

Business Planning for Managers and Entrepreneurs

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Pierre was prompted to write this book because he could not find any book that deals with the practice of business planning and summarises everything that one needs to know. So he set out to write the book himself...

Business Planning for Managers and Entrepreneurs

How to write better Business Plans
that set you apart

with 100 illustrations and case studies from the ICT industry

Pierre A. Lurin

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Foreword

This book is the paperback edition of the hardcover book first published in 2010 under the title "Business Planning for Managers" (ISBN 978-3-9813734-3-1). Apart from the new cover, the new title, the use of black and white pictures - rather than colour - in the paperback edition, and this foreword, the present book does not materially differ from the 2010 version. So readers who have not bought the hardcover version will equally benefit from the present book. An accompanying eBook (ISBN 978-3-9813734-4-8) also complements the paperback version.

Four years have passed since 2010. The topic of business planning remains as relevant as ever. Millions of managers worldwide engage in the preparation of business plans, in the three phases of a company's life: at birth when the company is first set-up (start-up phase); then annually during the company's growth and maturation phase, as part of the preparation of the 5-7 year strategic plan; then finally in the 'exit' phase when the company changes owner, typically in a trade-sale transaction (M&A).

Although the use cases and purposes are different in the three phases above, the techniques used are the same. This book will equally serve the needs of readers whether in an 'entrepreneur', 'business owner' or 'manager' role.

Unfortunately the results are not always convincing, or correct! The most common challenges that people involved in the preparation of a business plan face are the following:

- **Business planning is a holistic activity** that requires not only a strong understanding of the business, but also a clear vision of where the company wants to go, and the skills to translate these into robust revenue and cost forecasts. Forecasting costs can be difficult, but forecasting market and revenues is really a lot more so.
- **Finding the right level of detail can be tricky.** Remaining at the high-level renders the plan superficial; but too much detail does not help either.
- **Good templates to help people get started can be hard to find.** So managers re-invent the wheel again and again.
- **The financial statements that are generated often contain mistakes.** Apart from trivial errors or omission in Excel formulae, people often

forget to include the impact of taxation in their calculations. Does taxation have an impact on cashflow and value? Certainly it does, so it should be included.

To make things easier, we have set up the web site

www.business-planning-for-managers.com

where templates can be downloaded. The web site builds up on the book and additionally provides useful information on related topics such as entrepreneurship, strategy and pitching to investors.

Writing, calculating and presenting business plans successfully is a never ending learning process, even for long-time practitioners. Reflecting on my recent personal experience, I would like to share with you the following 'big ideas' that are currently influencing the work that we do (and our business plans) in the ICT, IT and Software space:

- **Consolidation yes, but there is no lack of product and market fragmentation:** the IT industry remains extremely fragmented. Although global players and brand names do dominate the industry at the macro level (think Oracle, or Apple, or Google), at the micro level there are hundreds of different 'markets', each with its own competitive landscape, market dynamics, user requirements, pricing model, and tens of products in any of these markets competing for the attention and money of end-users. The good news, in a way, is that beyond the blockbusters, there is still space in the long tail.
- **The competition will keep increasing:** In a global world, where communication and transportation costs keep decreasing, every firm (and even every individual) competes with far-away companies (and workers), and this is not about to stop. Barriers to entry do remain, such as proximity of customers, language and cultural know-how, governmental regulation and licensing. More than ever, companies and employees need to watch out for un-expected competitors that might be eating their lunch tomorrow.
- **Don't get trapped in the middle.** Companies need to decide whether they compete in the low cost or premium segment. Both are usually not possible at the same time or under the same brand. And those stuck in the middle can lose a lot of money.

- **Small can be beautiful.** Large companies have massive amount of resources compared to small ones, but also massive amount of people who don't add much value to their organisation. Small companies have the upper hand at least in two areas: their agility and speed of decision making and execution; and the motivation, engagement and productivity of their staff, who understand that what they do has a direct impact on the bottom line.
- **People and personal relationship matters more than ever.** Even in the modern, digital, virtual world, turning a successful business plan into a successful business is all about people. Starting a business can only happen once a team comes together (starting with two people), and this team manages to convince providers of finance to fund the business. Once a product is commercially launched, the company will only be successful if it sells. Selling is about understanding what other people need, and convincing them that you have the best product for them. And growing the business is about recruiting the right people, keeping the team focused and pushing in one and the same direction...

