financial loss. That is usually true for government projects. For private enterprises, financial viability is likely to be the key factor on whether or not to proceed with an investment project. If not, there may either be the need to revise the study or to simply abandon the idea altogether. Should you adopt the latter decision, just be thankful that little harm was done at this point in time.

Financial analysis tries to basically answer the following questions:

- What are the total start-up costs required in order to begin operations? For instance, what are the capital costs of the land, plant and equipment, and other start-up costs such as legal and accounting costs?
- What are the operating costs involved? These include the daily costs involved in running the business, such as wages, rent, utilities, and interest payments on outstanding debt.
- Based on the estimated market demand for your product, what are the project’s revenue projections?
- What are the possible sources of financing for the project? Who are potential lenders? What will be their required terms and limitations of borrowing?
- Based on the estimated revenues and costs, what is the projected profit (loss) of the project? What is the break-even point?
- How reliable are my estimates?

Answering these questions will require going through the following process:

- Collection of input data (Funding, Cost, Revenues)
- Building of a base case scenario
- Making projections based on assumptions about expected outcomes within market and industry
- Testing for reliability of results by conducting a sensitivity analysis (what-if analysis, simulation analysis etc.)

7.2.1. Data Collection

The feasibility study should, as appropriate, **quantify** the revenues expected and resources required for starting and operating the new project (funding, personnel, technical resources that may be available to support such requirements). Previous sections about market research, HRM, and technical analysis should guide on how to collect this information.

7.2.2. Building the base Case scenario and Making Projections:
This is probably one of the most tedious tasks you would need to undertake, for it requires an understanding of:

- The basic financial statements used by businesses to record all transactions taking place within the accounting period.
- The cost structure of the production facility envisioned.
- Ability to make assumptions about future developments within industry, market, and your own organizations. These assumptions are then used to project financial performance of your business (called Pro-forma analysis).

7.2.2.1. Basic Financial Statements:

The following are the basic financial statements:

**a. The Balance sheet.**

It gives a snapshot of the firm’s assets and liabilities at a given point in time. The convention has been to list the assets on the upper (left hand) side and the liabilities and equity on the lower (right hand side). Both sides need to balance.

**Figure 7-1** below illustrates how the balance sheet is constructed and a hypothetical balance sheet for Toy Shop, a small toy manufacturing firm.

**Net working capital** is the difference between Current Assets and Current Liabilities. Healthy companies have a positive NWC. It is an indication of the firm’s liquidity, that is, its ability to pay off short debt without running into financial difficulty.

**Current assets** are expected to be (or could be) converted into cash or used up in the near future, usually within a year. Accounts receivables and finished goods inventory, for instance, are often classified as current assets.

**Fixed Assets** are long-lived assets which may have to cost more than a specified amount and may need to have a useful life of more than one year. It is useful to check industry practices.
in that regard. Fixed assets are either **tangible** or **intangibles**.

Tangible assets are property owned by the firm or entity that is not used up, consumed, or converted into cash during normal business operations.

Typical tangible assets are:

- Land
- Site preparation
- Building & Construction
- Machinery CIF
- Electrical & Mechanical Material
- Installation cost
- Furniture & Fixture
- Vehicles
- Spare parts.

Intangible assets have no physical substance, such as goodwill, trademarks, patents, or the protection provided by an insurance policy.

**Current, or short-term liability** is a bill to pay or debt coming due within a year. Accrued salaries due, taxes due, and accounts payable usually falls into this category.

b. The **Income Statement**,  

This is also called *a profit and loss statement, or "P&L" statement*, reports a firm’s income for a period of time, usually for a fiscal quarter or fiscal year. The income statement generally shows how income figures result by subtracting the entity’s costs and expenses from its total sales revenues. Following table illustrates how income statement is constructed for Toy-shop firm

<table>
<thead>
<tr>
<th>Net Income = All Revenues - All expenses and costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toy Shop</strong></td>
</tr>
<tr>
<td><strong>2004</strong></td>
</tr>
<tr>
<td><strong>Sales</strong></td>
</tr>
<tr>
<td><strong>Cost of Goods Sold</strong></td>
</tr>
<tr>
<td><strong>Other expenses</strong></td>
</tr>
<tr>
<td><strong>EBITDA</strong></td>
</tr>
<tr>
<td><strong>Depreciation. &amp; Amortization.</strong></td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
</tr>
<tr>
<td><strong>Interest Expense.</strong></td>
</tr>
<tr>
<td><strong>EBT</strong></td>
</tr>
<tr>
<td><strong>Taxes (40%)</strong></td>
</tr>
<tr>
<td><strong>Net income</strong></td>
</tr>
</tbody>
</table>
**Cost of Goods Sold** (COGS) are the total costs of acquiring raw materials and turning them into finished goods. COGS is subtracted from product revenues to produce gross margin. COGS generally has three main components: **direct labor**, **direct materials**, and **manufacturing overhead**.

