

Dr. Tom McKaskill

FINANCIAL DECISION MAKING
for
Entrepreneurs and Managers

*Understanding and
using business
decision models in
strategic planning*

BREAKTHROUGH PUBLICATIONS

**ACADEMIC
EDITION**



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INSIGHTS

Understanding the logic used to structure product and activity costing is critical in evaluating contribution margins.

The concepts behind time value of money underpins investment analysis, business valuation and shareholder returns.

Flexible pricing of time expired assets can greatly assist in generating higher revenue and profits.

Business valuations are partly art and partly science. Understanding what contributes to higher valuations will greatly assist in ensuring the best exit value is achieved.

A well written business plan is an essential component of strategy development and a critical contributor to successful fund raising.

DR. TOM MCKASKILL



Global serial entrepreneur, consultant, educator and author, Dr. McKaskill has a deep understanding of financial information at both a theoretical and practical level. A qualified CPA and former university lecturer in accounting, Dr McKaskill has taught financial accounting, cost accounting and corporate finance. More recently, as the Academic Director of the Master of Entrepreneurship and Innovation program at the Australian Graduate School of Entrepreneurship, he developed a course on New Venture Finance for practicing entrepreneurs.

Dr. McKaskill also has over 20 years experience as a practicing entrepreneur through a series of ventures. This has given him a thorough understanding for how financial information is used in an emerging business.

Upon completing his doctorate at London Business School, Dr. McKaskill worked as a management consultant, later co-founding Pioneer Computer Systems in Northampton, UK. After being its President for 13 years, it was sold to Ross Systems Inc. During his tenure at Pioneer, the company grew from 3 to 160 people with offices in England, New Zealand and USA, raised venture capital, undertook two acquisitions and acquired over 2,000 customers. Following the sale of Pioneer to Ross Systems, Dr. McKaskill stayed with Ross for three years and then left to form another company, Distinction Software Inc. In 1997 Atlanta based Distinction raised \$US 2 million in venture capital and after five years, with a staff of 30, a subsidiary in New Zealand and distributors in five countries, was sold to Peoplesoft Inc. In 1994 Dr. McKaskill started a consulting business in Kansas which was successfully sold in the following year.

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After a year as visiting Professor of International Business at Georgia State University, Dr. McKaskill was appointed Professor of Entrepreneurship at the Australian Graduate School of Entrepreneurship (AGSE) in June 2001. Professor McKaskill was the Academic Director of the Master of Entrepreneurship and Innovation program at AGSE for the following 5 years. In 2006 Dr. McKaskill was appointed the Richard Pratt Chair in Entrepreneurship at AGSE. Dr. McKaskill retired from Swinburne University in February 2008.

Dr McKaskill is an acknowledged authority on high growth ventures and has established a reputation for providing insights into how entrepreneurs start, develop and harvest their ventures. Acknowledged as the world's leading authority on exit strategies for high growth enterprises, Dr. McKaskill provides both real world experience with a professional educator's talent for explaining complex management problems that confront entrepreneurs. His talent for teaching executives and his pragmatic approach to management education has gained him a reputation as a popular speaker at conferences, workshops and seminars. His approaches to building sustainable, profitable ventures and to selling businesses at a significant premium, has gained him considerable respect within the entrepreneurial community.

Dr. McKaskill is the author of eight published paperback books and twenty two ebooks for entrepreneurs covering such topics as new venture growth, marketing, raising venture capital, selling a business, acquisitions strategy and angel investing. He conducts workshops and seminars on these topics for entrepreneurs around the world. Dr. McKaskill is a successful columnist and writer for popular business magazines and entrepreneur portals. He has also produced over 150 YouTube videos to assist entrepreneurs develop and exit their ventures.

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PREFACE

Over the last decade I have been involved in teaching and mentoring entrepreneurs and have come to recognize the powerful innate abilities they have to construct creative business models. However, being energetic, positive, visionary, creative and having an ability to be a leader, organizer and negotiator are not in themselves sufficient for business success. While some entrepreneurs will succeed through luck and trial and error, the majority need assistance to understand the mechanics of a successful business. While we would like to think that entrepreneurs are naturally good at business, experience would suggest that the DNA of the entrepreneur does not include business acumen. This is the role which education must fill to create a successful entrepreneur.

I have seen many entrepreneurs struggle with basic financial reporting. How to understand and use financial information is fundamental to survival in business. Once they can grasp the fundamentals of financial reporting, especially how to use budgets and cash flows, their ability to manage their operations increases greatly.

However, there is another level which they should aspire to and that is the area of financial decision making – how to use financial information to inform strategy, planning and management decisions. I call this the area of the ‘what if’. There are many situations in business where there are multiple paths which one can take. Which is the right one? This is one area where there are some good decision models which can help the entrepreneur evaluate alternatives and make informed judgments.

Over the twenty years I was managing emerging companies and the ten years I spent teaching and mentoring entrepreneurs, I came to recognize that there are a few key decision tools which all entrepreneurs really need to come to grips with. You might say these are the ‘light bulb’ ones. They are tools or techniques which open up our mind to creative planning. They enable us to grasp essential drivers of business risk and reward and help us with making key decisions. I have assembled the key ones in this book.

When you are planning the future strategy of a business you really need to have a very good grounding in the relationship of costs and revenues. I don’t just mean in how to make a profit but how to manipulate prices and costs to reduce risk and increase profits. I am stating that you need to have a good knowledge of the structure of costs and for how price manipulation can impact on sales and profits.

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You also need to know how to evaluate future investments in the business, especially if there are a number of possible projects, some of which might be mutually exclusive. The problem with alternative projects is that, if the costs and pattern of cash inflows are different, especially over a long time, simple calculations cannot properly evaluate the impact on long term profitability. You need to take into account the time value of money, the cost of capital and the impact on your cash flow projections.

Managing a business is more than reviewing the Profit and Loss and Balance Sheet or even evaluating budget performance. You have to make decisions about how to use company resources to gain the best outcomes. Traditional financial reports look backwards not forwards. You need a set of tools and techniques which allow you to plan what is going to happen to the business. Financial decision making tools provide the essential toolkit to allow you to do that.

A knowledge of the most common financial decision making techniques will greatly improve your understanding of business and will give you greater confidence that you are making the right decisions for the right reason.

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CHAPTER 1: USING FINANCIAL DECISION MODELS

Questions:

What is the difference between financial information and financial decision making?

What type of problems best suit the financial decision making techniques?

What are the key decision making models in financial decision making?

How does financial decision making relate to business planning and business strategy?

Once we understand the basics of financial information and how to evaluate financial reports, budgets and cash flow projections, we can start using this information to solve problems which have significant financial implications for the business. I like to think of these as the ‘what if’ problems. That is, I can use financial information to tackle a whole range of future options the firm has with regard to product pricing, investments in product development, markets and people, funding possibilities and so on. Without access to the underlying financial information, I am essentially working blind. With good financial information I am taking the guesswork out of the analysis and exposing the underlying assumptions and uncertainties. In other words, I am making informed decisions which means that I am more in control of my destiny.

Financial decision making uses a set of tools and techniques to tackle a group of complex financial problems where there are a range of possible choices of strategy. The financial decision making approach allows us to apply a set of proven decision models where we can have confidence that we have properly evaluated the situation and will arrive at an informed decision based on a rigorous analysis of the information available to us at the time.

Financial decision making deals with choices about what to do in the future. You don’t manage a business by looking backwards and yet much of the information we have to work with is historical information. We manage by making decisions about what we are going to do today and in the future. We direct the firm by choosing between different possible outcomes.

Where possible we want to put ourselves in a situation where we have time to gather the relevant information, apply our decision making model and arrive at the best decision we can. We want to be proactive rather than reactive and give ourselves the time and capacity to decide between two or more courses of action based on the evidence on hand and various assumptions we have about the future.

However, we need to accept that our ultimate scorecard in business is profit. Unless you understand financial information, you are essentially making uninformed decisions. That means you need to have a very good understanding of how revenue is recorded and how expenses are incurred. Don't be fooled by how much cash you have or don't have, that simply tells us whether we have enough cash on hand to pay our bills and fund the development of the business. Ultimately, this still has to be translated into profit for us to generate value in the business.

As we move beyond a basic understanding of the major elements which make up our Income Statement and Balance Sheet, we need to start tackling some of the more critical decisions facing the business. To properly manage the business we need to move beyond reacting to last month's or last year's results to projecting what the business will look like under different planning assumptions. We need to manage our future by making choices between alternative courses of action. To do this properly we need to have the decision making tools to enable us to test different future paths. This is where financial decision making models can help.

We need to be able to manipulate the forecast income and expense data to test various future possibilities. We need to have decision models which allow us to make informed choices between different business development investments. If we are to make decisions on price points and costs we need to have a good knowledge of the structure of both as well as their impact on sales volumes and contribution margins. But what changes can we make in prices or costs which are both reasonable and sustainable? Without understanding basic pricing and cost structures, you cannot do this with any degree of confidence.

Testing different prices is relatively easy, but can you be sure you are making a profit at each price option? What we know about costs is that they are not linear and often vary as volumes increase. But by how much and what are the underlying cost patterns?

We need to have a formal process for deciding on investments in product and market development. How do we know which projects to undertake? If we need to raise funds to finance some additions to capacity or to develop new products or markets, how much funding

will we need? At the same time we know that we need to offset these funding costs against future profits, but how do we examine that across a number of future periods?

Our investors will want to know the return on investment (ROI) they can expect on their money and when they will be able to liquidate their investment. How are we to work out a return on investment over a number of years and estimate the value of the firm at a liquidity event?

If I have a number of options as to when I borrow money and how much I borrow, how can I judge the impact of each of those alternatives on the business?

If I have a choice of prices for my products, what effect will each choice have on my funding requirements and the profitability of my sales projections?

Many manufacturers have large factories with many workers on assembly lines with many others in administrative and support activities. What does this complexity of costs mean for working out what a manufactured product costs?

Process manufacturers, on the other hand, often produce co-products and by-products from the same process. What does this mean for product costing and pricing?

As you can see these are complex problems which require serious consideration as they can significantly impact the long term viability and profitability of the firm. To tackle these types of problems you need good financial information and a set of decision tools which are designed for solving each of these problems.

Financial decision making is a set of tools which you can use to tackle a wide range of problems facing the business. It includes such decision tools as cost volume profit analysis, break even analysis, time value of money, valuation techniques, contribution margin analysis, forecasting techniques and many others.

This book will give you an understanding of the most important financial decision making techniques and decision models. With this foundation, you will find it relatively easy to extend your knowledge into other areas of financial decision making.

Reflection:

Perhaps the most powerful tool I have used in business is the Business Plan. It is a very concise way of communicating what the business is to an external party. It also gives you an opportunity to think through what you are doing and where you are going. It often provides insights into your business which you were unaware of and it allows external parties to question you on your strategies.

Many entrepreneurs are somewhat isolated from good experienced advice. Even when they do have access to a mentor, they are often unable to succinctly describe their business and the challenges they are confronted with. A well written business plan allows your mentors, advisors and investors to bring their collective experience to your aid and can be the vehicle which enables you to gather valuable feedback on your plans.

Many advisors will tell you that you need to work on your business and not so much in your business. Preparing a detailed business plan is a great way to work on your business and think through some longer term issues which may not be so obvious when you are working in the business. Don't pass the task of preparing the business plan to someone outside the business. This is one of those activities where the greatest benefit comes from doing it yourself.

CHAPTER 2: MANIPULATING COST STRUCTURES

Questions:

What is the difference between a fixed cost and a variable cost?

What happens if costs are lumpy, that is, they are incurred in large increments?

What is the contribution margin? How does this impact profit levels?

What are recurring costs and how do they impact profitability?

What are committed and discretionary costs?

How do I choose between historical cost, replacement cost, market value, incremental cost, book value and liquidation value in problem solving?

Almost all financial decisions involve questions of costs or expenses. However, few people appreciate how complex the nature of costs are. In order for us to make informed financial decisions we first need to have a good understanding of the nature of costs and their underlying patterns or structures.

We all talk about costs but few people bother to clarify what type of cost they are using. In fact, there are many different forms of cost for the same item. Historical cost is what you originally paid for something. Replacement cost is what you would have to pay to replace the item in its current form – that is a used item of similar characteristics. Sometimes replacement value is used to refer to the replacement of an existing asset with a new item. Market value might refer to the price you might receive if you sold the item in a normal but not urgent sale process. On the other hand, liquidation value would refer to the price you might receive if you sold the item in a hurry, such as a fire sale. Book value would refer to the historical cost of an item less its accumulated depreciation or amortization.

Depending on the decision we are making, we would want to use the most appropriate cost. When we refer to cost in a financial decision, it is important that we clarify the type of cost information being used otherwise we could end up generating a poor outcome.

Cost Patterns

When we incur an expenditure for an item, usually there is a defined cost. However, even with a single item, I may be offered a discount, my delivery expenses may vary from purchase to purchase and my receiving costs might vary depending on how much work I decide to undertake on inspection. So even something as simple as a single item can have a variety of cost patterns over time. Of course, this can also be impacted if the base cost of the item changes from the supplier.

One aspect of cost which can be important is whether the item cost varies with volume purchased or used. Very often item costs are subject to volume discounts or rebates which reduces the average cost per item. This aspect of cost variability can be very important if I am projecting profit levels at different sales volumes.

Some costs vary with the volume of activity and others don't. A simplistic breakdown of costs separates them into fixed and variable costs.

Fixed costs are those which do not vary with the volume of activity. This might be the office rent, fire insurance and trading license fee. There are many costs which we incur in business which are unavoidable, that is, we need to incur them in order to be in business, but they are a one off or annual charge. No matter what level of business we undertake the cost is the same.

Variable costs on the other hand are the opposite, they are strictly related to the level of activity. The most obvious example of this type of cost is the cost you incur to purchase each item you sell. When you sell 10 items, the cost is 10 times the item cost. If you sell 20 items, the cost is double that of 10 items. Other variable costs are fixed commissions on sales and other costs incurred with each unit sold.

I used the term simplistic because, in fact, most costs are neither fixed nor variable. Most fixed costs only apply over a range of activity. Once activity levels step up, many of these costs need to be incurred again. Variable costs can also change with volume. For example, higher sales might attract volume discounts and sales commission may be adjusted at stepped volume intervals.

Fixed costs which vary somewhat with the level of activity are often referred to as stepped costs or 'lumpy' costs. For example, say you have a supervisor for each 5 assembly line workers. As you add the 6th worker, you need to add an additional supervisor. But you don't add a 3rd supervisor until your number of direct workers exceeds 10. Between 6 and 10 workers, there

is only one supervisor cost. This is a very good example of a stepped cost. You would see the same pattern in many administrative costs such as office rent, equipment costs, support staff salaries and so on.

The lumpy nature of stepped costs can be very significant if the firm is undertaking a major project such as building a new factory or buying a large item of equipment. The factory may be designed to handle capacity many times the current level and may be used for many years before additional capacity need be acquired. You see the same pattern of costs with office accommodation and IT infrastructure.

Large fixed costs for plant and equipment might have a combination of initial fixed costs, variable maintenance costs for consumables like petrol and regular maintenance and a stepped fixed cost such as a periodic major overhaul.