All the best,

Pierre Lurin

Partner

INVESTAURA Management Consultants

Part One

Getting Started

Structuring a Business Plan

“Failing to plan is planning to fail”
Chinese Proverb

In this chapter we start by looking into the typical structure of a business plan and then discuss its main components in further detail. The key aspects presented below should be covered one way or another in a business plan, at least at a high level. Depending on the audience and recipients of the plan, the time available for preparation and presentation, and other circumstances, you will have to decide in which area to put more emphasis. Preparing a business plan can be time consuming, but it does not have to end up as a long document: remember that quality is more important than quantity.

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Chapter Two

Case Study of a UMTS Service Provider

“Money never starts an idea, it is the idea that starts the money”
W. J. Cameron, the Ford Motor Company

In this chapter, we go through a case study to illustrate how a business plan can be prepared in practice. As UMTS has been a much-debated topic in recent years, we take the perspective of a mobile network operator in late 1999 planning to bid for a UMTS licence in the following year. We take a narrative style to describe the course of events that might have happened at that time. The company Xiliom and the people referred to are imaginary, and any resemblance to actual companies and people would be purely coincidental.

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Part Two

Financial Statements and Valuation

Chapter Four

Understanding Financial Statements

“If you owe the bank \$100 that’s your problem. If you owe the bank \$100 million, that’s the bank’s problem”

J.P. Getty, American business executive

If one component of a business plan attracts more attention than any other, this is certainly the financial plan. The financial plan is a forecast of the business financial statements and includes a minimum of a profit and loss account and a cashflow statement, over multiple years. Before we can generate a financial forecast we need to develop a good understanding of one year’s financial statements.

In this chapter we therefore perform a deep dive into financial statements and review what their rationale is, how they are structured, and how cashflows, profits and balance sheets are calculated. If you keep with us until the end of this chapter, you will acquire a good understanding of financial statements on the journey. This knowledge will prove invaluable later on when preparing a financial plan – or evaluating an investment proposal as a decision maker. In Chapter Five, we will then show how you can estimate the business value from the financial plan. Finally, in Chapter Six, we will close Part Two with a list of common pitfalls relating to financial forecasting.

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Valuing Businesses

“When it is a question of money, everyone is of the same religion”

Voltaire, French Enlightenment writer

In the previous chapter, we have discussed how to generate cashflow and profit forecasts for a business opportunity. In this chapter we will learn how to derive an estimate of the business value from these forecasts. For a new business, valuation is an important exercise telling us whether it is worth undertaking the project or not, and if it is, how much value the project will be creating for those who are funding it (shareholders, debt holders) on top of what they typically expect considering the risk involved (dividends, capital gains, interests). Valuation can also help us prioritise projects when funding is limited.

After reading this chapter you will be able to value all sorts of companies and businesses. However, beware that a valuation will never be precise, it will only be as good or as bad as the quality of the assumptions it is based on and the correct application of valuation methods. Valuation involves substantial judgment on how the future is likely to unfold and as to whether the managers can influence this future. Therefore, valuation will always be relative to the party undertaking the valuation.

We will start by reviewing the meaning of value and valuation. We will then turn to the allegedly simpler valuation methods based on Sales and EBITDA multiples, and explain their limitation. Asset-based methods are not discussed as they play a marginal role in high tech as innovation and price decreases are high and existing assets depreciate quickly. We will then review the Net Present Value (NPV) method and the Economic Value Added (EVA[®]) approach, and explain their equivalence. Both methods provide better valuation as they capture the growth and profitability of the business explicitly rather than implicitly: a good valuation should be primarily bottom-

up, based on deep understanding of the business dynamics. Finally, we will discuss the estimation of the cost of capital.

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Checklist of Common Pitfalls

“All men make mistakes, but only wise men learn from their mistakes”

Winston Churchill, British Prime Minister

In the previous two chapters, we have learned how to prepare a multiple-year financial plan and value a business. Before looking into how revenue and cost forecasts can be generated in practice, we briefly review here the typical mistakes that are made in financial planning and valuation. These mistakes can be easily avoided if you review this checklist every now and then.