**Other expenses** apply to the whole enterprise, and not directly related to the manufacturing process. Examples of such costs are utilities, travel expenses, general and administrative expenses. Following is a template that includes typical revenue and cost items for a manufacturing firm. It can easily be adjusted to suit most business types. It can be used as a check list for items that need to go on the income statement\(^6\).

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\(^6\) The Small Business Administration site [http://www.sba.gov/library/forms.html](http://www.sba.gov/library/forms.html) has several templates that can easily be adjusted to any type of business. You download and plug in your own numbers and it will automatically compute all needed figures. [http://www.expatriates.com/cls/516839.html](http://www.expatriates.com/cls/516839.html)
**Depreciation.** At this point it is important that you be familiar with life expectancy and of the depreciation/amortization method used for each asset category. Straight line depreciation is the easiest and most commonly used method. **Box 7.1** provides a brief description of each of the depreciation methods generally used in practice. Industry practices and accounting standards will dictate which method can be used and when.
Box 7.1: Depreciation schedule

Each year in the life of a depreciable asset, some of its cost is charged against income; just how much is charged each year is determined by the depreciation schedule.

**Straight line depreciation** (*SL*). The simplest schedule, so-called "straight line" depreciation spreads depreciation expenses evenly across an asset’s depreciable life: A $100 asset fully depreciated over 5 years (and having no residual value) would allow the owner to claim $20 depreciation expense each year for five years. Other depreciation schedules call for different percentages in each year, usually "accelerating" depreciation by charging relatively more in early years, and relatively less in later years.

**MACRS**: Many US companies use the 1986 modification of the 1981 Accelerated Cost Recovery System (ACRS) for several classes of assets, known as MACRS. MACRS is thus only for US use. MACRS specifies different schedules for calculating depreciation expense for several kinds of assets: Computing equipment falls into the "5-year class" of property, along with most other office equipment and automobiles. MACRS thus prescribes a 60 month depreciable life for computers, spread across 6 fiscal years (the 60 month period is usually started at the midpoint of year 1. There are several variations and options on MACRS schedules but the primary usage is to apply the double declining balance (DDB) method (see below), using a mid year-1 start. Residual value (salvage value) is ignored. MACRS (along with DDB and SOYD methods, below), is a form of accelerated depreciation, in which relatively more depreciation expense is claimed early in the depreciable life, and relative less is claimed later in the life.

**Double declining balance method** (*DDB*). This is a form of accelerated depreciation that prescribes twice an annual rate of depreciation twice that of the straight line method. Under the DDB method, twice the straight line rate is applied each year to the remaining undepreciated value of the asset.

**Sum -of-the -Year’s Digits** (SOYD): An accelerated method of depreciation based on an inverted scale of total digits for the years of depreciation life. For five years of life, for example, the digits 1,2,3,4 and 5 are added to produce 15. The first year’s rate becomes 5/15 of the depreciable cost (33.3%), the second year’s rate is 4/15 of depreciable cost (26.7%), the third year’s rate 3/15, and so on.

The table below compares depreciation percentages applied each year against the depreciable cost of an asset having with a 5-year depreciable life. (It shows % depreciated per year).

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight Line</td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>0.00</td>
</tr>
<tr>
<td>MACRS</td>
<td>20.00</td>
<td>32.00</td>
<td>19.20</td>
<td>11.52</td>
<td>11.52</td>
<td>5.76</td>
</tr>
<tr>
<td>Dbl Decl. Bal</td>
<td>40.00</td>
<td>24.00</td>
<td>14.40</td>
<td>8.64</td>
<td>5.18</td>
<td>0.00</td>
</tr>
</tbody>
</table>
c. The **Cash Flow statement (CFS)**

Like income statement, CFS focuses on the difference between money coming in and money going out of the firm over a time period:

\[
\text{Cash Flow} = \text{Cash Inflows} - \text{Cash Outflows}
\]

It is first important to understand how the cash flows within the company. Figure 7-2 summarizes major Cash inflow sources, and major Cash outflow uses.

![Figure 7-2](image)

A cash flow statement does not, however, include some items found in the income statement, such as depreciation expense. Depreciation expense, for example, does not represent an actual cash payment during the reporting period, but rather an accounting charge against earnings.