Variable costs can also experience stepped changes. A typical variable cost would be a manufacturing input such as raw materials, ingredients or components. But we need to recognize that the supplier will also be experiencing similar cost patterns in their operations. It may be much cheaper per unit of output to ship larger orders as they incur fewer costs in processing and shipping the order. A supplier might also be interested in offering a quantity discount for longer term commitments where volumes are larger. We would expect the per unit costs of raw materials, ingredients and components to reduce with higher volumes.

Some variable costs may increase with higher levels of activity. For example, we may offer sales persons additional incentives for higher levels of sales or for meeting specified targets.

Example:

Base Salary \$40,000 (includes sales up to \$400,000)

For sales over \$400,000 - \$1,000,000 commission of 2%

Bonus of \$10,000 for sales of \$1,000,000

For sales over \$1,000,000 a commission of 3%

As you can see from this example, what appears on the surface to be a linear variable cost has both a fixed component, a stepped increase and a changing variable component.

It is this complex pattern of fixed, stepped and variable costs which underpin many of the costs which we deal with in planning growth in the business. What this means is that you need to be very careful with your assumptions about the nature of the costs you are projecting.

It also means that the projected level of expenses and associated cash flows are complex to forecast.

Contribution Margin

One of the most powerful cost concepts in financial decision making is ‘Contribution Margin’. It goes to the heart of the difference between fixed and variable costs.

Contribution Margin is defined as Price minus Variable Costs.

That is, it is the contribution which a unit of sale makes to covering the fixed costs. For example, if I sell an item for \$10 and the variable costs are \$4, then my contribution to fixed costs recovery would be \$6. Every additional sale I make provides an additional \$6 towards covering my fixed costs. This is also often referred to as ‘Gross Profit’.

Example:

I rent a market stall for the day which costs \$200. I buy 200 items of inventory at \$4 each. I sell them for \$10 each. I am able to return any unsold inventory to the supplier at cost.

If I fail to sell anything, my loss would be \$200, the cost of renting the stall.

If I sell 20 items, my revenue on the day would be $20 \times \$10 = \200 . My variable costs would be $20 \times \$4 = \80 . My contribution margin from sales would be $\$200 - \$80 = \$120$. However, I have incurred \$200 to rent the stall, so my loss on the day is my fixed costs (\$200) less my Contribution Margin (\$120) = \$80. But notice that for every additional unit I sell, my loss is reduced by \$6. So if I had sold 14 more, I would have just covered my fixed costs.

$$34 \text{ items @ } \$10 = \$340$$

$$\text{Variable costs of } 34 \times \$4 = \$136$$

$$\text{Contribution Margin} = \$340 - \$136 = \$204$$

$$\text{Profit} = \text{Contribution Margin} - \text{Fixed Costs} = \$204 - \$200 = \$4.$$

The Breakeven Quantity in this case is 34 units.

Breakeven Quantity

The Breakeven Quantity is the quantity that must be sold in order for the fixed costs to be covered. As you can see from the above example, 34 units had to be sold in order for the contribution margin to equal or exceed the fixed costs. This is a very powerful concept because it relates price, variable costs and fixed costs in the one concept.

Breakeven Quantity can be used to examine a number of different scenarios of these elements. So for example, I might be interested in the following questions:

What would happen if I swapped fixed costs for variable costs?

What would the Breakeven Quantity be if I raised the price?

If I traded variable costs for high fixed costs, what would the outcome be?

If I sold more items, what rate is profit increasing at?

a) Swapping Fixed Costs for Variable Costs

If I swap fixed costs for variable costs, I effectively change the contribution margin per unit sold. Depending on the rate of change in both fixed and variable costs, my breakeven quantity may decrease or increase. I might achieve this, for example, by renting some equipment rather than buying or I might outsource inbound inspection at a per unit cost rather than have my own inspection department.

Example:

Reduce fixed costs to \$180 and increase variable costs to \$4.20

Breakeven Quantity = Fixed Costs / Contribution Margin

Breakeven Quantity = \$180 / \$5.80 = 32 units (a decrease of 2 units)

Example:

Reduce fixed costs to \$150 and increase variable costs to \$6.00

Breakeven Quantity = Fixed Costs / Contribution Margin

Breakeven Quantity = \$150 / \$4 = 38 units (an increase of 4 units)

b) Changing the Price

If I alter the price, I change the contribution margin per unit. An increase in price would increase the contribution margin while a decrease in price would decrease the contribution margin. However, I also need to consider what impact this would have on overall sales. An increase in price might reduce total sales but the profit impact would be offset by the increase in contribution margin. A decrease in price would reduce the contribution margin but this might be offset by higher sales levels.

Example:

Original sales at \$10 per unit are forecast at 100 units.

At a price of \$12 per unit sales are expected to be 90 units.

At a price of \$8.50 per unit sales are expected to be 120 units.

Breakeven Quantity (\$10) = $\$200 / \$6 = 34$. Profit = $(100 \times 10) - (100 \times 4) - 200 = \400

Breakeven Quantity (\$12) = $\$200 / \$8 = 25$. Profit = $(90 \times 12) - (90 \times 4) - 200 = \520

Breakeven Quantity (\$8.5) = $\$200 / \$4.5 = 45$. Profit = $(120 \times 8.5) - (120 \times 4) - 200 = \340

As you can see, depending on the price elasticity of demand, the profit depends on both the change in contribution margin and the change in demand. Sometimes, you simply need to do the numbers to see the impact because often it can be counter intuitive.

c) Swapping Variable Costs for Fixed Costs

If I move some of my variable costs to fixed costs, I increase my fixed cost base but improve my contribution margin. This is especially helpful to profit if I know I can achieve a higher level of activity. What this means is that each additional unit of sale will contribute more to profit.

What would happen if I increased fixed cost to \$250 but reduced variable costs by \$1 to \$3?

Original Breakeven Quantity (\$10) = $\$200 / \$6 = 34$. Profit = $(100 \times 10) - (100 \times 4) - 200 = \400

New Breakeven Quantity (\$10) = $\$250 / \$7 = 36$. Profit = $(100 \times 10) - (100 \times 3) - 250 = \450 .

At higher volumes, the profit will increase much faster with the higher fixed base and the higher contribution margin.

d) Rate of Profit Increase

The higher the contribution margin, the faster Profit will increase once the breakeven quantity is reached.

For example, what if we sold an additional 10 units above the current 100. Using different contribution margins we can see the impact.

Variable costs of \$3.00. An additional profit of \$70.

Variable costs of \$4.00. An additional profit of \$60.

Variable costs of \$5.00. An additional profit of \$50.

As you can see, the relationship between fixed costs, variable costs and pricing is critical in the evaluation of the business. The trade off between fixed costs and variable costs really depends on the volume of business and the risks associated with fluctuations in that volume. As projections become more volatile, the business is better to move towards higher variable costs and lower fixed costs. Conversely, as projections are more stable and volumes are expected to be high, higher fixed costs and lower variable costs will result in higher profitability.

Too often these evaluations are done in isolation of price elasticity. Any analysis of price adjustments needs to take into account the impact on sales volumes. By flexing the price, we can examine the impact on profit of changing sales volumes on profit alongside tradeoffs between fixed and variable costs. Since it is unlikely that price increases will be directly aligned with variable cost changes, the business might be better off at different price points under different fixed and variable cost structures.

We should also not forget that few fixed costs are constant over wide levels of activity. As we saw in the earlier discussion, most so called fixed costs are in fact stepped costs. Also, we saw that few variable costs are constant with increased volumes. Some variable costs decrease

while there are others which increase. These variations in cost structures need to be factored into the cost/volume profit calculations.

Most businesses, however, tend to work within a narrow activity range, say +/- 20%. Generally speaking, the fixed costs with small changes in activity will be stable. The same generally applies to variable costs. What this means is that the cost/volume profit calculations are relatively easy to undertake for normal ranges of activity.

Where we see the biggest variations in both fixed and variable cost structures is in the early stages of start up firms where cost patterns change significantly as volumes increase. Firms which grow from 3, to 10, to 30 staff, will pass through major cost structure changes. This is where you need to be careful with your calculations as the fixed cost base will change dramatically. In these situations, it is better to develop cost/volume profit calculations for each activity level.

While most examples of cost/volume profit calculations are presented using products, the same cost structures usually apply in the services sector. Restaurants often talk about the number of covers. Recruiting firms talk about placements. Travel agencies talk about bookings. Basic activity structures exist in most firms where a profit margin is earned on each additional unit of sale.

Incremental Costs

As our fixed cost base changes with activity levels, it is possible for us to examine the incremental impact of a stepped change in activity and relate this to the change in fixed costs. So instead of having a single value for fixed costs, we can produce a table relating fixed cost to activity level. This also allows us to identify the increment in fixed costs needed to move the business from one level of activity to the next. By relating this to incremental sales for the same stage, we can examine the profit or loss impact of a growth stage.

Volume	Fixed Costs	Sales	Contribution Margin	Profit	Profit/Sales %
1,000	2,000	10,000	6,000	4,000	40
5,000	9,000	50,000	30,000	21,000	42
10,000	16,000	100,000	60,000	44,000	44
20,000	30,000	200,000	120,000	90,000	45
30,000	35,000	300,000	180,000	145,000	48

I have assumed that variable costs are constant with volume. As you can see, the rate of profit increases as fixed costs are spread over more and more units of sale. While the fixed costs are increasing, they are not increasing at the same rate as sales. It is this declining relationship which improves profitability as sales volumes increase.

The other aspect of growth which we can examine is the incremental cost associated with small increases in growth. Because fixed costs are most often lumpy, the incremental costs will vary depending on whether the increment triggers a step increase in fixed costs.

As an example, we could look at which fixed costs are triggered by different growth points.

1 to 5 Employees	6 to 30 Employees	31 to 50 Employees	51 to 100 Employees
Serviced office	Leased office	New telephone system	New business software
Rented office equipment	Purchased office equipment	First regional office	New larger office
Outsourced bookkeeping	Office fitout	In-house marketing staff	Office fitout
	In house administration		Full time CFO
			Second regional office
			Board of Directors

What we see over the growth increments is the swapping of outsourced variable costs for in house full time staff. There are also lumpy costs associated with replacing telephone systems, business software and office relocation.

Within each of these increments, the incremental costs of growth are relatively small. Adding another employee may be as simple as a new cubical, some IT equipment, a recruiting fee and some training costs. If you were growing from 31 to 40 staff, the major costs associated with the office and administration are already covered in the fixed costs. You don't experience another major hit on the fixed cost base until you need to move over 50 staff.

This pattern of stepped costs has a significant effect on business planning as the firm will experience major expenditure on infrastructure when it reaches one of the step points. Each step will have a major cash outflow impact and therefore planning well ahead for access to funding or saving up for the step change is an important planning task.

Reflection:

My first business was a small software firm located in Northampton in the UK. We moved into a five story Georgian terrace house in the CBD which had been converted to an office. At the time, we each had our own floor with room to grow. I had signed a 21 year lease anticipating that we would never grow big enough to fill the space. Five years later we were out of space and looking for new offices. Over the next few years I had staff in the original office and two sub-leased offices in different parts of the city. Finally, after 12 years, we moved the entire business of 70 staff into a purpose built office on one of the industrial parks. Even then, I had no faith we wouldn't expand further.

CHAPTER 3: REVENUE MANAGEMENT

Questions:

What is the impact of changing the sales price?

What happens if we offer some customers a discount?

How can we manipulate price to cover our fixed costs?

Can we offer different prices to different customers?

How can we maximize the use of 'time expired assets'?

Once we know our fixed cost structures and how this varies over time with increments of volumes, we have a better understanding of what level of costs we need to cover in order for the business to survive. Unless we can cover the fixed costs in a sustainable manner, the business must inevitably fail.

At the same time, we need to have a good understanding of our variable costs so we can determine the contribution margin. Very simple cost/volume profit calculations will then inform us of the level of sales needed to breakeven. Any sales in excess of breakeven quantity will move the business into profitability.

However, this information is not static. Fixed cost patterns can change over time. The business can sometimes move fixed costs to variable costs and vice versa. With this dynamic as a background, management has a range of possible future scenarios with which to develop both tactical and long term strategy.

One of the strategic levers is price. While the market will impose some level of constraint on what the price can be, there are still a range of possible price techniques which the business can use to impact revenue and profitability.

Incremental Pricing

There are very few products which have demand that is not impacted by price variations. Most products follow a classic economic curve where demand is related to price. As price increases, demand decreases. However, without experimenting with price changes, the rate of change in demand is hard to predict. What we would like to know is how demand would change with movements in price. We also need to see how this impacts profitability.

It is highly unlikely that the contribution margin will stay constant over a wide range of sales volumes. Because of the nature of economies of scale, we would anticipate that variable costs would decrease with activity levels. Even in the services sector, there are reductions in costs due to learning curve effects. That is, the more often we do something, the better we are at it. This productivity gain translates into lower costs per unit of output as volumes increase.

At the same time, we would anticipate some increase in fixed costs as we have already discussed. However, these can be expected to be stable for ranges of activity levels.

What we need to do in projecting the impact of price changes is to factor in both the reduction in variable costs as well as the possible increase in fixed costs. While increasing demand through price reduction might appear attractive, it need not result in increased profitability. Sometimes, an increase in price with a disproportionate increase in contribution margin will achieve a higher profit.

Decreasing price would normally result in an increase in volume of sales with some reduction in contribution margin per unit of sales. This reduction in contribution margin will result in a higher breakeven quantity. What we have to be sensitive to is whether the new sales volume will achieve the new breakeven quantity.

Sometimes new sales can be achieved by offering discounts to attract customers who otherwise would not have purchased our products or services at our normal price level. One of the risks of discounts, however, is that they become the norm and the long term impact is to reduce the contribution margin across all sales. A decreased contribution margin might result in a total contribution margin insufficient to cover fixed costs.

One technique used by vendors is to repackage a product or service under another brand or label and offer that at a new price. You often see this with own brand supermarket products where the same product is marketed under the original brand and then a home brand is sold cheaper but often the products are produced on the same manufacturing production line, just

different packaging. This technique allows the vendor to access two different markets and increase volume. The danger here, of course, is that the own brand may cannibalize the higher priced branded product. However, just because the price is lower does not mean the contribution margin is reduced. We would need to examine the new variable costs to understand the impact on profit.

Discounts offer the vendor the possibility of changing demand patterns. As long as the variable costs are recognized, short term discounting can offer advantages to vendors with excess inventory or a need to generate short term cash.

Shelf Life Products

Products which have an expiry date are often offered for sale at a discounted price as they near their shelf life. What the vendor recognizes is that once the shelf life is reached the product has to be scrapped. Any contribution from a sale, no matter how heavily discounted, is still a contribution.

The extent to which you would discount items which are moving out of their use period is really the cost which can be recovered once the item has expired. If there is some salvage value in the item, this would put a limit on how far the price would be discounted. The sale price would always need to be greater than the salvage value.

A similar effect might be said to exist with seasonable fashion items or even version releases of products. If the market demand is going to dramatically decrease once the season is finished or a new version is released, any contribution above the variable costs should be considered as long as it does not change the market behavior towards the next season or new version products.

In changing prices to shift old stock, we do have to be sensitive to our costs in doing so, especially the costs of not doing so. If goods can be returned to the supplier, the cost recovered will limit the level of discounting.

Revenue Management

One of the challenges of many companies is to exploit assets which offer customer benefits based on the usage of time. These assets are called ‘time expired assets’. Examples would be

airline seats, restaurant tables, theatre seats, hotel rooms, rental cars and so on. The income from these activities occur when the item is used by a customer. When they are not used and sit idle, no income is received but there are costs of having them idle or not used.