1. General

- You are not performing crosschecks on the mutual consistency of inputs or outputs. Usually, inputs will come from various sources and are unlikely to be consistent with one another. Even if they come from the same source, you are often specifying more inputs than necessary, and forecast inputs by assuming a number of simple trends, for instance cost decreases. In this case, you need to check that the evolution of inputs over time is consistent. This is usually done by calculating a set of ratios and check that they behave as expected. You should also check that your outputs are consistent with your expectations. If both tariffs and costs decrease over time, do you expect profit to remain stable, increase or decrease?
- You are using benchmarks without adapting them. Maybe the focus company and its peers are actually quite different, for example using different sales channels or business models, sell to different end-users, or have different capital intensity. Benchmarks are good, but should be used with circumspection.

- You spent a lot of time discussing issues and factors that don't have a lot of impact on the business plan at the end of the day, while forgetting to clarify the impact on very fundamental issues, for instance using scenarios. This is one of the most common problems: getting lost in the (minor) details, only seeing the trees but not the forest. The more details you include, the more likely you are to make calculation mistakes as well.

2. Revenues

- In the launch year you have overestimated revenues because you are not commercially launching in January, but later in the year.
- To calculate revenues, you have multiplied the average revenue per user (ARPU) with the end-of-year subscribers rather than taking the average between the beginning- and the end-of-year subscriber numbers. This overestimates revenues.
- Your revenues are implicitly (but not explicitly) based on the assumption that you will have more than 50% market share in the long term, or even worse that you are active in a market with no competition. If you plan to be a gorilla and not a monkey, then you need to have unique advantages over the competition, and sustain them over time. If not, then remember that any good business idea will attract competition. If you are not clear about your unique selling proposition, or plan to follow a 'me too' approach, then don't expect a high market share.
- Your revenues per user are decreasing too slowly over time. In a service business, price can go down fast as new competitors enter the market and 10% reduction p.a. is not uncommon. In the consumer electronics business, products quickly become obsolete and are replaced with new products; also competition is intense so that much of the benefit of decreasing component costs is passed on to end-users, and price decreases of 30% p.a. can be common.
- Your market share and overall revenue expectations are not consistent with your marketing and advertising plan. How will you acquire customers? Which channels will you use? How much will it cost to build these channels from scratch or pay third party channels for shelf space and customer acquisition? Is your advertising budget consistent with subscriber ramp-up?

- You are underestimating the time required to build up your customer base, especially your first-year plan is too ambitious. Cut revenues by half and double your costs in the early years, and you will probably be closer to reality.

3. Costs

- In a low-inflation country, you have forgotten the impact of inflation on a number of OPEX positions such as salary increases. In developing markets salaries usually increase faster than inflation due to productivity increase and high GDP growth.
- You are not aggressive enough on technology price decrease. High-tech prices usually decrease very rapidly, from -10% to -40% per annum.
- If you subsidise hardware, for instance a mobile handset or a household customer premises equipment (CPE), you have based your subsidy costs on net customer addition rather than gross additions. The difference between net and gross is that you have lost customers during the year as they have discontinued service. This is also called churn or customer attrition. So even if your customer base is constant, you need to win new customers to replace those that you have lost. In addition, loyal customers might get a hardware replacement every few years and this might have to be subsidised as well.
- You have underestimated the cost of sales. If you sell through retailers, the average selling price (ASP) is only about 50%-70% of what the end-user price will be. The difference is used by the sales channel to cover its costs, mainly personnel, space, inventories and advertising.
- You have taken sunk cost into account. Sunk cost is past money spent and not recoverable. It is irrelevant to your business plan and should not impact your decision to invest or not. Including sunk cost in a business plan might lead to wrong decisions. When deciding on a new business opportunity, the only relevant issue is whether future benefits are higher than future costs. The only impact of past costs is whether you have under or overestimated costs before, so the forecasting of future costs should be reviewed in that light. If you have spent billions of Euros on a UMTS license, this should definitely not influence whether you launch UMTS service early, late or at all.