7.2.2.2. Cost Structure

You should already be familiar with the different cost categories through the technical analysis section. But here is a brief reiteration of the main categories:

a. **Fixed costs**: These costs need to be incurred no matter what the production size is.
   - Land lease
   - Administrative salaries
Public services such as electricity, water, fuel, etc.
- Administrative expenses
- Furniture and cars expenses

b. **Variable costs**: These costs will vary with the level of production.
- Raw materials required for the production
- Salaries of labors and technicians in the production operation
- Electricity, fuel, and water that are related to the production
- Marketing expenses
- Maintenance expenses
- Machinery depreciation

### 7.2.3. Projecting Cash Flow

Cash flow problems often catch business owners by surprise. An accurate cash flow projection can protect entrepreneurs against this situation. A cash flow projection charts the amounts of money the business expects to receive and pay out each month in a rolling six- or 12-month period.

This forecast takes into account the **lag time** between billing your clients and getting paid; incurring an expense and paying for it; and collecting taxes that aren't due to the government until a later date. Making projections will require managers to acquire/have a thorough understanding of their operations (itemized expenses and revenues), and to be able to make realistic assumptions about future business prospects.

A well-prepared cash flow projection will allow managers to plot anticipated cash flow positions over time. It will help anticipate shortfalls in time to do something about them, protecting from a cash flow crisis. Also, a cash flow projection can help spot sales trends, tell you if your customers are taking too long to pay, and help you plan for major asset purchases. In addition, should you decide to seek a loan, banks will ask to see one-year cash flow projections by month, and three- to five-year projections by quarter. Following is an easy step by step guide on how to go through cash flow projection.

**Step 1: Cash on hand**

Count your cash at the beginning of the first month of your projection. This amount is your "cash on hand." In succeeding months, the ending cash balance from one month will be carried over as the beginning cash balance of the next month.

**Step 2: Cash receipts**

Record cash sales, credit card sales, collections from credit accounts, and any interest income. The key to doing this successfully is recording receipts in the months you actually expect to get the money, not the month a sale is made.
Step 3: Accounts receivable

Record anticipated receivables in the months you expect them to be paid. If you have not kept records that show you how long it takes individual customers to pay their bills, calculate your "average collection period" by dividing your total sales for the previous year by 365. That gives you your average daily sales volume. Then, divide the dollar value of your current accounts receivable by the average daily sales volume. That number is the average number of days it takes you to collect on a bill. Using that number as a guide, record payments as they will come in over the next year.
Step 4: Miscellaneous cash

Account for anticipated miscellaneous cash infusions, including new loans from banks or family members, or stock offerings.

Step 5: Total cash available

For each month in your projection, add the amounts in steps one through four. This figure shows the total cash available to you in each month.

Step 6: Cash paid out

Calculate how much cash you anticipate spending in each month of your rolling projection. First, assess operating expenses. Again, the secret is to note every expense in the month it will be paid, not the month it is incurred. Be sure to include the following items in your list of operating expenses:

- Gross wages, including anticipated overtime
- Monthly stipends to owners
- Payroll taxes and benefits, including paid vacations, paid sick leave, health insurance, and unemployment insurance
- Subcontracting and outside services, including the cost of labor and materials
- Purchases of materials for use in making your product or service, or for resale
- Supplies for use in the business
- Repairs and maintenance (be sure to include occasional large expenses for remodeling, renovation, etc.)
- Packaging, shipping and delivery costs
- Travel, car, and parking costs
- Advertising and promotion, including fliers, direct mail, print or TV ads, yellow pages listings, web site maintenance and design
- Professional services such fees paid to attorneys, bookkeepers, accountants, consultants, etc.
- Rent
- Telecommunications such as phone, fax, Internet Service Provider
- Utilities such as water, heat, electricity, gas
- Insurance including fire, liability, workers' compensation, etc.
- Taxes
- Interest due on loans
- Other expenses focusing on costs specific to your business
- Miscellaneous (include a small cushion for miscellaneous expenditures)

When you're finished recording these, subtotal your operating expenses.

Step 7: Other costs
Calculate the other ongoing costs of doing business. Be sure to include the following items:

- Loan principal payments - vehicles, equipment purchases, etc.
- Capital expenditures - depreciable expenditures such as equipment, vehicles, construction of new or improvements to existing buildings, and improvements to leased facilities and offices
- Start-up costs - expenses incurred prior to the first month of operation and paid for over the course of the following year(s)
- Reserve or escrow - money set aside monthly for taxes paid at the end of the year, plus any money escrowed to help make payments on large insurance or machinery bills, for example
- Owner's withdrawal - payment of owner's income tax, health and executive life insurance, etc.

Step 8: Total cash paid out

Once you have listed all other costs of doing business, add them to your subtotal for operating expenses. This figure is your "total cash paid out," and reflects your estimates for the total cash you will have to spend each month.

Step 9: Determine your monthly cash flow

Subtract your total cash paid out (Step 8) from your total cash available (Step 5). The difference is your monthly cash position or cash flow. As you plot your projected cash flow, check to be sure your cash position at the end of each month is positive. If it is not, take steps early to cover these anticipated shortfalls.