The concept behind revenue management is to maximize the overall revenue of the asset by capturing business at different price points. The objective is to create a contribution margin for the asset rather than let it sit idle. The challenge is to create a customer/price point plan which attracts enough business to keep the asset busy while not creating excess demand at too low a price point.

The revenue management plan balances the number of people who can be attracted at each price point with available supply. Demand for the highest price points are estimated first and then progressively down the price point increments until the asset is fully booked. Price segmentation is achieved by setting usage conditions at each price point so there is no spillover between price points. The aim is to ensure that a purchase at one price point sees the extra benefit in avoiding some of the conditions at a lower price point.

There are various conditions which can be used to segment customers:

- Number of days booked in advance.
- Penalties on cancellation.
- How much credit will be given to future purchases on cancellation.
- Position pricing (back and side row seats in theatres, rooms near elevators).
- On-line vs. telephone or agent bookings.
- Minimum purchase, usage or stay times.
- Package prices (with meals, drinks, spa treatment, theatre tickets).
- Restricted number on offer.
- Combination tickets with other attractions.
- Walk up or walk in or last minute offers.

It is a significant challenge to balance price points with potential demand. If too few low price bookings are attracted, the higher prices may not be sufficient to book out the asset. If too many low price bookings are made, insufficient capacity may be available to take advantage of those who would pay the higher price.

Many companies use a dynamic pricing model which resets the number of bookings available at the different price points based on booking experience. They have a standard profile which sets out the number of bookings available at each price point and use a life cycle forecasting model to track bookings as they are made. If bookings at a specific price point are coming in quicker than expected, they reduce the available supply (number of available bookings) at that price point. If too few bookings are coming in, they reduce the price or move some of the supply (available bookings) back to the next lowest price point.

A very good example of this technique can be seen with on-line flight bookings. Different prices will apply to different fare conditions. Also, fewer seats are available at the lower price points on the busier flights. You will also see higher prices overall for all fare categories on more popular destinations and travel times. If you examine the same flight over successive days, say one day before departure, you will see different pricing being used due to weekly and seasonal loadings.

If you examine just one flight on a specific day over many days prior to its departure, you can see the pricing change as they gradually fill the seats with bookings. Price categories can fill up or be removed or more seats can be allocated to a price category to stimulate demand.

The overriding principle behind revenue management is that the asset generally has a high fixed cost but relatively low variable cost. Any price received above its variable cost is making a contribution to the fixed costs and ultimately to the bottom line. However, the price points and conditions have to be managed carefully so as not to cannibalize higher price bookings.

Revenue management is usually seen in situations where ‘bookings’ are made. That is, theatres, hotels, rental cars and airline flights but the concept itself can be applied to any situation where time is or could be the basis of pricing. Basically, anyone who bills by the hour can use the concepts to enhance their profitability. Any asset which has unused capacity and could be sold on an hourly basis can be the focus of revenue management pricing.

Could I use it for a plumber, electrician, carpenter?

Every tradesman who undertakes personal services must book their time on short duration jobs. If they don’t have a booking, their time is wasted and they receive no income for the lost hours. They need to schedule jobs in such a way that they provide reasonable certainty for the consumer but often the best they can do is to offer a half day window of time. This means the consumer has to wait around for the tradesperson to arrive.

An alternative is to work out a pricing schedule based on urgency and availability. Setting aside some time for urgent jobs, the tradesperson could schedule time according to the time window for the consumer. For example, the first job of the day might be the most reliable time and therefore would be charged the highest price. Prices might then change for a one hour window, 2 hour window, half a day and full day window. A further price option could be ‘as available’ perhaps over a week or month.

Pricing could then look something like this:

Scheduled Visit	Conditions	Price per hour (\$)
First job of the day	Guaranteed time	120
Fixed appointment	Guaranteed time during the day	150
1 hour window	Job started within one hour of appointment	100
2 hour window	Job started within two hours of appointment	90
Half day window	Job started AM or PM as arranged	80
One day window	Job started day of appointment	70
One week window	Job started week of appointment	60
One month window	Job started month of appointment	50
Anytime	Job started when time is available.	45

The tradesperson could book a number of jobs on the lowest rates until the fixed costs were covered. At that point, they would reserve time for the higher priced jobs, offering the best times to those willing to pay the higher prices. If the average rate was \$60, this pricing schedule provides greater flexibility to raise the average income per hour.

A similar pricing schedule can apply for consultants either based on the number of hours or days booked and or the amount of advance notice provided for the booking. For example, you might try to book out your consultants for 50% of their time on 3 months notice and then raise

the price for shorter duration notice. You might then have a last minute rate which applies for a very short notice period to allow you to book out any gaps in the schedule.

A restaurant could apply the same principle for sourcing bookings for low demand nights or times. A booking for a 6PM sitting might have a 20% discount. Different nights might have other discounts to attract business on nights which traditionally have few bookings. There might be special advance booking discounts offered for large parties with a non refundable deposit.

The principles behind revenue management can be applied to many sectors, not just the ones we traditionally think of. The key is to identify assets which are underutilized and think of ways of recovering costs through flexible pricing and varying conditions.

The other way of using revenue management principles is to use flexible pricing to ensure that fixed costs are covered as far in advance as you can. This takes pressure off the business. The remaining time is then used to push up the contribution margin and or to recover as much contribution as possible through last minute pricing.

Reflection:

If your plumber or electrician was charging \$120 for a call out and was only willing to offer you an arrival time within a half day window, what would you be willing to pay to have a guaranteed time. If you were a lawyer charging \$400 per hour, you might be willing to pay several hundred dollars if you could get back to the office and charge out a few more hours of your time.

At the same time, if I was retired and home most of the time and the job wasn't urgent, would I mind if the tradesperson said that he would only charge me \$50 if he could choose the time to call.

CHAPTER 4: PRODUCT AND ACTIVITY COSTING

Questions:

How are manufactured products costed?

How are value added services absorbed in product costing?

What happens when multiple products are manufactured in the same facility?

What happens when you have co-products and by-products?

What is activity based costing?

How should you price manufactured products?

How do you apply the cost allocation concepts in a services business?

When it comes to determining the profit on a sale, it helps if the problem of working out the cost of sales is straightforward. The business which buys products to on-sell can readily determine the cost of goods sold – simply the purchase price of the goods. However, what if you are in the manufacturing business. What is your cost of goods sold? If you are in a services business, what is the cost of servicing new and current clients? How can you determine if it makes sense to introduce a new product or service if you don't understand what it costs you to make and or deliver it?

The cost allocation issues are demonstrated best in a product based environment but the concepts apply to services businesses as well. Once you understand how to apply the cost allocation techniques in manufacturing, it is relatively straightforward to see how to use them in services environments.

If our profit was simply sales less what we had spent during the year, our financial reporting problem would be relatively simple. But imagine how misleading it would be for a manufacturer with long lead time processes.

Imagine you had spent an entire year building products to sell and these were all in inventory at the end of the year. The next year, you spent all your effort selling them. If we simply assigned expenditure as it was incurred to our Income Statement, we would have the first year making a huge loss and the second year making a huge profit. The problem with writing off costs as they are incurred is that it doesn't always match the timing of the income generated from the effort. Basically, you are misrepresenting the business by having this misalignment. In order to overcome this problem, the accounting reporting rules require a business to match income with expenses. That is, the income generated should be matched as closely as possible with the costs incurred to generate the income. In the case of product sales, we want to know what costs were incurred to produce the products which were sold.

You can see this matching concept at work when you see the alignment of goods which are purchased for resale. The purchase cost is set against the sale to determine the profit on sale. In order for proper comparisons to be made, the same alignment needs to be undertaken with manufactured goods. That is, we need a method of assigning costs to the product as we add value through manufacturing. While this seems like a relatively simple objective, in practice it can be very challenging.

There are three broad categories of expenditure in a manufacturing business. Those which add value directly to the product and are 'carried forward' with the product. Those which are directly related to selling the product and those which are related to the period(s) in which business activities take place.

Product costs would include the ingredients, components or raw materials which go into the product plus any costs which convert the product into a higher value item. Basically, any expenditures which 'adds value' to the product are treated as costs which are 'absorbed' or 'allocated' to the product(s).

Expenditure which is directly related to selling the product, such as marketing and sales costs are assigned to the period in which the sales activities take place. Since sales activities are normally closely related in time to the sales themselves, these are normally written off as expenses in the period in which they are incurred. These costs tend to be variable costs and are directly related to the sale activity. Other sales expenses are fixed costs and are incurred regardless of the level of sales and are therefore treated as period costs.

Period costs are costs incurred in keeping the business going. These costs would include all the administration costs and marketing costs. Research and development costs are often assigned to period costs as their impact can't be assigned to specific products.

Single Product Cost Allocation

In a very simple manufacturing environment where we only make one product and the manufacturing facility is geographically separate from the rest of the organization, all the costs of running the manufacturing location would be assigned to the products produced.

Product costs are made up of two components, direct and indirect costs. Direct costs are those costs which can be traced directly to the product, such as ingredients, raw materials and components plus any labour costs or machine time costs which directly work on the product. Indirect costs are those overhead costs which cannot be directly traced to the product line but are incurred to ensure the operation is effective. This might include equipment maintenance, rework costs, quality control, warehousing and factory administration. You would also have some level of depreciation of plant and equipment allocated to the products produced during the period.

While direct costs are usually variable costs and tend to be somewhat stable per unit of output, indirect costs are often fixed or stepped costs. If these indirect costs are necessarily incurred to create output, they should be represented as part of the manufacturing cost per unit of output. The challenge is to decide on what basis they should be assigned or absorbed by the products.

Manufacturing activity may be subject to some period costs which are closely aligned to the volume of production. For example, how would you treat procurement, inbound freight, receiving inspection and warehouse put away costs in the assignment of the costs of inputs to a manufacturing process?

Direct labour costs have similar period cost allocation problems. A direct labour force would still have recruitment, training and supervision costs associated with it. While it may be possible to assign specific machine hours to a product, we have to find some basis on which to allocate the original cost of the machine, its maintenance costs and the machine operator time. This problem becomes much more difficult if the machine in question is a process line which has different volumes being produced over time.

Our objective, even in a simple manufacturing operation, is to ensure that all the costs incurred at the factory level are absorbed by the products produced. Because we have a range of variable, stepped and fixed costs to allocate, we need some basis on which to assign costs.

Direct costs which can be traced directly to a product or batch of products are simply allocated to the product or divided by the number in the batch. Indirect costs are somewhat more challenging as there needs to be some basis of allocation.

A factory which just produces one standard product could utilize an allocation method which divides all indirect costs by the total production volume for the period. This allocation could be done at the level of cost item, department or total factory expenditure.

Example:

10,000 items were produced during the period.

Cost Description	Allocated Cost per Unit of Production
Raw materials	2.30
Direct labour	5.20
Direct machine hours (1.5 hrs)	8.40
Purchasing, receiving, inspection	1.20
Plant maintenance	1.00
Factory and equipment depreciation	1.50
Factory administration	3.10
<i>Total Product Cost</i>	<i>22.70</i>

This example assumes that all product manufacturing is started and completed in the period in which the costs were incurred. In practice, products will be at various stages of manufacturing and so you end up with partly completed products at the start and end of a financial reporting period. When this occurs, costs need to be assigned by manufacturing stages so that Work In Progress (WIP) itself can be valued and held as WIP inventory.

Example:

At the beginning of the period there are 2,000 items 50% complete. At the end of the reporting period there are 3,000 items which are 50% complete and 15,000 items which are fully complete.

In order to value inventory at the start and end of the period we need to allocate costs to the WIP. If we assume costs were evenly spread across the manufacturing process, WIP would be valued at \$11.35 (that is 50% of the full manufacturing cost).

Beginning inventory: 2,000 items @ \$11.35 = \$22,700

Ending WIP inventory: 3,000 items @ \$11.35 = \$34,050

End period finished goods inventory: 15,000 @ \$22.70 = \$340,500

A more complex allocation would see costs assigned by stage. That is, each stage would have specific costs allocated to it.

The following table shows the breakdown of costs by stage.

Manufacturing Stage	Assigned Cost Description	Cost per Unit	Total Stage Cost per Unit
Parts Assembly	Raw materials	2.30	
	Inspection	0.20	
	Purchasing & receiving	1.00	
	Factory administration	1.00	
	Factory & equipment depreciation	0.30	4.80
Conversion	Direct labour	4.00	
	Direct machine hours	8.40	
	Plant maintenance	1.00	
	Factory & equipment depreciation	1.00	
	Factory Administration	1.50	15.90
Final Inspection	Direct labour	1.20	
	Factory & equipment depreciation	0.20	
	Factory administration	0.60	2.00
Total Cost per Unit			22.70

The allocation problem becomes more complex as volumes vary from one period to the next. What would happen in a situation where variable costs were constant, fixed costs for the period were stable but volumes varied?

Example:

Variable cost per item: \$15.00

Fixed cost per period: \$77,000

Volume per Period	Variable Cost per Item	Fixed Costs per Item	Total Cost per Item
4,000	15.00	19.25	34.25
6,000	15.00	12.83	27.83
8,000	15.00	9.63	24.63
10,000	15.00	7.70	22.70
12,000	15.00	6.42	21.42
14,000	15.00	5.50	20.50

As you can see, the variable cost is always the same but the fixed costs have to be apportioned over the volume of production. This results in a lower fixed cost per unit as volumes increase. The result is that the total cost per unit varies considerably with the volume produced. This variability is greatly exacerbated as the variable costs as a proportion of total costs decreases.

While this might be accepted over a long period of time, say a year, as volumes gradually increase, but imagine how this would impact product costing if the volumes went up and down month on month. The product costs would be all over the map, not because the business was doing anything different in terms of the costs it incurred to operate the factory but simply because of the fluctuating volumes. If the product is identical period on period, then common sense would argue for the product cost to be held constant.

If you allow product costs to fluctuate wildly period on period, it confuses the overall management of performance since profitability would also fluctuate wildly when the items are sold, even if the operations were performing well.

Imagine that your sales price for this item was \$26.00. In those periods where manufacturing volumes were high, these products would result in a profit. Conversely, in those periods where manufacturing was down, the same level of sales would result in a loss. Lower volumes might simply be the result of a smaller number of working days per month due to public holidays, hardly the basis of a poor performance report on the factory.

To overcome this cost allocation problem, most manufacturers allocate costs based on an averaging system or use a standard costing process. In these situations, the fixed and stepped fixed costs are averaged over the projected volume for the year. Costs are then assigned to manufacturing activity based on the average or standard costs and the difference between actual expenditure and allocated cost is recorded in a variance account. At the end of the year,

the variance balance is taken to the business Income Statement as an income (over allocated) or expense (under allocated) item. This method stabilizes product costs for the averaging period.

Multiple Product Cost Allocation

The product costing problem becomes much more complex when we have multiple products being produced within the same manufacturing facility, especially if they are very different in the amount of work being undertaken on them. Think of a car assembly plant which assembles several models of cars and vans. On what basis do you allocate plant maintenance, factory depreciation and factory administration costs?

Suppose you produced the following range of vehicles in one financial year.