4. Free Cashflow

- You have not accounted for changes in working capital in the business case. The consequences are that you are underestimating capital requirement in the growth phase and overestimating it when growth is diminishing. Therefore you consciously overestimate cashflows in the growth phase and underestimate them in the maturity phase. Working capital is often what makes fast growing businesses get into trouble.
- To calculate Free Cashflow, NOPAT, NPV or EVA, you are not taking tax into account. Tax has to be incurred and has a real impact on value. Just imagine that you did not have to pay personal income tax. Wouldn't you be richer?
- In a valuation, you are calculating the terminal value of the business wrongly because FCF_{n+1} is wrongly extrapolated from FCF_n . See Section 3.4 of Chapter Five.
- To discount the Free Cashflow, you have taken a company WACC rather than a project WACC. When the project risk is higher than the company's average risk, then the WACC should be higher. On the other hand, if project risk is decreasing with time, for instance if the project is undertaken in stages, and stage two only goes ahead if stage one has been successful, then the WACC in stage two should be lower than in stage one.
- You have forgotten to discount the Terminal Value by the cost of capital to express it in today's money, not money in many years from now.

Part Three

Forecasting Revenues and Costs

Forecasting is an Art

“Prediction is very difficult, especially if it is about the future”

Nils Bohr, Nobel laureate in Physics

With this chapter, we turn to the difficult issue of forecasting. Understanding customer needs, translating these into products and generating accurate forecasts of market demand are real challenges that keep legions of market researchers, marketing experts and consultants busy. This is especially true in very innovative businesses where there is limited or no historical data available and no experience to relate to. On the supply side, uncertainties can also be large, especially the availability of new technologies, their costs evolution and their respective benefits. However, the challenges on the supply side are not as great as on the demand side, and reasonably accurate forecasts can be derived following careful analysis.

In this introductory chapter, we start by reviewing the issue of forecasting from a holistic perspective and discuss the alternative methods that are used by practitioners. In the next chapters we will show how numerical forecasts for supply and demand can be generated for your business plan.

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Forecasting on the Supply Side

“640kbytes should be enough for anybody”

Bill Gates, Microsoft, 1981

Earlier in this book, we have discussed valuation techniques that should become routine over time with regular and rigorous practice. Unlike valuation, forecasting cashflows for new businesses will always require considerable experience and personal judgment. In this chapter, we look at the supply side and how technology characteristics and costs can be forecast in practice.

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Chapter Nine

Forecasting Demand

“There is no reason anyone would want a computer in their home”

Ken Olsen, Chairman and President, DEC, 1977

Demand forecasting is a mixture of art and science. Substantial experience pays off, but a share of luck will always remain. It is also a wide topic, and unsurprisingly, there is a large divide between the theory, often complex and difficult to implement, and the level of simplicity required in business practice. The deeper you dig into the forecasting instruments available, the more sophisticated they become, while often adding only marginal improvement to the forecasting quality.

In this chapter we provide a summary of the demand forecasting know-how that any business planner should have in his toolbox. If you are lucky enough to have access to people with strong forecasting skills in your organisation, for instance from your marketing department, then the best approach will be to refer to those experts when faced with a forecasting issue. Unfortunately, when you do not have access to expert opinion, you will have to rely on yourself, and this is where this chapter will prove helpful.

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Part Four

Advanced Techniques

Knowing Your Competitors

“When you are ignorant of the enemy but know yourself, your chances of winning or losing are equal. Know the enemy and know yourself, and in a hundred battles, you will never be defeated”

Sun Tzu, *The Art of War*, c. 400 BC

Traditionally, competition analysis involves collecting competitor data from a variety of sources, filtering the relevant from the irrelevant, structuring results into reports and newsletters, and drawing implication for a company’s competitive strategy. If you do not know your competitors, you are running your business in blind mode. This could be fatal as you do not know what your relative strengths and weaknesses are, and cannot articulate why customers should do business with you rather than with someone else. So you need to look into what your competitors have to offer, how they position themselves in terms of image and price, and where they believe that their competitive advantage lies. In addition, you need to find out what your competitors are currently preparing and where their next move could be. This knowledge is invaluable as it helps you compete by differentiating your own offering.