Update your cash flow projection monthly, making adjustments whenever you encounter an unexpected expense or income. As actual sales and disbursements are made, list the actual amounts next to the estimates on your cash flow projection. Check for accuracy in your forecast, and make adjustments to future months as needed. As one month ends, add another month to the end of your rolling projection.

Figure below is a template of a Cash Flow budget that can easily be adapted to any business type. It can be downloaded from the following site:\n\[http://www.sba.gov/library/cfbudget.xls\]
Going through the same exercise, Toy Shop came up with the Cash Flow projections illustrated in the following table and graphically as below. Because of increased demand, Toy Shop decided to buy a new machine for toy production (Purchase of Depreciable assets for 31,000). The graph above shows that Toy Shop cash position keeps worsening. By the 12th month, Toy Shop will likely need some external financing. This warrants looking at reasons and remedies for the worsening cash position.
Funding Options

Funding is usually a challenge for startup businesses. It is important to locate institutions, agencies, individuals who may have an interest in your business idea or project. Regardless of the source, funding your assets will be based on:

- Equity, that is ownership claims
- Medium- and long-term debt (banks, development institutions, government sponsored programs, ...);
Leasing (need to locate lessors or intermediaries in the leasing business),
Grants; or
A combination of all of them.

There are several forms of leasing. In general the owner of the assets (lessor) allows the use of the asset to the lessee in return for a payment, but retains the ownership of the asset, sometimes resulting in leasing being cheaper than debt. A finance lease is the same as borrowing funds in that the lessor is assured to get her financial outlay plus return while the risks and rewards of ownership pass to the lessee. An operating lease is over a shorter period, less than the economic life of the asset and the lessor retains the rights and awards from ownership. While the benefits received by the lessor might not cover all costs of the assets, the lessor could sell the asset at the end of the lease.

Reasons for leasing might be:
- Funds not available and no access to alternative sources;
- Considerable tax advantage, also may be via owning of the asset by the lessor who might have a better tax shield;
- No wish to own;
- Off-balance-sheet financing and potentially higher Return on Equity and Asset Utilization ratios.

It is important that financial scenarios be built around each available alternative to measure the funding impact on the overall performance of the business (refer to section about sensitivity analysis).

A special type of financing is called Project finance, which means that banks or lenders take only earnings and assets of the project as collateral for loans and finance. This is usually reserved for large projects, such as toll roads, tunnel projects (e.g. Channel Tunnel), theme parks, power stations,... . International banks are usually involved through syndication, for amounts required and risks born are beyond the capacity of one single bank.

Fund providers will incorporate several types of risk in their analysis: internal (operational, raw material handling, completion/construction) and externally derived (country/political, off-take, market, financial, documentary, force major) risks.

The banks will take a project base scenario based on reasonable assumptions and build discounted cash flows (DCFs) on a range of financial forecasts. Risk appraisal forms a major part of all of this. The banks might also require contractors to sign off completion guarantees.

In the case of international investment, country risk will also be factored. Country risk is tied to political risk, which is evaluated partly on preceding deals with the country, political stability, economic performance, and exchange rate considerations, among others. In all cases, decision whether or not to provide financing will be based on the following considerations, known as the 5 Cs of credit:
- Capacity – Cash Flow Analysis;
- Collateral – security;
- Capital – real net worth, equity brought in by entrepreneur;
- Conditions – vulnerability to economic condition; and finally
- Character – honesty, ethical reputation, experience, …

Decision about financing will affect the income statement in several ways
- Interest paid on debt is tax deductible, and as such reduces the tax liability of the firm. Dividends paid to shareholders are not tax deductible
- Loan payment (principle and interest) need to be paid regardless of the performance of the firm. Failure to do so may set stage to bankruptcy proceedings. However, firms are under no obligation to pay dividends.
- Choice of capital structure (relative use of debt to equity) will affect the ability to raise funds for future expansion and will affect the overall cost of capital for firms (the higher the ratio of debt-to-equity, the higher the interest rate to be charged).
- Small businesses usually have difficulty raising funds through bank or capital market financing.

7.4 Investment Appraisal

The objective of any investment in the private sector is generally understood to be wealth maximization of owners or shareholders (public organization will seek net social benefit instead). Given this objective, a method of analysis will be judged by the reliability and ease with which a correct conclusion may be reached in project selection. Four techniques are widely used in project appraisal. These are:

- The NPV method
- The Pay back method
- The Break-even point method
- Internal Rate of Return Method
- Profitability index method (Benefit-cost ratio method)

7.4.1 Net Present Value Method

Net Present Value (NPV) can be calculated by the following formula, where \( t \) is the amount of time (usually in years) that cash has been invested in the project, \( N \) the total length of the project (in this case, five years), \( i \) the weighted average cost of capital and \( C \) the cash flow at that point in time. Note that the NPV method uses expected and not Net Income figures.

\[
NPV = \sum_{t=0}^{N} \frac{C_t}{(1 + i)^t}
\]
If you add up the original cash flows without discounting them, you find that the money spent is entirely bought back. Discounted cash flow (DCF) methods of valuation are superior to ones not based on time value of money. Discount rates are usually adjusted to risk and the discount rate is raised in case of riskier projects. The decision principle as per this method is:

- Reject the project if the (NPV) is negative.
- Accept the project if the (NPV) is positive or equal zero.
- In case of money rationing (i.e., if the organizations have enough money just for one project), takes the project with larger (NPV).