Vehicle Type	Volume Produced per Annum	Direct Labour Hours per Unit	Direct Machine Hours per Unit	Retail Price (\$)
Small Sedan	5,000	200	20	15,000
Medium Sedan	3,000	220	24	26,000
Large Sedan	1,000	250	30	43,000
Sports Car	1,200	230	35	40,000
Small Van	6,000	150	18	13,000
Medium Van	8,000	190	20	25,000
Large Van	4,000	240	25	35,000
Total	28,200			

Assume that the overhead costs of the plant were \$100 million. You want to see the impact on cost per unit using different cost allocation methods. We can choose to allocate costs on the basis of volume produced, direct labour hours, direct machine hours or retail price. First we need to estimate the total activity levels for each of these possible allocation methods. Next, based on the total activity level for each of these allocation methods, the costs allocated per car could be calculated.

Vehicle Type	Volume Produced per Annum	DLH per Unit	Total Labour Hours '000	DMH per Unit	Total Machine Hours '000	Retail Price per Unit	Total Sales \$mill
Small Sedan	5,000	200	1,000	20	100	15,000	75
Medium Sedan	3,000	220	660	24	72	26,000	78
Large Sedan	1,000	250	250	30	30	43,000	43
Sports Car	1,200	230	276	35	42	40,000	48
Small Van	6,000	150	900	18	108	13,000	78
Medium Van	8,000	190	1,520	20	160	25,000	200
Large Van	4,000	240	960	25	100	35,000	140
	28,200		5,566		612		662
<i>Cost per Activity</i>			<i>18</i>		<i>164</i>		<i>0.15</i>

Based on the overhead allocation rate as per the level of activity in each of these categories, we end up with an allocated cost per car as follows.

Vehicle Type	Volume Produced per Annum	DLH per Unit	DL Cost Base	DMH per Unit	DMH Cost Base	Retail Price per Unit	Retail Price Cost Base
Small Sedan	5,000	200	3,600	20	3,280	15,000	2,250
Medium Sedan	3,000	220	3,960	24	3,936	26,000	3,900
Large Sedan	1,000	250	4,500	30	4,920	43,000	6,450
Sports Car	1,200	230	4,140	35	5,740	40,000	6,000
Small Van	6,000	150	2,700	18	2,952	13,000	1,950
Medium Van	8,000	190	3,420	20	3,280	25,000	3,750
Large Van	4,000	240	4,320	25	4,100	35,000	5,250

As you can see, considerable distortion occurs depending on what basis you allocate costs. Of course, one could fine tune the allocation to allocate some portion of overhead costs at the activity level. This would entail dividing up the overall factory costs into those which should be assigned on the basis of labour hours, direct machine hours and retail value. This would still leave you with a large value in overall factory administration which you would need to allocate on some arbitrary basis. In theory, you could find multiple activities on which to allocate costs in an attempt to fine tune the allocation. However, what meaning would you give the final result?

In practice, the plant might have many changes which occur during the year. Volumes may change with market demand. Labour costs might change due to new wage negotiations. Productivity might change with different working practices. Administration costs might change with a new organization structure. Basically, what you thought might happen rarely occurs.

You have to be very careful not to believe that these costs are ‘true costs’. No one knows what the true cost is because there are so many assumptions in allocating costs. At best, we

can work out the direct costs and know what the contribution margin is. Clearly, we would not want to sell anything if there was a negative contribution margin. But what if we sell a car where the full production costs (including the allocated overhead costs) are not covered?

In the short term, there is still a contribution to fixed costs. For this reason alone you might continue selling the item. What would happen if you used a different basis of allocating overheads? An item which was losing money might then become profitable. An item which was profitable might then start to lose money. But remember this – the item is still the same, the price is still the same and the amount of effort to produce it is still the same. The only thing which changed was your allocation method, which itself is an arbitrary decision.

What this says is that you have to be very careful not to read too much into the product cost in a complex multiple product environment. Rather than play around with the allocation methods, a better decision model would be to see how the resources could be otherwise used. Is there a different allocation of production which would generate higher overall profits? In other words, should you reallocate the resources to a different production schedule?

Co-Products and By-Products

Process manufacturers have a considerable challenge in developing product costs for items which are made together from the same basic content. For example, the same processed product could be packaged under two different labels selling at very different price points. A basic product could be processed to a certain point and then split out into several additional processes each of which creates a very different end product.

Example:

Processing of peaches requires the peach to be cleaned, skinned and then have the stone removed. At that point the peach might be halved. Some of the output would then be processed as canned half peaches. A further part could be processed as cling peaches. Some could be pureed as baby food. Some might be further processed into jam. Within each of these sub-lines, the product might be packaged into different size cans and under different labels. One batch of peaches might end up in 16 different end products.

At the same time, there may be some value in the skins and stones. What would happen, for example, if the skins could be sold to a biofuel firm? The stones may be dried and broken up and used for garden mulch.

Some processes have by-products which not only have no resale value but cost the business to dispose of them. This then becomes another overhead cost in the process.

Example:

Processing coconuts would yield three products; coconut flesh, coconut milk and the outside husk. The flesh could be further processed into flakes or desiccated coconut. The milk could be processed into full cream or lite milk. The husks could be processed into decorative bowls.

The costing problem which many process manufacturers have is that the retail value of the different products varies greatly. Demand for each of the co-products may not be the same and so there can be waste output produced in the process. In some cases the waste cannot be sold and incurs a cost of disposal.

The process manufacturer faces a similar allocation problem to the assembly manufacturer. How do you assign common production costs to a range of co-products or by-products? You could do it on weight, retail value, total machine hours and so on. However, whatever basis you use is still a judgment call. There is no 'true cost' nor any right answer.

Activity Based Costing

Traditional costing has been very product and manufacturing focused and it has predominately focused on cost absorption. The services sector was underserved in terms of the development and application of costing models until the development of activity based costing (ABC). While this costing model can readily be applied in manufacturing, its real contribution was in the administrative and services sectors.

ABC focused on underlying cause and effect relationships to assign costs. It examines each function in an organization and identifies which activities are undertaken. It then calculates a cost per activity. These activity costs are then assigned to processes to determine the cost of a process.

In a manufacturing process, the various activities associated with a batch of output are identified and the costs assigned. So for example, a batch might have activities like delivering components to work stations, assembly, quality control and finished goods warehousing. Each of these activities would have a direct cost plus some overhead recovery. Once the component costs are added, the full cost of finished goods inventory is established.

A services business does not have the same cost absorption objective but it does have lots of activities which are used to process transactions. ABC can be applied to any administrative, sales or support function by taking the same approach. Any organizational group will undertake a number of major activities. The costs of the department can be assigned to those activities. Once the activity cost is established, the cost of servicing a process can be ascertained.

Example:

A support group handles help desk calls, dealing with complaints and providing support for new customer installations.

The total cost of the department is \$160,000. The activity levels are as follows.

Activity	Direct Hrs/ Activity	Volume/ Year	Activity/ Year	Cost per Activity
Help desk calls	0.2	4,000	800	9.70
Complaint handling	2.0	500	1,000	97.00
Installation support	30.0	50	1,500	1,455
Department admin.	10.0	50	500	
Total direct hours (excl. admin.)			3,300	
Activity Cost/ Direct Hour			48.50	

The total department cost of \$160,000 is only assigned to the operational activities; help desk, complaint handling and installation support. Using this process, we can now look at the cost of supporting a customer.

Example:

The average customer has the following support activity in the first year.

Activity	Number	Cost per Activity	Total Activity Cost
Help desk	100	9.70	970
Complaint handling	12	97.00	1,164
Installation	1	1,455.00	1,455
Total Customer Support Cost			3,589

This type of analysis enables the firm to focus on the cost of service delivery. It also enables different types or classes of customers to be costed where they have different levels of support. The firm can then assess whether they are charging enough for the support offered or whether there are classes of customers who create excess support costs and whether these customers should be excluded from being sold to.

A similar analysis can be undertaken on the marketing and sales activities.

Example:

The firm has only one service which it sells for \$40,000 plus ongoing support at \$4,000 per annum. Most customers stay with the firm for 3 years creating an average revenue per customer of \$52,000. The cost of servicing the customer is \$20,000 for the initial sale and \$1,000 per annum. Therefore, an average customer will cost \$23,000 to support over their average customer life. This generates a contribution margin of \$29,000 over the average customer life.

20 new customers are acquired each year.

The sales and marketing activity use 100% of their time on new customers.

The sales and marketing function costs the firm \$250,000 per annum.

Life time contribution for each customer is = \$29,000

Customer acquisition cost = $250,000 / 20 = \$12,500$

Ratio of lifetime contribution to customer acquisition = $29,000 / 12,500 = 2.32$

Any ratio less than 1.0 would indicate that the cost of sale is greater than the expected contribution margin.

A business with multiple product and service offerings could establish similar customer acquisition costs. A more sophisticated environment may have a lead qualification process comprising multiple stages of qualification. These various activities could be costed and an overall average set of activities established. In such environments, an expected number of prospects would be supported at each stage leading to a smaller number at the next stage. The final sale would need to have allocated to it the cost of all the activities for all the discarded or withdrawn prospects.

For example, it may require 1,000 leads, 500 site visits, 200 demonstrations, 50 proposals, 20 customer reference visits and 5 final presentations to achieve one signed contract. The costs of all these activities are part of the acquisition cost per customer.

Similar costing could be done on internet advertising with the conversion rate on cost per click or cost per thousand page impressions. In effect, you are accumulating all the costs of servicing many prospects in order to produce one customer.

Other products may have different profiles and services contracts may be structured differently. However, once the individual sale activities are costed, these can be arranged to generate the cost of acquisition for any class of customer.

However, there could be a number of supervisory and administration costs associated with marketing and sales and these would need to be allocated to the underlying activities. This would introduce similar cost allocation problems to those which were demonstrated in the earlier manufacturing examples.

The danger with all costing systems is that they give the impression of accuracy but that does not mean the end result makes sense. Once you start to allocate costs across several layers of administration and then pass this down to products and services, you can lose sight of the market impact of the sale of a specific product or service. You need to apply some basic common sense to the outcome to make sure that the end result is meaningful. In the end, the most meaningful number is the contribution margin. The key objective must be that the overall contribution from sales results in a contribution which covers fixed costs and generates a profit.

Reflection:

Not all customers are customers you want. Some customers simply never stop complaining. I recall one customer who continually found fault with our implementation of his financial system. Each time we arrived on site, he would have another long list of things he wanted fixed or changed. However, we finally cleared his entire list. His system was fully operational and his staff were live on the system and he was receiving all the reports he required. However, our patience was finally exhausted when we presented the invoice and he complained that he wouldn't pay until we fixed the start up date format. This was presented to him in 'mmdyyyy' which he required in UK format of 'ddmmyyyy'.

We explained that this was only required by the IT manager at the start of each day and that all the user functions had been converted to work with UK date formats. We also explained that this was a computer manufacturer issue and was outside our control. He still refused to pay until it was changed. Since it was not in our power to change we cancelled the license, refunded his deposit and required them to close the system down and hand back the computer. He then had to explain to his CEO why we refused to supply the system. Some customers are simply too expensive to deal with.

CHAPTER 5: TIME VALUE OF MONEY

Questions:

What is time value of money?

How does compound interest work?

What does Net Present Value mean?

How can I use financial mathematics to improve my decision making?

How is return on investment impacted by the timing of future cash inflows?

One of the most powerful tools in business is the concept of time value of money, basically, the concept of compound interest. It influences almost every future decision which a company takes. It is the foundation principle behind company valuation, capital investments, acquisitions, borrowing, discounting, lease payments and project finance. It is something about which the management team needs to have an intimate understanding.

The Value Of Money Over Time

The concept of time value of money is best illustrated with a simple example. If you put your money under the mattress, what would it be worth to you in one year? It may be worth the same, more or less but the likely outcome is that you could buy less with your money simply because of the impact of inflation.

Assume inflation was 5% and that your basket of purchases remained at the same prices for the entire year. Effectively you could buy 5% less with your money at the end of the year than you could at the start. To be as well off at the end of the year, you really need 5% more.

Example:

I put \$1,000 under my mattress for a year. Inflation is 5%. At the end of the year my purchasing power is reduced by 5%. That is, the collection of items I could purchase for my

\$1,000 at the end of the year would be equal to \$952.40 at the start of the year ($952.40 \times 1.05 = \$1000$).

Using the same example, I put \$952.40 in the bank earning 5% interest pa. At the end of the year, the bank will pay me back \$1,000. That is, the interest on my deposit would be (952.40×0.05) = \$47.62. Interest (\$47.62) plus my original deposit (\$952.40) = \$1,000.

Clearly, if I am going to put money aside then I would want to be equally as well off in the future as I am now. If inflation erodes the purchasing power of my money, then my preference would be to loan the money at an interest rate at least equal to the rate of inflation. This is the basic concept behind the time value of money.

Compound interest occurs when any interest due is added to the amount invested and the combination then attracts interest. That is, interest is paid on the accumulated interest. We can use the basic compound interest formula to calculate future values using any interest rate for any time period.

Example:

\$1,000 invested over a series of years at 10% compounded once per year.

Year	Beginning Year Balance	Annual Interest	Balance at Year End
1	1,000.00	100.00	1,100.00
2	1,100.00	110.00	1,210.00
3	1,210.00	121.00	1,331.00
4	1,331.00	133.10	1,464.10
5	1,464.10	146.41	1,610.51

Notice how quickly the value increases as interest is paid on the prior year's interest. So if someone wished to borrow \$1,000 for a period of 5 years and they agreed to pay 10% pa, you would tell them that they would owe you \$1,610.51 at the end of 5 years. This is a great demonstration of the power of compound interest.

Financial mathematics allows us to manipulate this basic formula in some interesting ways.

For example, what if we received the interest each year from our borrower and invested it separately.

Example:

I loan \$1,000 to a borrower who pays me 10% each year in interest. At the end of 5 years the borrower would owe me \$1,000. At the end of each year, I invest the interest earned in a bank deposit at a compound interest rate of 10%.

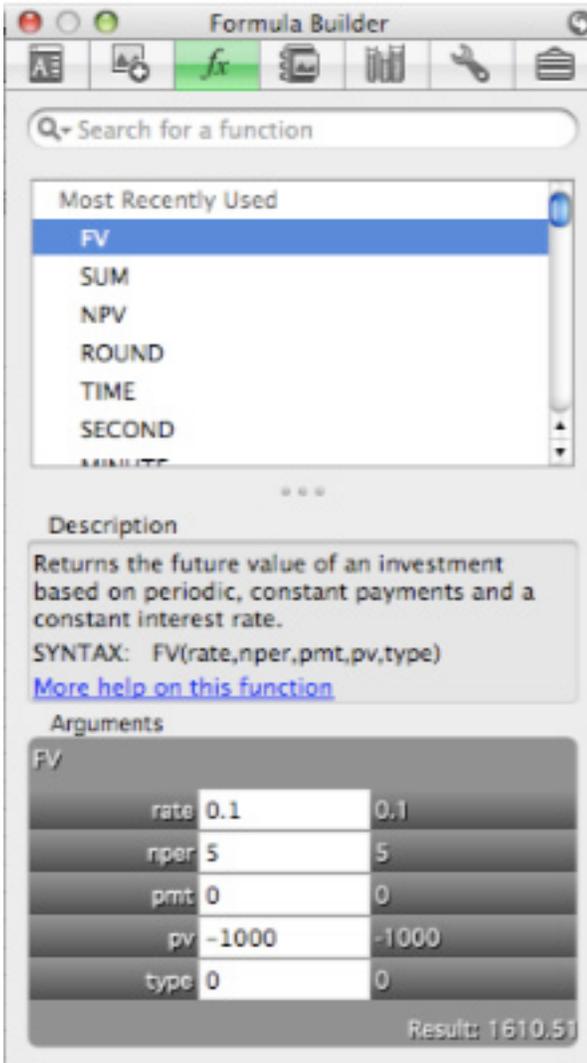
What would be the value of the interest investment at the end of 5 years?