In Part Three we have talked extensively about forecasting demand. To derive a revenue base line from the target market, you need to provide answers to the following questions: “How much of that demand can my business win?” and “What is a realistic market share?”.

Estimating future market share is probably one of the most complex forecasting exercises, as market shares are constantly fought for and can rapidly decrease or increase, especially in industries that have not reached maturity yet. But why worry about market share at all? A high market share is particularly important in capital or R&D intensive businesses, where scale matters and can make the difference between a profit or a loss-making company. The initial costs of setting up a new mobile network or developing

the next PC operating system are immense, but the marginal cost of transporting an additional Mbyte of data or distributing software licences over the Internet is close to zero.

Competition analysis is a wide area. Rather than trying to be comprehensive, the objective of this chapter is to provide an introduction to the topic and present a number of techniques for analysing industry structure and forecasting market share. We will follow an eight-step approach.

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Chapter Eleven

Value Chain and Business Model

“Our real problem is not our strength today, it is rather the vital necessity of action today to ensure our strength tomorrow”
Dwight D. Eisenhower, American President

The only constant in life is change. Analysing an industry and deconstructing its value chain is an effective way to identify the main players and the roles that they fulfil. This in turn will help define the business areas where you want to compete, as well as alternative business opportunities and business models. It sharpens your positioning and triggers tough but important questions: why do my business activities start here, and why do they stop there? It also helps you anticipate and prepare for major industry transformation.

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Chapter Twelve

Scenario Planning

“Uncertainty and mystery are energies of life. Don’t let them scare you unduly, for they keep boredom at bay and spark creativity”

R.I. Fitzhenry, Vice President, Harper & Row

Sometimes, the environment in which a company operates is so uncertain that it seems that anything could happen. This is in particular the case when new technology and industries are emerging: the product is unclear, the applications and the end-user demand are unclear, the business model is unclear, and the competition is unclear. In this situation a scenario planning exercise is particularly useful to identify the main scenarios that might unfold and clarify how the future could look like. Scenario planning allows you to generate a first set of forecasts, identify the key signposts that distinguish one scenario versus another, and understand whether the company’s current strategy and product roadmap are robust across multiple scenarios.

The good news about scenario planning is that there is no rocket science behind it: it is mostly straightforward and can be great fun. Ideally, it should be undertaken over a period of 4-6 weeks by a small group of people bringing various backgrounds and sufficiently diverse opinions to the table. In scenario planning you should be bold and think outside the beaten track to develop multiple pictures of the future world. These must be clearly different from one another to be valuable, but at the same time remain realistic. The forecasting horizon will typically be two or more product life cycles, and ranges between 4 and 30 years.

Following a review of the scenario planning methodology, we will go through a case study looking at Mobile TV with Digital Video Broadcast Handheld (DVB-H) as a major enabling technology. The DVB-H standard has been retained in Europe in 2004 to provide mobile TV type of services.

We would like to thank Gigaset Communications GmbH for its permission to reuse this material originally developed in the year 2004 as it was still part of Siemens AG. Note that the material is illustrative only and does not necessarily represent the current opinion of Gigaset Communications GmbH or Siemens AG.

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Chapter Thirteen

Valuing Business Opportunities as Real Options

“A wise man turns chance into good fortune”

Proverb

Methodologies used by practitioners in the financial industry evolve very slowly. Today the standard approach for valuing business opportunities is based on Multiples as well as the Net Present Value (NPV) and its operational equivalent the Economic Value Added (EVA®). However, this has not always been the case: it took 30 years for the NPV method to be widely accepted and used in business. Until the 1980s, other techniques were predominant and included P/E ratios, the use of the internal rate of return and pay-back period as selection criteria, on the basis that the shorter the pay-back period the better the project.

Today, practitioners start recognising the limitations of the NPV method for valuing businesses. In this chapter, we present a complementary technique that enhances the traditional NPV approach with the valuation of options that are embedded in the business opportunity, for instance the option to delay the decision to invest or the option to expand the project. Unlike financial options like *call* and *put* on shares, options in business ventures are said to be *real* because the underlying assets are real business assets as opposed to financial securities. The Real Options framework has been available since the early 1990s. Although not always easy to put into practice, valuations using Real Options bring new insights into the business opportunity and have been used successfully in a number of industries, for instance in mining and pharmaceutical. We expect that Real Options valuation will find more and more acceptance and become a standard tool in the next decade.