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Cash Flow</th>
<th>Net Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(165,000)</td>
<td></td>
</tr>
<tr>
<td>Year 1</td>
<td>63,120</td>
<td>13,620</td>
</tr>
<tr>
<td>Year 2</td>
<td>70,800</td>
<td>3,300</td>
</tr>
<tr>
<td>Year 3</td>
<td>91,080</td>
<td>29,100</td>
</tr>
</tbody>
</table>

Looking at the cash flow projection of Toy-shop investment in the table with the assumption of required rate of return for similar projects is 12%, and using the NPV formulas:

\[ \text{NPV} = \frac{63,120}{(1.12)} + \frac{70,800}{(1.12)^2} + \frac{91,080}{(1.12)^3} - 165,000 = 12,627.42 \]

The expansion in the example adds value to the firm, therefore, it is worth undertaking.

7.4.2 Pay Back Method

Pay back period will depend on the industry sector you are planning to enter. Some businesses, such as grocery stores, will have a very short pay back period. Apartment Hotel businesses in Dubai have an average of 2 to 3 year pay back period\(^7\). Dubai had recently undertaken an expansion with an expected IRR of 16% and a pay back period of 6 years\(^8\). An Aluminum can manufacturing unit in Bahrain to be launched in 2006 is expected to pay back in 4 years\(^9\). In all cases, you need to research and find out about the norm within your industry.

Following up with our investment proposal, assume you will accept the project only if it pays back within **two years**. You need to know at which point in time you recover your cost.

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8. www.zawya.com/story.cfm/sidZAWYA20050808043405
In many cases, this is considered to be unacceptable period to recover your initial cost. This may certainly constitute hardship for small businesses, for cash is usually a rare commodity, unless the entrepreneur is able to undergo three years of negative cash flows, he may want to reconsider the initial investment outlay and seek less costly investment alternatives. Notice that this decision contradicts the NPV one. Pay back method is widely used for its simplicity but may lead to discriminating projects that are worth undertaking and that offer growth opportunity beyond the payback period.

7.4.3 The Break-Even Point

The break-even-point (BEP) is determined through the relationship between the fixed costs and the difference between the unit’s sales price and the unit’s variable costs. For Example assuming:

- Selling price (P) = 2.0 Dh.
- Total fixed costs (FC) = 30,000 Dhs.
- Total variable costs per unit (VC) = 0.9 Dh.
- Designed project’s capacity = 50,000 Dhs.

The break-even-point of unit quantity is:

\[
\text{BEP} = \frac{FC}{P - V} = \frac{30000}{2.0 - 0.90} = 27,273 \text{ units}
\]

The project in the example should produce at least 27,273 units to break-even, otherwise it is not economically viable.

**The break-even sales returns:** This is the break-even-point in units multiplied with the selling price, as the following equation:

\[
\text{BEP} = p \left( \frac{FC}{P - V} \right) = 2 \left( \frac{30000}{2.0 - 0.90} \right) = 2 \times 27273 = 54,546 \text{ Dhs.}
\]

This represents the sales returns at the break-even-quantity production level of 27273 units and the breakeven returns at this point is 54,546 Dhs.

7.4.4 Internal Rate of Return (IRR)
This is the most important alternative to NPV method. It is often used in practice and is intuitively appealing. It is based entirely on the estimated cash flows and is independent of interest rates found elsewhere. Most spreadsheets allows for quick and easy computation of the IRR. Looking at our expansion project, and using the IRR function within Excel, we find that IRR=16.13%. Remember that similar projects offer 12%. Since IRR > 12%, this is worth undertaking.

It is worth noting that IRR and NPV usually lead to the same result (except in cases of non-conventional CFs)

7.4.5 Profitability Index

It measures the benefit per unit cost, based on the time value of money. It is important that the ratio be higher than 1.

\[ \text{PI} = \sum_{i=1}^{n} \frac{PV(CFi)}{\text{Initial Cost}} \]

A profitability index of 1.1 implies that for every $1 of investment, we create an additional $0.10 in value.