Year	Deposit Balance Year Start	Interest Paid by Borrower	Interest on Deposit	Deposit Balance Year End
1	0	100.00		100.00
2	100.00	100.00	10.00	210.00
3	210.00	100.00	21.00	331.00
4	331.00	100.00	33.10	464.10
5	464.10	100.00	46.41	610.51

Note that even if I take the interest and reinvest it, I still end up with the same outcome. I have my \$1,000 back from the borrower but I also have the \$610.51 from my deposit.

End Value or Future Value is the usual name for the formula which calculates the value of an investment with compound interest. That is, what is a sum of money I receive at the end if I invest a specific amount at a given rate of return over a designated period?

Using a spreadsheet enables you to make these calculations very easily, but you have to ensure you use the right formula. Using the Future Value (FV) formula in Excel we can see how easy this formula is to use.



$FV = (rate, nper, pmt, pv, type)$

rate is the interest rate. 10% would be expressed as 0.10.

nper is the number of periods over which the investment is made. In the above example it would be 5 (years), which is the same as the rate of interest period.

pmt is the amount paid into the investment each period.

pv is the amount invested. In the above example it was \$1,000. This would be expressed as -1,000.

$type$ is the point in the period when interest is accumulated. 0 for end of period and 1 for start of period.

For example, I invest \$1,000 over 5 years at a compound interest rate of 10%. As you can see, the end result is \$1,610.51

By way of comparison, see what happens when interest is calculated and paid monthly. The 10% interest rate would convert to $(0.1 / 12) = 0.00833$. The number of periods would now be 60 months instead of 5 years.

$$FV = (0.00833, 60, 0, -1000, 0) = \$1,644.98$$

Note that the more frequently you calculate compound interest, the higher the FV you achieve – basically there is more interest on interest.

The FV formula can also be used with the prior example where the interest was invested in a deposit account and accumulated over the 5 years. In that case the value of ‘pmt’ would be -100.

$$FV = (0.1, 5, -100, 0) = \$610.51$$

If you are not sure how to use the formula, set up an example where you already know the answer. Once you have a simple example working, you can then experiment with more complex data.

Risk Assessment

Compound interest is the basis of banking. Basically, you lend money to the bank for an interest income to you and they lend out money to borrowers at an interest expense to the borrower. The rate of interest charged on the loan to the borrower represents the level of risk the bank anticipates in the loan. At the same time, the interest income you expect represents your assessment of the level of risk to you.

You can see this reflected in the rates on mortgages. A mortgage at 50% of a property valuation with a borrower who is in full time employment with a salary where the mortgage

repayments represents less than 10% of their income is going to be a very low risk loan. Let's say, this type of mortgage has a 5% interest rate.

A mortgage to a casual worker who borrows 90% of the property valuation where the repayments represent 40% of their take home salary is going to be a very risky proposition with a high chance of default. On this type of mortgage the bank might charge 8% interest. The additional 3% reflects the bank's assessment of default. The bank calculates risk by assessing the default rate of a large number of similar borrowers. For example, with over 1,000 similar borrowers, what would the cost to the bank be of defaults? The expected cost of default is then spread over all borrowers of the same type as a premium on the rate.

Interest charged by a lender reflects risk. We can use the same concept in assessing capital projects. If we invest in a safe project we might use an implied interest rate of , say, 10% but for a high risk project we might use 40%. Again, this represents the likely failure rate of a large number of similar investments. What we hope to achieve over a large number of similar risky investments is an average return of at least 10%.

Compound interest can be very powerful as an income generator. As an example, Angel investors typically require 40% return on their investments. Since they typically don't receive any income from the investment during the investment period, the FV of the investment is a compound effect of the 40%. As an example, see what 40% compound does to a \$1,000 investment over 5 years compounded annually.

$$FV = (0.4, 5, 0, -1000, 0) = \$5,378.24$$

So when an investor says they want to see 5 times their investment back in 5 years time, they are expecting a 40% compound interest on their original investment. However, if half of the investments are failures, this then represents the return on \$2,000 of investment. If the \$5,378.24 was the outcome where 4 of 5 investments failed, it would represent the return on a \$5,000 investment.

The Internal Rate of Return (IRR) formula enables us to calculate our rate of return in these situations.

Internal Rate of Return

There are many times when I know what I have invested and know what I received at the end of the investment period. What I would like to know is the rate of return I received on my money. This is where the IRR formula is used.

$$\text{IRR} = (\text{value1}, \text{value2}, \text{value3}, \dots)$$

valuex is the amount invested or received in period *x*. Using our example of 10% from above, the data would appear as:

$$\text{IRR} = (-1000, 0, 0, 0, 0, 1610.51) = 10\%$$

The example using 40% would appear as:

$$\text{IRR} = (-1000, 0, 0, 0, 0, 5378.24) = 40\%$$

The IRR formula is also useful in calculating the return I receive on an investment in a business where my original capital is not returned. In other words, I have invested to receive income.

Example:

Using the demonstration example from Microsoft Excel, I have invested \$70,000 and my income over the following 5 years is as follows:

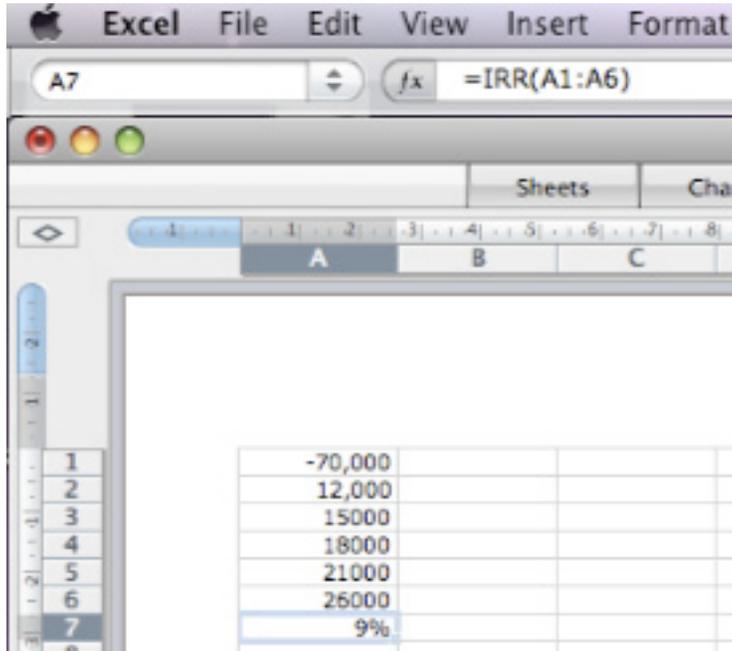
Year	Income
0	-70,000
1	12,000
2	15,000
3	18,000
4	21,000
5	26,000

$$\text{IRR} = (-70000, 12000, 15000, 18000, 21000, 26000) = 9\%$$

The way you set this up in a spreadsheet is by referring to the column of data. That is:

$$A7 = \text{IRR}(A1:A6) = 9\%$$

In Excel this would be set up like this:



If we know the future income stream, we can work out what it would be worth as an investment to achieve a given internal rate of return. We use a Net Present Value formula for that calculation.

Net Present Value

The Net Present Value (NPV) formula is one of the most popular financial math formulae because it is used widely to assess investment returns, either internally or for determining the value of an equity investment.

NPV is used to calculate the value at the beginning of an investment. If I know what income stream I am expecting, I can work out what that investment is worth to me given my desired IRR.

$$\text{NPV} = (\text{rate}, \text{value1}, \text{value2}, \text{value3}, \dots)$$

rate = the desired IRR

valuex is the income stream value for the end of period *x*.

Using the example above:

$$NPV = (0.09, 12000, 15000, 18000, 21000, 26000) = \$69,308.82$$

If we had used an interest rate of 0.0866, the result would have been \$70,006.40. Which suggests that the IRR formula was rounding up the result.

The NPV formula is often used by investors to calculate what a business might be worth given an expected trade sale value and their required rate of return.

Example:

The business is expected to be sold for \$10 million in 5 years time. The owners are seeking an investment of \$200,000. The investor want a 40% IRR.

$$NPV = (.4, 0, 0, 0, 0, 10000000) = \$1,859,344.$$

The value of the business today would be \$1,859,344.

An investment of \$200,000 would require the investor to have the following percentage equity in the business. $(200,000/1,859,344) = 10.7565\%$.

The investor would receive 10.7565% of the exit value of \$10 million, that is \$1,075,648.

We can check this is the right IRR using the IRR formulae.

$$IRR = (-200,000, 0, 0, 0, 0, 1075648) = 40\%$$

The pre-money valuation of the firm would be \$1,659,344. The investor would be issued with 10.7565% of the equity for \$200,000.

But what if the business sold for \$15 million, what would the investor earn as an IRR on their investment? They would receive $(\$15 \text{ million} \times 10.7565\%) = \$1,613,475$.

$$\text{Their IRR} = (200000, 0, 0, 0, 0, 1613475) = 52\%$$

As you can see, it is in the interest of the investor to push the initial pre-money valuation as low as possible and for the business founders to push it as high as they can. The investor also gains an advantage if they can apply a high discount rate to the initial valuation. For the

same stream of future cash inflows, a higher discount rate would reduce the PV which will determine the initial valuation.

You can see from these simple examples why NPV and IRR play such an important part in valuation discussions.

Lease Payments

There are several very common transactions which are entered into by businesses which have a similar time value of money foundation. These are transaction where fixed principal and interest payments are made to pay down a debt or loan. Lease payments and mortgages are very good examples of this form of transaction.

The typical structure of such debts requires the customer to make a regular payment which includes the interest due for the payment period and some repayment of capital. The intention is for the customer to pay down the original loan over the life of the loan or at least to pay it down to an agreed balance.

Example:

The original loan is for \$10,000 with interest at 12%. The loan is to be paid off in two payments which include interest on the outstanding balance and a repayment of capital.

Balance Outstanding	Interest	Payment	New Balance
10,000.00	1,200.00	5,916.98	5,283.02
5,283.02	633.96	5,916.98	0

Note that the interest is added to the outstanding balance before the payment is deducted. Each payment has a component of interest and capital repayment in it. The Excel formula for this calculation is PMT.

$$\text{PMT} = (\text{rate}, \text{nper}, \text{pv}, \text{fv}, \text{type})$$

rate is the interest rate per period

nper is the number of payments

pv is the present value of the loan or mortgage

f_v is the future value or end balance of the loan

t_{type} is the point in the period where interest is calculated ('0' is at the end of the period)

For the above example the formula would be:

$$PMT = (.12, 2, -10,000, 0, 0) = \$5,916.98$$

The borrower might have a choice of the number of periods over which he wishes to pay down the loan. This will impact the payment per period.

Example:

The firm has a \$30,000 car loan compounded monthly over a 5 year period (60 payments). The firm wishes to pay off the entire loan. The impact of different interest rates on the monthly payment is as follows. They also wish to consider paying the loan off in 30 payments.

Interest Rate (pa)	Monthly Payment (60)	Monthly Payment (30)
6	579.98	1,079.37
8	608.29	1,106.65
10	637.41	1,134.34
12	667.33	1,162.44
14	698.05	1,190.95

Some loan transactions have a residual value with a final payment option. For example, if the transaction was a car lease, the loan may have a residual value for the car after the agreed number of payments.

Example:

The loan is for \$10,000 over two annual payments at a rate of interest of 12% pa with a residual value of \$5000.

Balance Outstanding	Interest	Payment	New Balance
10,000.00	1,200.00	3,558.49	7,641.51
7,641.51	916.98	3,558.49	5,000.00

In this case the formula would look like this:

$$\text{PMT} = (.12, 2, -10,000, 5000, 0) = \$3,558.49$$

Example:

The firm acquires a \$30,000 car on a lease where the residual value of the car at the end of 30 periods is \$15,000 and after 60 periods is \$10,000.

Interest Rate (pa)	Monthly Payment (60)	Monthly Payment (30)
6	436.66	614.68
8	472.19	653.32
10	508.27	692.17
12	544.88	731.22
14	583.02	770.47

As you can see, by manipulating the number of periods and the residual value, the business can significantly influence the expenses per period and the cash flow impact.

If I know the periodic payment, the value of the original loan and the residual value, I can use the RATE formula to estimate the interest rate.

$$\text{RATE} = (\text{nper}, \text{pmt}, \text{pv}, \text{fv}, \text{type}, \text{guess}) \text{ (guess is optional)}$$

For example:

$$\text{RATE} = (2, -5916.28, 10000, 0, 0) = 12\%$$

There are many other financial math formulae available in Excel. The key is to know where to look and how to use them. You need to be careful to use the formula correctly otherwise the answers can be very misleading. The best way to ensure you use the right formula and enter the data correctly is to use a very simple example where you can judge if the answer looks correct. Otherwise, work out a manual example and enter it into the formula to check the formula is giving you the same answer.

Cost of Capital

Cost of capital is another time value of money concept which relates the cost of borrowing money to the rate of return on an investment. So for example, if I can earn 10% pa on my money by putting it into a bond and I can borrow funds at 6%, my cost of capital is 6% and I will generate an income of 4% on the investment.

When I evaluate investment projects, I might use the IRR formula. This would tell me what the ROI on a specific project is. I would then want to know what my cost of borrowing was, that is, my cost of capital.

Providing my IRR on my investment was at least my cost of capital, the project might be considered. But suppose I wanted a 5% premium on my investments over my cost of capital to cover the additional risk in the investment. If my cost of capital was 10%, I would want an IRR of 15% on my investment project.

Cost of capital might be made up of several sources of funds each at a different interest cost. I might have a bank loan at 6%, a bank line of credit at 10% and an unsecured note at 12%. My average cost of capital would be the weighted average of all three.

Evaluating Capital Investment Projects

The IRR and NPV formulae are often used to compare different projects in situations where limited funding is available. Alternatively, the same project with different implementation strategies could be evaluated to see which strategy returned the highest IRR or NPV. Comparing different projects with differing initial investments and different cash inflow patterns is not readily possible without resorting to an IRR or NPV formula. The following example will demonstrate why.

Item	Project One	Project Two	Project Three	Project Four	Project Five
Investment	10,000	10,000	50,000	50,000	80,000
Year 1	0	2,000	3,000	8,000	7,000
Year 2	0	3,000	5,000	13,000	7,000
Year 3	0	5,000	5,000	15,000	8,000
Year 4	5,000	3,000	8,000	16,000	9,000
Year 5	4,000	2,000	10,000	13,000	10,000
Year 6	4,000	1,000	16,000	12,000	10,000
Year 7	4,000		16,000	1,000	24,000
Year 8	2,000		20,000	1,000	34,000
Year 9	1,000		16,000	1,000	43,000
Year 10			7,000		53,000
NPV (12%)	403.21	1,146.64	2,166.77	2,700.30	9,950.06
IRR	13%	17%	13%	14%	14%

As you can see, the timing of cash inflows makes a considerable difference. The timing impact will be even more severe as the discount rate increases. Note that the NPV and the IRR may give different results. This would be expected where the cost of capital was used as the section method rather than the IRR.