In this chapter, we start with a review of the NPV limitations. We will then discuss financial options and how they are valued using the Black-Scholes model. We then establish an analogy between an investment opportunity and a call option. A numerical example shows how to estimate the volatility of return σ , one of the key parameters for option valuation. We then

expand the framework to remove a number of limitations. Finally we discuss where and when it makes sense to apply Real Options and conclude on a number of industries where option valuation is currently widespread.

A note of caution before we start: the primary objective when valuing Real Options is to gain new insights as a business manager into a project opportunity, not to produce precise results. Therefore, making meaningful assumptions to simplify and solve Real Options problems is all right and always better than being precisely wrong. Results should always be understood as estimates: Real Options valuations, like NPVs, are based on models that approximate a complex reality.

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Bibliography

This short bibliography provides a diverse collection of business books, university textbooks, research papers and Internet links. The references are grouped according to the chapter that they (mostly) relate to. If you have limited time for further reading, start with the reference at the top of each list.

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[1.1] is an excellent book that is full of practical examples and is very enjoyable to read. [1.2] is a great template that asks all the right questions and can be used as guideline when writing a business plan in Microsoft Word. [1.3] is a more numerical book that looks how business plans can be prepared in practice in the Microsoft Excel spreadsheet software. [1.4] is addressed at start-ups and would-be entrepreneurs, while [1.5] looks into the practicalities of setting up a new business. [1.6] is a very good book covering all the important issues relating to entrepreneurship.

Chapter Three: What can we Learn from the dot.com Crash?

- [3.1] *The Top Ten Lies of Entrepreneurs*, Guy Kawasaki, Harvard Business Review, January 2001
- [3.2] *The (mis)Behavior of Markets – A Fractal View of Risk, Ruin and Reward*, Benoit B. Mandelbrot and Richard L. Hudson, Basic Books, New York 2004
- [3.3] *Origins of the Crash: The Great Bubble and Its Undoing*, Roger Lowenstein, Penguin Books, 2004
- [3.4] *wie wir waren, die wilden jahre der web generation*, Constantin Gillies, Wiley, 2003 (in German)
- [3.5] *www.businessplanarchive.org*

[3.1] is a short and witty article written by a venture capitalist based in Silicon Valley who advises would-be entrepreneurs how they can improve their pitch when seeking funding. [3.2] is an excellent book from Benoit Mandelbrot, the inventor of the fractals, showing how risky markets really are. [3.3] and [3.4] provide a perspective on the New Economy bubble and an explanation of the dot.com crash. For those of you who are nostalgic of the dot.com years, [3.5] provides a repository of business ideas that have died in young age.

Chapter Four: Understanding Financial Statements

- [4.1] *Understanding Company Financial Statements*, R.H. Parker, Penguin Books, 6th Edition, 2007
- [4.2] *The elements of Accounting, An Introduction*, G. Whittington, Cambridge University Press, 1992
- [4.3] *Analysis for Financial Management*, Robert C. Higgins, McGraw-Hill, 7th Edition, 2004
- [4.4] *Principles of Corporate Finance*, Richard A. Brealey and Stewart C. Myers, MacGraw-Hill, 6th Edition, 2000

[4.1] is an excellent introductory book to financial accounting, providing a good overview of the topic. [4.2] focuses on accounting from the angle of double-entry book keeping. [4.3] provides a concise but superb exposition of financial analysis, including ratio analysis, forecasting and valuation, and although not specifically discussing financial statements, is strongly worth reading. [4.4] is the bible in corporate finance, covering capital budgeting, financing, ratio analysis, valuation and many more topics.