PI measure can be very useful in situations where you have limited capital and you have several projects to choose from (case of capital rationing). Figure 7-5 provides a summary of decisions tools using time value of money (or the DCF methods)

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7.4. Base case and sensitivity analysis

Feasibility studies, by nature, provide imprecise results; therefore, it is vital to present the information in a manner that allows readers to understand exactly what is being assumed as the base condition, and how the final results would be affected by variations in such assumptions.
```
This is accomplished by performing various sensitivity tests and comparing the results with those based on the various assumptions for the base condition.

For example, a study may use a 7 percent discount rate as the base condition (current policy). Other discount rates should be used in the sensitivity analysis, but the results must be compared to the results based on a 7 percent discount rate and not vice versa. That is, the results of the base case must be given more credence in the consideration of economic justification than the results of any of the sensitivity analyses.

To illustrate, consider the following project:

The initial cost is Dh 200,000 and the project has a 5-year life. There is no salvage. Depreciation is straight-line, the required return is 12% and the tax rate is 34%. On the top of that, you wanted to test the worthiness of the project based on three scenarios: Base, Worse, and Best cases.

<table>
<thead>
<tr>
<th>Project Information</th>
<th>Base Case</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Sales</td>
<td>6000</td>
<td>5500</td>
<td>6500</td>
</tr>
<tr>
<td>Price per Unit</td>
<td>80</td>
<td>75</td>
<td>85</td>
</tr>
<tr>
<td>Variable Cost per Unit</td>
<td>60</td>
<td>58</td>
<td>62</td>
</tr>
<tr>
<td>Fixed Cost per year</td>
<td>50000</td>
<td>45000</td>
<td>55000</td>
</tr>
</tbody>
</table>

Your net income and Operating Cash flows (EBIT + Depreciation -Taxes) will be as follows:

<table>
<thead>
<tr>
<th>Income Statements</th>
<th>Base Case</th>
<th>Worst Case</th>
<th>Best Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>480,000.00</td>
<td>412,500.00</td>
<td>552,500.00</td>
</tr>
<tr>
<td>Variable Costs</td>
<td>360,000.00</td>
<td>341,000.00</td>
<td>377,000.00</td>
</tr>
<tr>
<td>Fixed Costs</td>
<td>50,000.00</td>
<td>55,000.00</td>
<td>45,000.00</td>
</tr>
<tr>
<td>Depreciation</td>
<td>40,000.00</td>
<td>40,000.00</td>
<td>40,000.00</td>
</tr>
<tr>
<td>EBIT</td>
<td>30,000.00</td>
<td>(23,500.00)</td>
<td>90,500.00</td>
</tr>
<tr>
<td>Taxes</td>
<td>10,200.00</td>
<td>(7,990.00)</td>
<td>30,770.00</td>
</tr>
<tr>
<td>Net Income</td>
<td>19,800.00</td>
<td>(15,510.00)</td>
<td>59,730.00</td>
</tr>
<tr>
<td>Operating CFs</td>
<td>59800</td>
<td>24490</td>
<td>99730</td>
</tr>
</tbody>
</table>

You already notice a great deal of variability to the profitability of your project (number between ( ) are negative numbers).
Remember that decision needs to be made on a time value basis, so you need to see what happens to the NPV and IRR in each scenario. You can notice a great variability in the performance of your project under each scenario. This is an indication of risk. It is up to you to decide whether this project is still worth undertaking.

More sophisticated techniques are available to further fine tune your analysis. **Sensitivity analysis** allows you to see what happens to NPV when we vary one variable at a time (how sensitive is it to changes in variable?). The greater the volatility in NPV in relation to a specific variable, the larger the forecasting risk associated with that variable and more attention you need to pay for its estimation.

Another way of dealing with uncertainties around your project is by using **simulations**. It is an expanded sensitivity and scenario analysis. With scenario analysis, all variables are allowed to change. With Sensitivity analysis, one variable at a time is allowed to change. With simulation, both are combined. The quality of data used for any of these appraisal methods should be good to obtain meaningful results.

The appraisal method discussed in this section provides an indication whether your project is worth continuing for large scale implementation or not. Although implementation of the project is the aspect of the business plan, it is important to consider it in the feasibility report at least briefly from the lenders’ perspective. Hence, we discuss this briefly in the next section.
8. IMPLEMENTATION PLANNING

Implementation of the project will not occur unless the financial analysis indicates viability of the project. Once you decide that the project at hand is viable financially and otherwise, you need to plan for all the pre-startup activities. These will include, wherever applicable:

- Obtaining all necessary documentation and approval from local government authorities.
- Land acquisition and site preparation (if not leased)
- Building & Construction and/or Remodeling & Renovation
- Equipment and Machinery to be ordered, delivered and installed
- Electrical and mechanical wiring
- Acquiring Furniture & Fixtures
- Choice and ordering of Vehicles needed for transportation purposes
- Inventory and spare part ordering
- Hiring / training of needed human resources
- Outsourcing contracts (subcontractors, PR, distributors…)
- Insurance and utilities contracts.

As such, planning is a fundamental and challenging activity in the management and execution of projects. At this stage, management need to accomplish following:

- The definition of work tasks,
- The estimation of the required resources and durations for individual tasks
  - Human resources (technical/ managerial / support staff).
  - Machinery and equipment needed (technical specifications, delivery, installation and maintenance schedule).
- The identification of any interactions among the different work tasks.