Reflection:

When I first started raising venture capital I was somewhat surprised to note that the VC firm wanted 40% return on their investment. This basically means that their investment will double in value every two years, a very steep increase in value for any enterprise to achieve. If you have a high growth venture, this may be achievable but most firms struggle to grow more than a few percent per year.

However, when you recognize that half of the investments made by a VC firm will fail, a couple will break even and a couple will return a small return, you realize that they are really betting on the one in ten which will make it big time. The problem is that they don't know which of the ten will be the winner. Their 40% hurdle rate ensures that they only invest

in ventures which have the potential to be that one in ten. In a portfolio of ten investments, most VC firms will achieve an average IRR of about 17%.

CHAPTER 6: INCREASING BUSINESS VALUATION

Questions:

What information do I need to value a business?

How do the financial reports help me to value the business?

What is the impact of growth on valuation?

What is the impact of risk to the buyer on valuation?

How does strategic value impact valuation?

Valuation of an existing business has to be the most controversial topic in financial decision making. If the business owner could avoid the subject, I am sure they would as there is no agreed basis on which a business could or should be valued. Unfortunately for the business owner, there are very real decisions which impact the business which require a valuation. Not least is the problem of gaining credit or securing a loan. Lenders and creditors look to the business valuation as part of their security.

The other area where there is a great deal of controversy is in the raising of private equity, especially the problem of valuation involved in venture capital or Angel investment funding. It is the greatest source of conflict between entrepreneurs and investors, is plagued by emotion, misunderstanding, entrenched position taking and ignorance. It has often been said that 40% of deals fail to secure private equity funding due to a failure to agree a valuation. What is regrettable is that it is highly possible that many of these ventures could have made both the investor and the entrepreneur considerable wealth.

Valuation is also critical in acquisitions and mergers. Clearly the acquirer does not want to overpay for a business given their need to achieve a return on the investment.

Mergers can be even more problematic where both firms need to be valued in order to work out what percentage of the combined entity each firm has.

Valuation Models

In the absence of an independent offer to buy the firm, the valuation of a private firm is a highly judgemental process. Valuation models are each designed with different purposes in mind. Like the problem of identifying cost, (historical cost, replacement cost, market price, incremental cost, inflation adjusted cost, depreciated cost) it depends what you want to use it for.

The major valuation models are:

A. Earnings-based

- (a) Capitalisation of future maintainable earnings
- (b) Discounted future cash flows (DCF).

B. Asset-based

- (a) Going concern value
- (b) Realisation value

C. Industry-specific based

- (a) Market value
- (b) Rules of thumb.

A. Earnings based valuations

A. (a) Capitalisation of future maintainable earnings

Capitalisation of future maintainable earnings methodologies include:

- i. Price Earnings Ratio (PER); and

- ii. Pre-tax earnings multiples such as Earnings before Interest, Tax, Depreciation and Amortisation (EBITDA), Earnings before Interest, Tax and Amortisation (EBITA) and Earnings before Interest and Tax (EBIT).

Earnings based valuations are used as a proxy for the Discounted Cash Flow (DCF) methodology.

The PER can be applied in two ways:

1. Total value of the firm – PE multiple x net profit after tax (NPAT).
2. Value per share – PE multiple x earnings per share (EPS).

The PER is applied to an estimate of earnings after tax. The value derived using a PER is a valuation of the ordinary shareholders’ interest. This is described as an equity value.

Valuations based on EBITDA, EBITA or EBIT multiples calculate the Enterprise Value of the firm before factoring in the way it is funded. The Enterprise Value is typically adjusted for the following items to calculate an Equity Value:

- interest-bearing debt;
- surplus assets;
- contingent liabilities; and
- future capital expenditure.

To further explain the difference between Enterprise Value and Equity Value consider the following example of somebody’s house:

Item	\$	Value
Market Value	500,000	Enterprise Value
Bank Debt	400,000	
	100,000	Equity value

The assumption underlying the PER method is that the firm has stable or predictable earnings, that these will continue on a linear path for some years, the business will not change from its current business model and that there is an appropriate debt/equity mix.

Often sectors have established valuation norms. These can vary with the economic cycles reflecting likely growth or depression trends. Multiples applied to mature industries with little likelihood of growth are generally lower than multiples applied to growth sectors. Firms which have experienced higher than average historical growth will usually command a higher multiple on the basis that future growth is also expected to continue at higher than average rates, i.e. history is often used as a prediction of the future.

Most valuations adjust the Net Profit forecasts to improve comparability between similar businesses. Interest and taxes are added back to reflect differing debt/equity ratios and different tax situations. Often depreciation and amortization are added back to reflect the differing ages of underlying assets and the variations in write-off methods. The final number, whether it be EBIT (earning before interest and taxes) or EBITDA (earning before interest, taxes, depreciation and amortization) may still be adjusted to bring the owner's salary and perks into line with an arms' length cost. In the end, what you are trying to find out is the cash surplus generating power of the business.

The earnings used in the valuation need not be the actual historical earnings. Earnings should be adjusted for abnormal, extraordinary and non-recurring items to determine a normal level of earnings. If the entrepreneur can show highly probable growth with achievable revenue and profit targets, future earnings might be used to calculate a market valuation. However, it is important to avoid double counting growth by using future earnings and applying a "growth multiple".

Determining what the appropriate earnings multiple should be is somewhat judgemental as this quote demonstrates.

In a seminar for the Law Society, Tony Frankham stated "the methodology and value ultimately chosen will be a matter of judgement" and spoke of "considerable uncertainty" in the absence of a reliable database of market EBIT or EBITDA multipliers. Another ex-President

and Life Member of ICANZ, John Hagen, confirmed in another seminar that a 10% variation from the mid-point of the range was not unreasonable.

Market experience proves that price can vary significantly from value depending upon the motivations and negotiating skills of the parties.

Source: http://www.clythbiz.con.nz/view_news.cfm?key=88 Accessed
12th February 2006

If you are negotiating a valuation, it is useful to set your valuation expectations before going into a valuation negotiation. If the sector is currently valuing listed corporations at 10 times EBIT and you are seeking something higher, you have unrealistic expectations. If, on the other hand, you are seeking five times EBIT, you probably have a basis for negotiation.

A. (b) Discounted cash flow (DCF)

A DCF has two elements:

1. Forecast of future cash flows of the firm for a number of years into the future.
2. Discounting the forecast cash flows back to a net present value (NPV) using a discount rate that reflects the riskiness of those cash flows.

The preparation of a DCF can be challenging as it can be difficult to:

- accurately forecast cash flows for a number of years into the future; and
- select an appropriate discount rate.

The discount rate should represent the risks associated with generating the expected earnings of the firm.

This method of valuation is somewhat problematic. It is based on discounting future free cash flow to a present value. The free cash flow, or uncommitted cash surplus, represents the cash that is available to pay off the initial investment plus provide a return on that investment.

Most high growth businesses, however, invest heavily in growth capacity. This might be R&D, sales force, promotion, channel expansion and so on. Few entrepreneurial ventures have spare cash.

The DCF discount rate in a VC valuation is likely to be 35-40%.

B. Asset based valuations

Asset Based Valuations are appropriate in a few circumstances such as:

- where a company is making continuous losses;
- a company is close to liquidation; or
- where assets are readily saleable and their tradeable value best reflects their ongoing value.

Two types of Asset Based Valuation methods are:

B. (a) Going concern value

This values the tangible and intangible assets individually and then aggregates them to a valuation. The valuation of the individual asset is based on the firm continuing in business. The valuation could be seen as a replacement cost valuation.

High-growth entrepreneurial firms often achieve growth through their business model rather than their underlying assets. It is the uniqueness of the product or service and the way it has been taken to market that generates growth rather than the underlying assets used. This method does not take into account high future growth and is unlikely to be appropriate for high growth entrepreneurial firms.

B. (b) Realisation value

This is the value that could be achieved by liquidating the business and is not appropriate for the purpose of valuing an ongoing business. It provides a 'worst case' valuation and should not be used as a primary valuation methodology.

C. Industry specific based valuations

C. (a) Market value

Some industries have market values based on convention. This could be a specific P/E ratio. Generally this applies to very stable, regulated or controlled environments. This method could be used as a cross-check to discounted cash flow valuation models in certain industries or circumstances.

C. (b) Rules of thumb

Valuation methods in some sectors are based on guidelines established from a reasonably high number of similar transactions. This often applies to professional practices or franchises. This is inappropriate for a VC valuation.

Establishing A Discount Rate

It is useful to put into context the risk in a business compared to other forms of investment as this provides a useful insight into the level of discount rate which might be used in a DCF calculation for valuation.

Let's say the entrepreneur wants to borrow \$1 million. His choices are a first or second mortgage on his personal home, a loan secured on business property, a loan secured on inventory or a loan secured against debtors.

Secured loans can normally be recovered by the lender as a market exists for the pledged asset. The lower the likelihood of recovery, the higher the interest rate and the lower the percentage advanced on the value.

Borrowing against the entrepreneur's home would possibly result in a professional valuation, which may be lower than he would willingly agree and a loan of probably not more than 80% of the valuation.

A bank is likely to seek higher rates of interest on a second mortgage to compensate them for the additional risk of the second mortgage. If scheduled repayments cannot be met, the bank has the right to sell the home and recover their debt plus accumulated interest and costs.

Securing a loan on business property may be a little more expensive as business properties generally experience more fluctuations in value. A premium above a second mortgage on a house is likely.

Taking a loan on inventory is of much higher risk as the inventory may suffer from obsolescence or damage. Usually the recovery can only be made at an auction which itself often returns much lower values than in the normal course of business. So an advance of not more than 50% of book value may be made but with an interest rate higher than the above mentioned rates. A similar treatment may be applied to debtors except that it might be 50% of approved debtors, perhaps only those aged 30 days or under.

If a first mortgage attracts 8% interest, you would expect a loan against inventory to attract a rate of about 12%.

Now let's consider the typical early stage entrepreneurial business.

It typically displays some or all of the following attributes:

- uncertain cash flows;
- few tangible assets;
- some specialised equipment which often becomes technically obsolete quickly;
- few debtors;
- little inventory;
- new and sometimes unproven products or services;
- often an immature management team;
- an emerging market which is yet to be stabilised;
- no established market for shares, especially a minority holding; and/or
- uncertain timing of revenue and profitability.

So, unlike the secured investor such as a bank, the VC investor has an illiquid market in which to sell the shares, is dealing with high levels of uncertainty in the business and the market and the management team has no security for the investment.

If a risk free rate in Government Bonds is yielding, say, 6% over a long term, what return should a private equity investment under these riskier conditions return over a portfolio of such investments? The typical VC Fund will invest across a range of ventures expecting to return, on average, approximately 5% above long-term share market returns. However, within this portfolio some investments can be expected to be written off, some may break even, some may make a reasonable return and one might make a sizable return. In order to achieve a 15-20% average pre-tax return, the VC fund needs to set a pre-tax hurdle rate of at least 25-30%. Funds with a technology, biotechnology or early stage investment focus tend to seek higher returns (potentially in the order of 35-40%) due to the generally higher failure rate.

Most entrepreneurs will accept this logic. So where is the problem?

The problem is in the, often, extreme views of the likely outcome. Entrepreneurs by their very nature are optimistic. VC funds, while not being pessimistic, are cautious and have been conditioned by failed ventures, all of which started out looking very positive. In truth, it is the pursuit of the target value which often causes the venture to fail. If the VC fund has to achieve a high value to exit their investment with a good return, the pressure is on the entrepreneur to push the growth rate. It is often this pressure which creates the conditions for insolvency and failure.

Most Investors will estimate a future (exit) valuation based on a four to six times earnings before interest and tax (EBIT) multiple of the projected profit at the time of harvest of the investment and then work backwards using an internal rate of return (IRR) to reflect the risk in the venture to arrive at a post funding valuation. Early stage ventures may attract a 55% IRR with more advanced ventures attracting 20% to 40% depending on the expected risk. However, even this valuation is highly speculative as more funding rounds may occur, each setting a new valuation at the time of funding. To arrive at the equity percentage for the Investor, the investment required is deducted from the post-funding valuation and then the 'pre-money' valuation is arrived at. The Investor's equity percentage can then be calculated from the ratio of investment to post-money valuation.

Valuation Of An Emerging Company

The DCF formula takes into account future free cash flow in determining a PV valuation. Each cash inflow/outflow (value) is discounted back to its present value (PV). Then they are summed.

This has two key elements

Firstly - the amount and time of the future free cash flow

Secondly - the discount rate (the rate of return that could be earned on an investment in the financial markets with similar risk.)

Any business can be valued by taking its future earnings stream and discounting it back to arrive at what the business is worth today. However, this method does present some challenges:

How do we select an appropriate discount rate and how long should you forecast the cash flow?

How do we accurately forecast Free Cash Flows for a number of years into the future?

It is important to realize that these factors do not operate independently but are intrinsically linked to each other. The discount rate should represent the risks associated with generating the expected earnings of the firm. The consistency and reliability of the future cash flow streams will affect the discount rate which is applied to the valuation.

The discount rate is a reflection of the risk in the deal. A higher risk would reflect either greater uncertainty about the external environment or a higher fear about the ability of the business to sustain its current performance into the future.

Impact of Risk On Valuation:

Let us take a moment to look at some basic calculations which will demonstrate the use of DCF and the impact of increasing the discount rate.

Typically an investment in the public stock market should anticipate a return of 12 – 15%, so let us use 15% as a discount rate for a very reliable business. A 25% rate would be a rate for a riskier business and 50% rate could be used for a high risk business.

For arguments’ sake, let us assume that a business was generating a positive cash surplus each year of \$1m. We can use a set of increasing discount rates to reflect increased uncertainty about the future earnings of the business.

The scenario set out in the table below would never occur realistically as discount rates of 25% or 50% would never be applied to consistent, low risk cash flows. However, this scenario can be used to illustrate the severe effect a higher discount rate has on a firm’s valuation.

Impact of Different Discount Rates on Net Present Value

End of Year	Free Cash Flow	15% Discount Rate	25% Discount Rate	50% Discount Rate
	\$ ‘000	\$ ‘000	\$ ‘000	\$ ‘000
1	1,000	869	800	667
2	1,000	756	640	444
3	1,000	658	512	296
4	1,000	571	409	200
5	1,000	498	328	129
6	1,000	432	262	88
7	1,000	376	210	58
8	1,000	327	167	39
9	1,000	284	135	26
10	1,000	247	107	18
Total NPV		\$ 5,018	3,570	1,965

You can see how severe the effect of a higher discount rate is on the current value of the business. Also note the impact of higher discount rates on the latter years. This erosion of value in future years is often why projects with revenues in distant years are valued very low.

If we added further years to the table, a conventional valuation based on ‘4 times earnings’ would equate to a discount rate of 25% while a multiple of 6 would represent a discount rate of 15% (if earnings continued further into the future). A 50% discount rate would equate to 2 times earnings.

Increasing Growth And Profitability:

If the value of the business is based on the stream of future profit, naturally more is better. However, many owners only think about increasing profits when they finally decide to sell their business. They rapidly cut back expenses in some discretionary areas, reduce overheads where they hope it may not be noticed, cut back on advertising and R&D and trim their personal expenses. What they don’t appreciate is that the wary buyer is expecting this will happen and is looking for such changes. As soon as they are able to identify this type of ‘window dressing’, they know they will have to dig very deep to discover the real costs of the business.