Chapter Five: Valuing Businesses

- [5.1] *Valuation: Measuring and Managing the Value of Companies*, Tom Copeland, Tim Koller and Jack Murrin, McKinsey&Company, Wiley, 2nd Edition, 1996
- [5.2] *Strategic Valuation of Companies*, Alan Gregory, Financial Times Executive Briefings, 2nd Edition, 2001
- [5.3] *Portfolio Theory and Investment Management*, Richard Dobbins, Stephen Witt and John Fielding, Blackwell, 2nd Edition, 1994
- [5.4] *From dividend yield to discounted cashflow: a history of UK and US equity valuation techniques*, Janette Rutterford, Accounting, Business and Financial History, Vol. 14, No. 2, pp. 115-149, 2004
- [5.5] *Best Practices in Estimating the Cost of Capital: Survey and Synthesis*, Bruner, Eades, Harris and Higgins, Financial Practice and Education, Spring/Summer 1998
- [5.6] *Estimating the cost of capital for fixed and mobile Significant Market Power operators in Sweden*, Draft Report for Post & Telestyrelsen, Andersen Management International A/S, 2003

[5.1] is the 'bible' from McKinsey on the topic of valuation. [5.2] is a UK perspective on valuation, including an interesting exposure on the cost of capital and historical data on the risk premium. [5.3] provides some theoretical background about betas and the management of portfolio of equities. [5.4] provides an historical perspective on how valuation techniques have evolved during the 20th century, from dividend yield to P/E ratios to discounted cashflow. [5.5] is an excellent overview of practices used by practitioners to estimate the cost of capital. [5.6] looks into the calculation of the WACC for fixed and mobile operators, and emphasises that considerable judgement is required to turn the theory into practice.

A huge amount of current and historical financial data can be found on finance.yahoo.com.

Chapter Seven: Forecasting is an Art

- [7.1] *Guide to business modelling*, John Tennent and Graham Friend, The Economist Books, 2001
- [7.2] *Basic Econometrics*, Damodar N. Gujarati, McGraw-Hill, 4th Edition, 2003

[7.1] is a good guidebook on business modelling, focusing on the practicalities of setting up models in Microsoft Excel® spreadsheet software. [7.2] is a reference text book on econometrics, including a good coverage of parameters estimation via regression analysis.

Chapter Eight: Forecasting on the Supply Side

- [8.1] *Digital Nomad*, Tsugio Makimoto and David Manners, Wiley, 1997
- [8.2] *Is there a Moore's law for bandwidth?*, IEEE Communications Magazine, October 1999
- [8.3] *Key components for 3G devices*, Report No. 15, UMTS Forum

[8.1] is a visionary book on the evolution of technology and the impact on our life style. [8.2] is a research article on Moore's law. [8.3] is one of the many reports from the UMTS Forum.

Chapter Nine: Forecasting Demand

- [9.1] *Diffusion of Innovations*, Everett M. Rogers, free press, 5th Edition, 2003
- [9.2] *Crossing the Chasm*, Geoffrey A. Moore, HarperBusiness, 3rd Edition, 2002
- [9.3] *Inside the Tornado*, Geoffrey A. Moore, HarperBusiness, 2nd Edition, 2004
- [9.4] *Prognoserechnung*, Peter Mertens and Susanne Rässler, Physica-Verlag (Springer), 6th Edition, 2004 (in German)
- [9.5] *The International Takeoff of New Products: The Role of Economics, Culture, and Country Innovativeness*, G. Tellis, S. Stremersch, E. Yin, Marketing Science, Vol. 22, No.2, pp.188-208, Spring 2003

- [9.6] *Information Technology Innovations: General Diffusion Patterns and Its Relationships to Innovation Characteristics*, J. Teng, V. Grover, W. Güttler, IEEE transactions on engineering management, Vol. 49, No. 1, February 2002
- [9.7] *The Dynamics of Energy Systems and The Logistic Substitution Model*, C. Marchetti and N. Nakicenovic, IIASA Research Report, RR 79-13, 1979
- [9.8] *A Primer on Logistic Growth and Substitution: The Mathematics of the Loglet Lab Software*, P. Meyer, J. Yung, J. Ausubel, Technological forecasting and social change, Vol. 61, No. 3, pp. 247-271, 1999
- [9.9] *Diffusion of Technology Generations: a Model of Adoption and Repeat Sales*, P.I. Bass and F.M. Bass, Working Paper, 2001
- [9.10] *A New Modelling Approach Investigating the Diffusion Speed of Mobile Telecommunication Services in EU-15*, A.N. Giovanis and C.H. Skiadas, Technical University of Crete, 2002
- [9.11] *New Product Diffusion Acceleration: Measurement and Analysis*, C. Van den Bulte, Marketing Science 19-4, pp. 366-380, 2000
- [9.12] *A Primer for a New Cross-Impact Language – KSIM*, Prof. Julius Kane, Technological forecasting and social change, Vol. 3, 1972
- [9.13] *Übergang vom analogen zum digitalen terrestrischen Fernsehen*, Arbeitsgruppe DVB-T Einführung der Deutschen TV-Plattform, Juni 1999