- The identification of possible causes of delay

In addition to these technical aspects of implementation planning, it is also necessary to make organizational decisions about the relationships between project participants and even decision as to which organizations to include in a project. If outsourcing or subcontracting is envisioned, then it is important to determine organizational relationship early on in the planning process.

In addition to assigning dates to project activities, project scheduling is intended to match the resources of equipment, materials and labor with project work tasks over time. Good scheduling:
Can eliminate problems by foreseeing uncertainties involved with the implementation process and assess repercussion of delay in one task to the overall implementation of the project.

Facilitate the timely procurement of necessary materials. For instance, looking at the construction project in Table 8.1, it is clear there is no need to have cement and steel delivered at the stages of site clearing and tree removal. It is also clear that human resources and machinery needed at the site clearing and excavation stages will differ from those needed at the concrete pouring stage.

Ultimately, proper scheduling ensures that production runs are started on time for distribution/delivery to customers. For a service or distribution business, it insures starting/inaugurating the business on time.

In contrast, poor scheduling:

- Can result in considerable financial waste as laborers and equipment wait for the availability of needed resources or the completion of preceding tasks.

- Can lead to delays in opening/commercialization date.

This in turn will lead to lost sales and requires review of all financial projections. Creditors will be particularly uncomfortable with delays in start up, for repayment capability will depend on the ability to generate cash flow according to schedule.

Table 8.1: Activity Duration Estimates for a Nine Activity Project

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Optimistic Duration</th>
<th>Most Likely Duration</th>
<th>Pessimistic Duration</th>
<th>Mean</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Site clearing</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>B</td>
<td>Removal of trees</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>3.2</td>
<td>0.9</td>
</tr>
<tr>
<td>C</td>
<td>General excavation</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>8</td>
<td>1.6</td>
</tr>
<tr>
<td>D</td>
<td>Grading general area</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>6.8</td>
<td>0.9</td>
</tr>
<tr>
<td>E</td>
<td>Excavation for trenches</td>
<td>6</td>
<td>9</td>
<td>14</td>
<td>9.3</td>
<td>6.4</td>
</tr>
<tr>
<td>F</td>
<td>Reinforcement for concrete</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>12</td>
<td>1.6</td>
</tr>
<tr>
<td>G</td>
<td>Installing sewer lines</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2.3</td>
<td>0.4</td>
</tr>
<tr>
<td>H</td>
<td>Installing other utilities</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td>5.3</td>
<td>1.6</td>
</tr>
<tr>
<td>I</td>
<td>Pouring concrete</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>6</td>
<td>1.6</td>
</tr>
</tbody>
</table>
8.1 Task Scheduling

An important aspect of the implementation process is the proper scheduling of tasks till opening/inauguration date and beyond. For many projects, starting date may be dictated by external events. And the success of the project will hinge on proper scheduling. Examples of such cases are event managements, construction building, subcontracting projects, whereby failure to deliver on time may result in major losses, or stiff penalties. Several techniques are available to aid in the proper scheduling of tasks in a typical project. Table 8.1 is an example of scheduling for a 9-task construction project. Three estimates are given for each activity, optimistic, most likely and pessimistic. Using equally probabilities, the mean and variation in task completion are assessed which aid in effective task scheduling using various scheduling techniques.

8.1.1 The Critical Path Method

The most widely used scheduling technique is the critical path method (CPM) for scheduling, often referred to as critical path scheduling. This method calculates the minimum completion time for a project along with the possible start and finish times for the project activities. Indeed, many managers regard critical path scheduling as the only usable and practical scheduling procedure. Computer programs and algorithms for critical path scheduling are widely available and can efficiently handle projects with thousands of activities.

The critical path itself represents the set or sequence of predecessor/successor activities which will take the longest time to complete. The duration of the critical path is the sum of the activities' durations along the path. Thus, the critical path can be defined as the longest possible path through the "network" of project activities. The duration of the critical path represents the minimum time required to complete a project. Any delays along the critical path would imply that additional time would be required to complete the project. Table 8.2 illustrates a precedence relationship for the 9-task construction project.

Table 8.2: Precedence Relations and Durations for the Nine Activity Project

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Predecessors</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Site clearing</td>
<td>--</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Removal of trees</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>General excavation</td>
<td>A</td>
<td>8</td>
</tr>
<tr>
<td>D</td>
<td>Grading general area</td>
<td>A</td>
<td>7</td>
</tr>
<tr>
<td>E</td>
<td>Excavation for</td>
<td>B,C</td>
<td>9</td>
</tr>
</tbody>
</table>
8.1.2 Implementation and Crashing & Time/Cost Tradeoffs