There is nothing wrong with improving profitability. Many owners are what you might call, ‘asleep at the wheel’ and improvements in productivity and profitability are relatively easy to implement. A business which has been going for many years may well be somewhat lazy at watching expenses, driving sales productivity or managing the right mixture of debt and equity to generate better profits. In fact, the owner may have been living a very comfortable and relatively stress free existence because they were not pushing the business. This means there is scope for improving profits.

Improving profitability is going to take some level of investigation to uncover areas where improvements can be made. Resources and time will need to be allocated to put in place new systems and processes or other changes to effect the desired improvements. You should not think that your profit can be increased overnight. It may take many months, if not years, to put in place the changes needed to substantially improve sustainable profitability. This is an incremental exercise and some gains can be made quickly while others will accrue gradually over time.

When making changes to the business, the crucial question is:

“Is the new level of revenue and expense sustainable?”

This is really the only relevant fact. An owner who decides to put his or her business on the market and systematically works through the business processes to

ensure the business is running as effectively and efficiently as possible, has nothing to fear. Providing of course they can show the changes they have made are sensible, reasonable, have implemented standard best practice processes and that the final result is a more profitable and sustainable level of activity.

This is a challenge for the owner.

How do you prove that the changes you made are reasonable and sustainable and were not made solely to push up short term profits to lift the sale value of the business?

How do you show that the changes will not harm the long term profitability of the business?

If you don't have a convincing argument – the result may be a lower EBIT multiple or higher discount rate than you otherwise might have achieved and the overall effect might be to reduce the value of the business, not increase it.

Any change in long term profitability can have a significant effect on the valuation. Using the data from the earlier example let me show you just how much an impact it can have.

Impact of Different Growth Scenarios on Net Present Value

Scenario	A. Flat Profit (\$'000)	B. Step Change (\$'000)	C. 10% Growth (\$'000)	D. 20% Growth (\$'000)
End Year	EBIT	EBIT	EBIT	EBIT
1	1,000	1,500	1,100	1,200
2	1,000	1,500	1,210	1,440
3	1,000	1,500	1,331	1,728
4	1,000	1,500	1,464	2,073
5	1,000	1,500	1,610	2,488
6	1,000	1,500	1,771	2,985
7	1,000	1,500	1,948	3,583
8	1,000	1,500	2,143	4,299
9	1,000	1,500	2,357	5,159
10	1,000	1,500	2,593	6,191
<i>Discount 15%</i>	<i>5,019</i>	<i>7,528</i>	<i>7,895</i>	<i>12,732</i>
<i>Discount 25%</i>	<i>3,571</i>	<i>5,356</i>	<i>5,291</i>	<i>8,044</i>
<i>Discount 50%</i>	<i>1,965</i>	<i>2,948</i>	<i>2,626</i>	<i>3,571</i>

These scenarios show the dramatic increase in value from improving profitability. Using scenario A as a base, a small increase in average profits (B) will immediately impact the NPV. Even a small growth rate in profits (C) can lift the NPV considerably. A larger change in the growth rate (D) can have a dramatic effect.

Scenario B ‘Step Change’ may be achieved by just being more efficient with the use of existing resources. Rent out unused warehouse and office space, sell off obsolete equipment and inventory and be more careful with expenses. This is not rocket science but simply being more diligent in utilizing assets. You can see a simple step change in profits can have a dramatic impact on overall valuation.

A 10% on-going increase in profits might come from taking advantage of additional business which could be generated from the current customer base. This might be generated by less than a 10% increase in overall expenses. More attention to customer relationships, cross selling and incentives for staff to work just that little bit harder may be the key to such an improvement. A 10% increase in profits over a 20 year period at a discount rate of 15% would double the NPV. That is, you would double your sale value by increasing net profits year on year by 10% - certainly a target well within the reach of most businesses.

A 20% increase in profits may take more creative thinking but could be achieved through more aggressive selling; some additional sales staff to work with existing customers and acquiring new customers. Even this rate of growth is not dramatic, especially with some investment in innovation to drive it. A 20% increase in profits over a 20 year period at a discount rate of 15% would increase the NPV by a factor of FIVE. That is, you would increase your sale value five times by increasing net profits year on year by 20%. While this may be a stretch, many businesses achieve this over a number of years.

As you can see, minor improvements in profit growth combined with improving the reliability of the profit forecasts and/or reducing inherent business risks, can move the business from a 50% discount rate to a 15% discount rate and dramatically impact overall valuation (in this 10 year example, SIX times).

Strategic trade sales require a different approach as the valuation is based on the expected earnings of the buyer in the first few years following the sale. However, a valuation can be applied to this stream of earnings to arrive at an exit value.

The important thing to remember in business valuation is that the reliability of future earnings and the underlying quality of management of the business will dramatically impact the calculation as this goes to the problem of risk. As we can see from the above examples, risk determines the discount rate used in the DCF calculation. The second major impact comes from sustained growth. The more that the enterprise can show sustained growth, the higher the valuation.

Reflection:

My own experience of selling software businesses has taught me that 'value is in the eyes of the beholder'. No matter what you might think your valuation is, in the end, it is really about evidence and negotiation. The more you can demonstrate potential which the buyer can exploit, the more your business is worth to the buyer.

CHAPTER 7: PREPARING THE BUSINESS PLAN

Questions:

Why have a business plan?

Why are they out of date so quickly?

Who is the target audience?

What content should the business plan have?

No doubt you have heard the comment that the business plan is redundant as soon as it is printed. To a large extent this is true. Any detailed plan for the business will be constructed based on a range of assumptions about the economy, the state of competitors and the consensus of the managers in the business as to the best way for the firm to execute on its chosen strategies. As soon as any of those situations change, the business plan would need to be revised to reflect those changes. Since a revision is rarely undertaken, the plan loses its support and lies gathering dust.

However, the business plan is the most important planning exercise which the firm undertakes. It really is the only time where the whole of the business is integrated into a holistic strategy plan. By that I mean, that all aspects of the business are considered so that the final outcome is a plan which fully integrates and considers all the parts of the business. It is the only time where you check that your marketing plan, organizational plan, operations plan, procurement plan and so on are in harmony.

All too often in business one part of the organization develops a plan which seems to them to make sense and appears to solve the problem they are facing. However, they often fail to see the knock on effect of what they are doing. Marketing decides to offer a promotion to stimulate sales but neglects to check that manufacturing are geared up for a burst of short term sales. Procurement decides to take advantage of special volume discounts but neglects to check whether warehousing have the capacity to handle a higher short term volume of receipts. Sales decides to change their commission structure to focus on larger projects but haven't taken into account

that these take longer to sell and that will leave the firm with insufficient cash to fund operations in the near term.

What the business plan does is to check that everything is in balance based on the chosen strategy. If it is not, a revised strategy is developed. This iterative process continues through the planning process until all the constraints of the plan are met. At that point, you have a workable plan which can be implemented across the firm. There is a recognition that conditions will change but the plan can always be revised to reflect those changes. With a properly constructed plan the relationships between all the parts of the business are reflected in the plan structure and so any change can be simulated to see what else needs to be adjusted to cope with the new change.

There is also the question which is often raised – a business plan for what purpose? A plan written to manage the internal operations of the business will look very different from one written for your bank or for a potential investor. Clearly, those individuals who are intimately familiar with the business and its marketplace need much less information about the competition and the overall operating details of the business. Even the bank may require a shorter explanation if you have been dealing with the same bank manager for some time. However, an external party, such as an investor, may require extensive details of the market in which the business operates, its ownership structure, details of the competition and plans for every part of the business to gain an appreciation of its investment potential.

You have to be cognizant of the reason why an interested party may want to see the business plan. Your managers may be interested so they can understand their role and responsibilities in executing the plan. Shareholders may wish to see it to ensure the business is heading in a direction they support. Your Board will want to see it in order to approve the capital investment and any extensions of loans or requests for additional equity. Your banker may wish to assure himself that you can meet your loan obligations. An investor may wish to check that you are on track to achieve the revenue and profits targets you committed to as part of the investment agreement or that you are on track for an exit event.

Unlike a business plan for someone familiar with the business, an investor business plan is a way of introducing the business to someone who can be expected to have little knowledge of the business. Any request for Angel or VC finance requires a very comprehensive business plan. It is not that the investor could not understand the business from a discussion or presentation, it is just that it is more

efficient in the long run for the entrepreneur to have it all documented in advance. The investor can then reject it with a quick glance at the executive summary, review it prior to a meeting, use it to open discussions with other co-investors and use it to drive the due diligence process if they wish to proceed.

The general view of investors is that, if the entrepreneur cannot put together a good business plan explaining every aspect of their business, they probably don't understand the business well enough to grow it to the point the investor desires. Part of the entry test for investment is that the entrepreneur has the necessary literacy, numeracy and communication skills to run the business. The business plan is one of the tests they need to pass.

The major benefit to the investor of the business plan is to provide an opportunity for the management team to demonstrate they can build a model of the business which an outsider can understand. The model needs to be holistic. It has to explain every aspect of the business in sufficient detail to show that they understand how all the parts have to work together over time.

The investor is being asked to invest considerable funds in a business which they are trying to understand. It is unlikely that they will ever understand the business as well as the entrepreneur and the management team. Since the investment is only for a short period, say 3-7 years, they need to see a strong possibility of a trade sale or an IPO during that time. What the entrepreneur needs to demonstrate in the investment proposal, in non-technical terms, is that he or she can achieve those objectives.

So while an investor oriented business plan is more detailed and has a wider scope in terms of business background, history and market environment, it still has at its core a need to encapsulate all operating aspects of the business. Unlike an internal business plan, it probably requires the entrepreneur to justify in more detail why they have chosen the growth strategy they have. The investor is trying to understand why you are undertaking a specific strategy. With your management team, your strategy may be obvious as it probably came about from your many internal discussions.

Most business plans are simply projections of the past. It is simply Excel madness. It is almost as if, by putting the data into Excel and projecting it forward for three years, it will happen. Of course it may, but that would be more hope than strategy. Forecasts need to be based on a set of realistic and defensible assumptions.

For many entrepreneurs, the business plan is an expression of what they would like to happen. They work backwards from what they would like the outcome to be and establish the growth rate that will get them there. Alternatively, they use a set of assumptions which seem reasonable and build their business plan on those assumptions. This is often presented as the classic ‘percentage of the market’ plan: ‘The market is huge and we only need 2% of the market to be a \$100 million business.’

However, most often this is not supported by any validation that the customers will buy the firm’s products or that they will buy in the volumes asserted. In fact, this type of business planning is a waste of time. The whole purpose of putting together a business plan is to expose the underlying assumptions and to test them out before you spend the time working on the detail. After all, if the underlying assumptions are invalid, so is the whole plan.

The business plan the entrepreneur needs to produce should have the following three components:

Where is the venture now?

What are the business objectives to be achieved?

How are they to be achieved?

Where Is The Venture Now?

The business plan should first set out where the business is now in terms of its products, markets, organisational structure, ownership, financial structure and historical performance (Profit and Loss Statement and Balance Sheet).

It should identify the strengths and weaknesses the firm currently has so that these can be used in the planning process.

This part of the plan might provide a background to the firm so that everyone in the planning process or reading the plan starts with the same understanding of the business.

- What is the business concept?
- What is the focus and vision of the business?

- What products or services does the firm currently offer?
- What customers are currently using or consuming the current products or services?
- What is the benefit to the customer?
- What price and why?
- What is the current marketing and sales strategy?
- How is the product or service distributed to the customer?
- What is the current competitive advantage?
- How is sustainability of the business achieved?
- What is the current organisation structure?
- What are the current strengths of the business?
- What risks or threats is the business currently facing?

If the business is already operational, the existing business should be able to demonstrate the operational aspects of the business model. This should validate the product/market information, the financial aspects of the business and the management team's capabilities.

In preparing a business plan, you need to have the current management team agree on what the business is, what it does, who it does it for and how it operates. Unless you have a firm base from which to develop company strategy, you are going to have your managers making different assumptions about the current business and these will impact on their thinking in developing forward plans.

Business Plan Context

Far too many entrepreneurs embark on a business plan exercise without first setting out the context or environment in which they are working. It is very easy simply to project what you have been doing into the future without first considering whether any of the underlying business or environmental conditions have changed.

By reviewing the underpinning assumptions of your plan, you will uncover risks or opportunities which otherwise would not be obvious. This is also an exercise which other members of the management team should participate in as each will have different experiences and insights which might uncover issues to be addressed in the planning process.

A good place to start is with a P.E.S.T analysis. This stands for Political, Economic, Social and Technological analysis. Basically it is a way of thinking about what is going on around you to uncover changes and trends which might affect the business.

Political factors include changes in the political arena such as the direction in which the government policies are moving the country, new and proposed regulations, changes in taxation or rules impacting overseas trade, local domestic business conditions and so on.

Economic factors may include world economic trends, interest rates, cost of capital, inflation rate and so on.

Social factors may include demographic changes, changes in tastes, values and buying habits.

Technological factors would include changes in current available technology as well as likely trends in R&D.

A P.E.S.T analysis provides a very good foundation to a SWOT analysis which should follow it. SWOT is a way of setting out the Strengths, Weaknesses, Opportunities and Threats for the business. The PEST often throws up indicators which drive a SWOT discussion. If we only considered our immediate trading environment, we could easily overlook macro trends which may either threaten future revenue of the business or identify opportunities which may not otherwise present themselves within our immediate marketplace.

More often than not a SWOT analysis is aligned to the issues which arise from the PEST analysis and are usually at a relatively high level. It informs longer term strategic planning but usually doesn't focus on the short term problems. From a planning perspective, the consideration of short term problems needs to be undertaken as a separate exercise as it can get in the way of longer term planning. While it is still important, it is better considered a tactical problem rather than a

strategic one. Short term tactical problems can normally be dealt with at a monthly management meeting or as they arise and should only be addressed at a business plan level if they materially impact the ability of the firm to move forward in achieving longer term objectives.

Perhaps the next most important consideration should be a competitive analysis within the existing marketplace. It is very hard to make planning judgments about where the company should spend its limited resources without first understanding where the marketplace threats and opportunities lie.

A competitive analysis should provide an analysis of competitive strengths and weaknesses, position the company's products alongside those of its competitors and show where the company is winning or losing the market share battle. Such an analysis will provide insight into threats and opportunities in both the short and long term.

The PEST, SWOT and competitive analysis exercises hopefully take us away from our day to day operational thinking and enable us to take a more holistic and strategic view of the business. Part of the objective of the business planning process is to open our minds up to a wider set of issues so that we can challenge what we are doing and the direction we are currently taking. A broader discussion may indicate that some parts of the business may need to be reorganized, closed down or sold off. An examination of possible opportunities may show that we need to change direction, invest more in certain activities or acquire resources to pursue an opportunity.

Define Your Business

If you are going to set out what you want to achieve over the next few years, it is worth asking some fundamental questions about the business. Far too many businesses fail to properly address the most basic questions about their business and by not doing so, greatly limit their potential.

Spend some time on these questions before you embark on the planning process:

- What problem do I solve or what need do I address?
- What do I do really well which generates the best business outcome?

- Who is my ideal customer and why?
- What is my greatest competitive advantage and why?

Almost without exception, firms tend to focus on their products, features and functions without addressing these basic questions. A focus on products and services blinds the business to where they should be directing their efforts, where their greatest competitive potential is and where they should be making their growth investments.