[9.1] is a reference book written by the ‘father’ of the diffusion of innovations. [9.2] and [9.3] are excellent books on marketing products in the various phases of the S-curve, the Chasm describing the transition between the early adopters and the early majority, and the Tornado the exponential growth phase in the early majority. [9.4] is a good book on forecasting for those who like mathematics and can read German. [9.5] to [9.12] are research papers. [9.13] is a report on the introduction of DVB-T in Germany.

Chapter Ten: Knowing Your Competitors

- [10.1] *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, Michael E. Porter, Simon & Schuster, 2004
- [10.2] *Winning*, Jack Welch, HarperCollins, 2005
- [10.3] *Mastering the Dynamics of Innovation*, James M. Utterback, Harvard Business School Press, 1994

[10.1] is the famous book from Michael Porter on competitive strategy. [10.2] is an excellent and pragmatic book from Jack Welch, the former CEO of General Electric: [10.3] shows how innovation and competition reshape the industry landscape.

Chapter Eleven: Value Chain and Business Model

- [11.1] *Clockspeed: Winning Industry Control in the Age of Temporary Advantage*, Charles H. Fine, Sloan School of Management, MIT, 1998, Perseus books
- [11.2] *The Innovator's Dilemma*, Clayton M. Christensen, Harper Business Essentials, 3rd Edition, 2003

[11.1] is an excellent good book on industry dynamics and value chain evolution. [11.2] shows how disruptive technological change can be.

Chapter Twelve: Scenario Planning

- [12.1] *Learning from the Future: Competitive Foresight Scenarios*, Liam Fahey and Robert M. Randall, Wiley, 1998
- [12.2] http://www.well.com/~mb/scenario_planning/

[12.1] is a reference book on scenario planning, while [12.2] is a website specialising on scenarios.

Chapter Thirteen: Valuing Business Opportunities as Real Options

- [13.1] *The pricing of Options and Corporate Liabilities*, Fischer Black and Myron. Scholes, Journal of Political Economy, Vol. 81, No.3 pp- 637-654, May-June 1973
- [13.2] *Real Options: a Practioner's guide*, Tom Copeland and Vladimir Antikarov, Texere Publishing, 2003
- [13.3] *The Options Approach to Capital Investment*, A.K. Dixit and R.S. Pindyck, Harvard Business Review, May-June 1995
- [13.4] *What's it Worth? A General Manager's Guide to Valuation*, T. Luehrman, Harvard Business Review, May-June 1997
- [13.5] *Investment opportunities as Real Options: Getting Started on the Numbers*, T. Luehrman, Harvard Business Review, July-August 1998
- [13.6] *Strategy as a Portfolio of Real Options*, T. Luehrman, Harvard Business Review, September-October 1998

- [13.7] *A Real-World Way to Manage Real Options*, T. Copeland and P. Tufano, Harvard Business Review, March 2004
- [13.8] *Valuation and the New Economy*, Merrill Lynch, a report from the 9 May 2000
- [13.9] *Monte Carlo Estimation of Project Volatility for Real Options Analysis*, Pedro Manuel Cortesao Godinho, Journal of Applied Finance, 2006

[13.1] is the seminal paper by Black and Scholes on the valuation of financial options. [13.2] is an excellent book on the application of Real Options. [13.3] to [13.7] are business articles on Real Options. [13.8] looks into the valuation techniques used in the New Economy. [13.9] addresses the application of Monte Carlo simulation in order to estimate the volatility of project returns.

Conclusion

- [14.1] *Spectrum auctions and regulation of mobile carriers: impact on share prices*, Leonard Waverman, London Business School, December 2003

[14.1] is a research article on the auctioning of UMTS licences.

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