Too often, managers face implementation delays, leading to last minute changes in schedule, overtime work, and below expected performance. It is important to recognize that activity durations can often vary depending upon the type and amount of resources that are applied. Assigning more workers to a particular activity will normally result in a shorter duration. Managers may opt to use more resources if time is of essence. Greater speed, however, may result in higher costs and lower quality. It is important at this stage to consider the impacts of time, cost and quality tradeoffs in activity durations, or what is known as project crashing as described below.

A simple representation of the possible relationship between the duration of an activity and its direct costs appears in Figure 8.1. Considering only this activity in isolation and without reference to the project completion deadline, a manager would undoubtedly choose a duration which implies minimum direct cost, represented by $D_{ij}$ and $C_{ij}$ in the Figure. Unfortunately, if
each activity was scheduled for the duration that resulted in the minimum direct cost in this way, the time to complete the entire project might be too long and substantial penalties associated with the late project start-up might be incurred.

What is the reason for an increase in direct cost as the activity duration is reduced? A simple case arises in the use of overtime work. By scheduling weekend or evening work, the completion time for an activity as measured in calendar days will be reduced. However, premium wages must be paid for such overtime work, so the cost will increase. Also, overtime work is more prone to accidents and quality problems that must be corrected, so indirect costs may also increase.
9. CONCLUSION

The purpose of a feasibility study is to help assess the viability of a business proposition, technically, operationally and economically. We use the value chain framework for conducting feasibility studies in this guide as the framework has the unique advantage of laying out the project in its logical configuration — from input procurement to customer service — and assessing the technical, operational and economic feasibility at each stage, and finally putting it all together to assess the total project feasibility through financial appraisal.

The advantage in this approach is revealed in exposing the bottlenecks to feasibility along the value chain so they can be assessed for possible amelioration. The iterative nature of the approach is also helpful because it allows the stakeholder to revisit previous steps when information from latter steps suggests the need. In the end, the logical and step-wise process for conducting feasibility assessment within the value chain framework helps enhance transparency of the analysis and provide the foundations for better decisions. This guide covered the following components of the value chain:

a. The Marketing, sales, customer service and support component of the value chain in the feasibility report will determine the specific needs of customers that may be addressed by the project’s offering and estimate the product differentiation index.

b. The components of input sourcing and procurement, operations and production, warehousing, and storage and delivery (inbound logistics) of the value chain in the feasibility report cover the logistics aspects of the production process and draws on the infrastructure conditions, technological and technical realities, human resource availability, capabilities and skills and customer expectations of quality associated with the product.

c. Pulling all the information together into financial units, the value component of the value chain in the feasibility report builds the investment, operational costs and revenue projections over a reasonable time frame and estimates the net present value and/or the internal rate of return to facilitate making decision recommendations. A project returning a positive net present value is deemed feasible and the larger the net present value the better. Project owners need to determine the required rate of return that investors in the project would deem acceptable and compare it to the internal rate of return to determine the project’s feasibility. If the former is lower than the estimated internal rate of return, then the project is judged to be feasible and vice versa.

Uncertainties are an inherent part of business. A feasibility study will minimize the risk, but will not eliminate it. This systematically examines the following components specifically for reducing uncertainties:

• Proper market research to identify the demand for the product;
• Inbound logistics (handling of raw material, site location, site, technology, and warehousing
• Operations and cost structure;
• Realistic assumptions and expectations about the product;
• Outbound logistics (distribution of products to consumers through various channels)
• Integrating all the components of the value-chain to measure the value added to the firm and analyzing economically and financially whether the value is worth the effort put-in throughout the project conception, implementation and monitoring.

Now that the feasibility study is completed, you may wonder whether your venture will be a successful one. Once again, there are no guarantees in business, but there are definitely ways of minimizing the odds of failing, that is, by constantly educating yourself and everyone else involved about your business project and everything relating to it.

Two feasibility studies are appended as samples to this guide and illustrates the depth and breadth of analysis carried out.
REFERENCES


Additional Useful Online material:

http://www.sba.gov/library/cfbudget.xls (allow for an automatic generation of financial statements once cost and revenue data collected)
http://www.enterweb.org/research.htm (for a wealth of information to new entrepreneur)
http://www.investopedia.com/university (a financial encyclopedia)

http://www.managementhelp.org/strt_org/prep.htm