If you are in doubt as to the value of this exercise try some of these activities:

- Ask your customers why they bought your product or service?
- Find out what problem you solved for your customers?
- Examine those sales situations where you had the least competition?
- In which situations did you experience the quickest sales with the least customer resistance?

Almost without exception, you will gain insights into your business which will drive your planning process in a new direction. Without this analysis, you are in grave danger of simply doing more of the same and missing valuable growth opportunities.

To examine these issues in greater depth see my books ‘Venture Growth Strategies’ and ‘Marketing For High Growth Ventures’

What Are Your Objectives?

Once there is general agreement on the state of the business and an understanding through the PEST, SWOT and competitive analysis for issues which need to be considered, the planning process should move to a consideration of what you are trying to achieve over the short and long term.

You should start your planning process by developing strategies to overcome threats to the business. A threat is normally defined as something which negatively impacts current revenue or profit. While some of these might be negated when you evaluate new opportunities, not all of them will. Therefore, it is worth bringing these to the front of the planning process so that everyone participating understands what issues are most urgent to deal with.

Threats can be external or internal.

External threats may be changes in government policy, new legislation, changes in demographics or the threat posed by new technology. It could also arise from changes in the competitive landscape or in changing buying patterns in the market.

Internal threats arise from your capacity and capability to execute on current business plans and any constraints the existing business operations place on your ability to survive or maintain your current market position. This might be the poor productivity of equipment, limited office or warehousing space, inability to recruit employees to replace those leaving, a lack of funds to meet current operational needs and so on.

Next you should set out what your short and long term objectives are. Too few businesses simply continue as they are without regard to where they want to get to. For example you might set out a range of objectives:

Short term: (within 12 months)

Increase sales by 10%

Decrease debtor days by 5 days.

Replace an existing supplier with one better able to meet your needs.

Hire two more salespersons.

Introduce a new ERP system.

Investigate a new location for the expanding office.

Arrange a bigger loan with the bank.

Long Term: (1 to 5 years)

Increase overall revenue by 30% and double profitability within 3 years.

Sell the business within five years.

Lift exports by 20% within 2 years.

Introduce one new product line per year.

Develop a succession plan within one year.

Undertake a vendor due diligence over the next 2 years.

Raise \$1 million in angel investment within 2 years.

You should try to make your objectives as operational as possible by stating specific targets and timescales.

A business plan for an angel or VC investment has very specific objectives which the investor wants the business to achieve. While they enjoy the involvement with emerging companies, they want their money back with a 25% plus ROI within 3-7 years. Therefore, the investment proposal should clearly set out how much Angel or VC finance will be needed and how the investor will achieve that objective.

The investor needs to know which exit strategy is being proposed and why. Potential multiple exit opportunities are even better as they bring flexibility and reduced reliance on equity market cycles. The vast majority of firms simply cannot meet the attributes of an IPO. For others, the IPO strategy cannot be met with their existing business model and it will take a number of acquisitions to create the right IPO vehicle. Only very few will have the right mix of products, markets and growth potential to undertake an IPO and also meet revenue and profit targets for several years beyond. Since an IPO generally achieves a much higher ROI than a financial trade sale, the IPO strategy should be followed. However, a trade sale alternative should be articulated in the proposal for periods where the market is unreceptive for an IPO.

For the trade sale exit, the entrepreneur should be setting out a comprehensive road map for how the sale will be achieved. This should include identification of specific potential buyers, the tactics which will be employed to develop relationships with each and an estimate of the likely sales price.

How Are You Going To Get There?

The business plan is simply about execution. The business is at point A (now) and it needs to get to point B (the objectives), what are you proposing to do to get there? You need to set out exactly how you are going to put the strategy in place over a 1-7 year timescale.

Say you are a \$1 million revenue business. To achieve your stated objectives, you may need to grow the business to \$4 million. Alternatively, you may need to complete product development or establish trial customers to prove the product. How are they going to do it? It is not simply an extrapolation of the numbers. You need produce operational plans for every part of the business.

- A detailed marketing plan
 - Size, growth, customer profile, competition
 - Promotion, advertising, PR plans
 - Proof of effectiveness
- A sales plan
 - Closure rates, remuneration plan
 - Recurring business revenue and targeted prospects
 - Sales targets and recruitment and training plan
- An R&D plan
 - Product development and release milestones
 - Quality assurance, recruitment and training plan
 - Equipment plan

And so on.

One technique in developing a business plan is to set out what the business looks like at a point in time in the future and work backwards on what is needed to achieve the stated objectives. This is a very worthwhile exercise because it requires the entrepreneur to consider the size and structure of the organization at the target date.

I often request an entrepreneur to tell me what his or her business looks like at 5 times the current size in 3 – 5 years. The advantage of this exercise is usually that an increase of that magnitude cannot be achieved using the current organization structure, infrastructure and product/market interface. They need to think through what products they will be selling, to whom, what channels to market they will be using and what organization they will need to support the operation. Usually this

throws up all sorts of challenges which they would otherwise not have considered if they had simply extrapolated the current business growth.

For example, suppose your target business needed to begin exporting to meet its growth and profit targets, introduce a new range of products or develop a distributor network. Each of these alone is a significant challenge. Imagine if you had to achieve multiple major changes in your business to reach the target size.

Once you define what the business looks like in the future, you need to set out a series of intermediate milestones to achieve that outcome. It also provides you with an early warning of just how much you need to do to prepare yourself for each significant change in the business. For example, it may take two years of investigation and planning to enter a selected overseas market. An office move could easily take a year. Installing a new ERP system might take a year of evaluation and a further year of implementation.

Even growing the number of employees in an organization can be challenging. Imagine if you needed to grow from 50 to 100 staff over 3 years. Does that mean recruiting, training, integrating 50 new staff? That alone is a rate of increase of 25% per year. Actually, it means even more than that because that does not take into account normal retention rates. If 20% of your staff leave each year, you are actually recruiting more like 22 in the first year, 28 in the second and 36 in the third. That is a significant logistical project but most often the operational details of such an exercise are overlooked in planning. It is only by getting down to the detail that we discover some of the difficulties and inter-dependencies in our plan.

In the face of serious obstacles, the firm would be better off looking to other strategies for growth such as through distributors or strategic partners.

You need to undertake a similar exercise across the enterprise to ensure that your plan is feasible.

For example, at one time I had a student team who stated that they could sell a \$250,000 software system to 30% of Australia's 45 universities in one year. I pointed out to them that it would take about 6 weeks to get the first meeting with a mid-level manager which would decide if they would be invited to meet the Department Head. After the second meeting, they would have a chance to present to a small selection committee. If that was successful, they would have a chance to present to a

group of users. Once they were invited to submit a formal proposal, they would then need to come back to present to an investment committee. Perhaps several meetings after that they would be given an order. Of course they still had to fit in with the budget cycles of the university which might easily delay a decision for a year. Even with very good luck, they would be hard pressed to sell 10 systems in two years.

The other factor they hadn't taken into account was that they would rarely be able to schedule several meetings together on one trip to a regional city, thus incurring additional expenses for each prospect.

There are situations where this target rate of sales could be achieved but they are highly unusual. For instance, the outcome would be very different if the system met a mandated requirement, there were few internal users to win over, the installation would incur only small organizational changes, there was no serious competition and the solution was recommended by a peer association. However, we are rarely this lucky in business.

What these examples demonstrate is the need to have convincing evidence behind the assumptions in the plan. An outside reviewer with knowledge of the sector would quickly spot a fundamental flaw in the logic and this would undermine the credibility of the entire plan.

Typical Business Plan Layout

Executive Summary

The Executive Summary should set out the essence of the business concept and the main objectives of the business plan for the intelligent but uninformed reader. Basically what do you do, who do you do it for, what is your competitive advantage, what are your longer term objectives and why do you believe you will be successful in achieving those. The executive summary should not be longer than one to two pages.

If you are requesting support from a strategic partner, bank or investor, it should indicate what support you require and why they should consider giving it.

1. Business Background

Provide a brief history of the business. This should include some background on the founders, why the business was started and progress to date.

2. Business Environment

This section should briefly set out the political, economic, social and technological environment in which the business operates and the major threats and opportunities of the business at a macro level. What you are seeking to explain here is why the environmental conditions will support the business objectives.

3. The Business Objectives

Set out the goals for the business over 1 to 3 years. This should include targets for revenue, employee numbers, profitability and any other key objectives.

4. The Marketing Plan

The marketing plan is usually the area of highest uncertainty and therefore requires very careful thought. In this section you have to convince the reader you have an intimate knowledge of your market place, the problem you solve, who your customers are, your competitive position and why you will be successful in achieving your sales targets.

The marketing plan has to identify the strategies which you will use to attract prospects as well as the process you will use to convert those to sales orders. Your analysis of your competitive position must be well researched with evidence to show that customers will buy from you in the numbers which you project. Your pricing strategy should be supported by existing sales data or market research to show the pricing strategy will be effective. Your data should be supported by market research, testimonials and expert commentary.

Where possible you should identify your ideal customer, how you will reach them through direct contact, strategic partnerships, exhibitions, conferences, advertising and so on and be able to demonstrate why that strategy will work. Your evidence of the level of lead generation and conversion to sales will be critical.

Where possible, you should break your sales down into sub categories of customers and show how the overall sales targets are constructed. For example, existing projects or WIP,

recurring revenue, identified prospects and so on. If you can, show historical rates of lead generation and closures rates to support your projections.

The marketing plan should be tied into a marketing and sales organizational plan to show that you have projected the necessary sales and marketing capability to support your projections.

5. The Operational Plan

The operational plan shows how you will support your sales targets over the planning period. It should include details of the business structure, office locations and staffing, production and warehousing operations, distribution arrangements and so on.

The reader should be able to see the integration of the operations side of the business with the sales generated through the sales and marketing functions.

An operational plan should include current and projected organizational structures with details of staffing and training requirements as the business grows.

6. The Financial Plan

The most critical element in a business plan is the financing of operations. The business plan needs to show where the funds are going to come from to support the business growth objectives. This could be generated from operations if the firm was able to generate sufficient gross margins to cover both its on-going operations and capital investments.

If external borrowing is to be used, details of the source and conditions attached to such finance would need to be provided with evidence of funds availability.

High growth firms usually need to resort to additional injections of private equity. The source and expected terms of such equity should be set out. Funds might be accessed from both existing shareholders and new shareholders.

The financial information in the plan should include:

- Projected Income Statements
- Projected Balance Sheets
- Projected Source and Applications of Funds
- Projected cash flow statements

Where additional funds are being acquired from lenders, the interest payments and repayment obligations would need to be shown in the projected financial statements.

If funds are required from external investors, breakeven analysis, time to cash flow positive and an exit strategy would need to be detailed.

If an exit strategy is part of the objectives of the business, a robust and highly probable strategy is essential. If a trade sale is likely, then an indication of the names of potential buyers or at least the class of buyer should be identified with a detailed explanation of why they would buy the business. The anticipated sale price should be stated. If an Initial Public Offering is anticipated then an explanation for why this business should be a suitable candidate for an IPO should be outlined. Where possible, evidence should be provided of similar businesses which achieved the proposed exit outcomes.

If external investment is required, a detailed statement for how the funds will be used to support the strategy of the business will be required. Usually external funds are provided in tranches on the achievement of agreed milestones so some thought needs to be given to how the funds will be used and what targets can be expected to be realized with each injection of funds.

7. Risks

No business is immune from risks. You should set out the threats and risks the business faces in meeting its targets and objectives. For each item identified, you should detail what your strategy is to overcome or mitigate the risk.

It is often useful to show projected results using a range of risk scenarios. That is, what if you were only able to achieve 50%, 70% or 90% of your sales targets, how would this change your business projections and what would this mean for profit levels and funding requirements?

Investors are often concerned about technological risk where new products are being developed. What would happen if there were technical obstacles or delays in completing new products? How would this impact the business plan?

There may be other risks associated with competitor developments, new entrants or changing economic conditions. How would these impact the business?

Are there any regulatory or licensing issues to be satisfied and what happens if there are problems in meeting those requirements?

You need to be honest and proactive in setting out the risks as an unstated risk which the investor identifies which you have not addressed can undermine the credibility of the plan.

8. Additional Information

Provide detailed profiles of the key staff who will be involved in the business.

List any Directors and Advisors and show details of their qualifications and experience.

Provide information on the names of professional advisors such as Accountants, Lawyers, IP Advisors and so on.

Evidence

Most business plans lack credibility because they fail to provide supporting evidence for their projections. Business plans are built on assumptions but these assumptions are often unstated. Where they are not stated, the plan often lacks credibility. Once the reader starts to question the projections, perhaps based on their own experience or even own preconceptions, however wrong those might be, they tend to dismiss the plan outcomes.

A business plan is basically a story of a journey into the future and it needs to carry the reader on that journey by showing that it has a reasonable basis in reality. As the story develops and the reader questions some element of the projection, you need to show that you have done your research and that the assumptions you have made can be supported by evidence. While the reader may still have some doubts, they are likely to accept your argument and continue with reading the plan.

The reader may come back later and question you in detail on some of your evidence but that at least opens up a dialogue for you to discuss alternative assumptions and the impact on your overall projections. What I have seen on numerous occasions are investors who have rejected a business plan because they have dismissed the plan as unworkable. Why? Usually because the entrepreneur has not shown the underlying evidence to support the assumptions.

Reflection:

Over my 20 years as a CEO, I would have produced many business plans, some for internal use, others for the Board and some for investors and bankers. I learnt very quickly to provide detailed evidence for every element in the plan. It is impossible to have a meaningful discussion of your business if the reader does not accept what they read. You should acknowledge that many of your readers will not have the same intimate knowledge of your sector which you have. You need to provide them with the information they need to judge the quality of your plan.

The business plan should be built as a financial model so that you can manipulate the assumptions and see the impact. That way you can test the sensitivity of the plan to different future conditions. Using the model you can then have an informed discussion with the reader as you show the impact of changes in the assumptions. Their key concern is usually around risk and cash flow. What I was always able to demonstrate was that I had an intimate knowledge of how the business worked. That was usually the key to establishing my credibility.

CONCLUSION: MANAGING THE FUTURE

Financial reporting is all about understanding where you have come from. That is, it reports on what you have done, it doesn't tell you anything about where you are going. Budgets, on the other hand, help craft your operational plans for the immediate future. Cash Flow Projections convert your near term plans into the cash flow impact of your plan. But what about plans for the longer term?

Financial decision making really focuses on longer term plans and especially on strategies which involve testing alternative scenarios or decisions. They enable us to ask the 'what if' questions about our future. For example, we may wish to consider the following:

What happens to sales if I change my prices?

What is my breakeven volume under different prices and fixed cost scenarios?

What impact will a change in variable costs have on my profitability?

What is the impact on my product costs if I change cost allocation methods?

How do I know which projects or customers are profitable?

How do I choose between alternative business investments?

These are strategic questions. They determine how I will manage the business and what direction I take the business in. They require me to drill down into my knowledge of the business fundamentals and manipulate assumptions to see what happens. They open up possibilities for new directions. These are the exciting questions and perhaps the ones which have the greatest impact on the long term survival, growth and profitability of the business.

When you apply financial decision making techniques to your business you need to search out information to make the models work. In doing so, you will learn more about your business and much more about what makes it profitable or not. They are discovery processes. They help you understand your business model better and will lead to you making much more informed choices. In the end, your business will be more resilient and profitable as a result.

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