

A Handbook on
Valuation of Intellectual Property
in Emerging Countries Like India
- Accounting to Take Lead Role Now



The Institute of Chartered Accountants of India
(Set up by an Act of Parliament)

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Foreword

It is a matter of great pleasure that Committee on Trade Laws and WTO has decided to issue publications on emerging areas for Chartered Accountants in the field of International Trade Laws and WTO.

With the increasing global competition in Post WTO regime, companies are focusing their efforts on creating shareholder value in order to survive the intense competition. In view of this, it is becoming important for companies to measure the value they create for their shareholders in light of competitive situations. Intellectual Properties increasingly play a lead role in promotion of innovation and economic growth in a knowledge-based economy. Effective management and utilization of intellectual assets is essential to business performance and competitiveness, Foreign Direct Investments decisions, Business combination decisions etc. Therefore, there is a need to improve knowledge and information about the valuation and utilisation of Intellectual Property (IP).

The present publication provides a comprehensive explanation of the valuations of intellectual property. I am sure that this publication will serve as a useful tool of information for Chartered Accountants in this emerging field of IP valuations. I appreciate the initiative taken by the Chairman of Committee on Trade Laws and WTO, CA. Rajkumar S. Adukia and all the Members of the Committee in bringing out this publication. I would also like to put on record the contribution of CA. Pradeep Tibrewala who has prepared the basic draft of this publication.

**New Delhi
February 2, 2007**

**CA. T.N. Manoharan
President**

Preface

Indian economy has been consistently growing to rank as world's largest economy. Speculators of developments see various exotic situations like joint ventures, mergers & acquisitions, technology transfers, foreign direct investments. For all these, valuations are quite important, especially for Intellectual Property Rights, where a lot of possibilities exist.

Value is true representative of enterprise resources. It tells about the status of affairs of the enterprise but more is the representation of all future benefits of ownership, compressed into a single payment. Therefore, value is continually changing as the future benefits increase or decrease, either with the passage of time or with changing perceptions of what the future will bring. Value does not exist in the abstract and must be addressed within the context of time, place, potential owners and potential uses.

The new age Chartered Accountants have to understand the economics of IP development & life cycles and its related technical aspects including IP portfolio Management Matrix to do justice to economic -financial accounting valuations.

The present publication covers some of these aspects to give Chartered Accountants a feel of such tools. I sincerely hope that readers would find it useful. I am thankful to CA. Pradeep Tibrewla who has painstakingly authored the basic draft of the publication. I would like to place on record my sincere thanks to all the members of the Committee on Trade Laws and WTO for the year 2006-07 namely, CA. T. N. Manoharan, President, CA. Sunil Talati, Vice-President, CA. Manoj Fadnis, Vice-Chairman, CA. S. Gopalakrishnan, CA. Amarjit Chopra, CA. Harinderjit Singh, CA. Pankaj I. Jain, CA. V. Murali, CA. Uttam Prakash Agarwal, Shri Jitesh Khosla, Shri Sidharth Birla, CA. Bhavna G. Doshi, CA. Kishore S. Peshori, CA. Abhay V. Arolkar, CA. K. Ravi, CA. R. Panchapakesan, CA. V. Srinivasu, CA. Jagdeep Singh Chopra, CA. Venugopal C. Govindan Nair, Shri M. K. Anand, Joint Director, Ministry of Commerce & Industry and Shri P. K. Patni, Deputy Controller of Patents and Designs for rendering their support in bringing out this publication and all the initiatives taken by the Committee during the year.

Mumbai
February 2, 2007

CA. Rajkumar S. Adukia
Chairman, Committee on Trade Laws and WTO

TABLE OF CONTENTS

| SECTIONS | | PAGE NO. |
|-----------------|--|----------|
| <i>FOREWORD</i> | | iii |
| <i>PREFACE</i> | | v |
| 1 | INTRODUCTION | 1 |
| | 1.1 WHY VALUATION? | 1 |
| | 1.2 WHY IP VALUATION? | 2 |
| | 1.3 VALUATION METHODS OF IP ESPECIALLY REAL OPTION | 2 |
| | 1.4 IS REAL OPTION VALUATION USEFUL? | 3 |
| | 1.5 IP VALUATION IN EMERGING MARKETS | 3 |
| | 1.6 INDIA EMERGING MARKET OR DEVELOPED MARKET | 4 |
| | 1.7 VALUATION OF IP AS INTANGIBLE ASSETS ACCORDING TO ACCOUNTING STANDARDS | 4 |
| | 1.8 POTENTIAL FOR FUTURE RESEARCH | 5 |
| | 1.9 ROLE OF ACCOUNTING & CA | 5 |
| 2 | VALUATION- WHY TO VALUE AND HOW? | 7 |
| | 2.1 WHAT IS VALUE? | 7 |
| | 2.2 WHY MAXIMIZE VALUE? | 8 |
| | 2.3 HOW TO IMPLEMENT VALUE MAXIMIZATION? | 9 |
| | 2.4 FRAMEWORK OF VALUATIONS | 9 |
| | 2.4.1. ANALYZING HISTORICAL PERFORMANCE | 10 |
| | 2.4.2. FORECASTING | 11 |
| | 2.4.3. ESTIMATING CONTINUOUS PERIOD VALUE | 15 |
| | 2.4.4. ESTIMATING COST OF CAPITAL | 16 |
| | 2.4.5. USING MULTIPLES | 16 |
| 3 | INTELLECTUAL PROPERTIES AND THEIR VALUATIONS | 18 |
| | 3.1 IP ASSETS | 18 |
| | 3.2 FUNDAMENTAL CHANGES DRIVING IP | 19 |
| | 3.3 CONCERNs OF IP | 20 |
| | 3.4 IP VALUATION | 21 |

| | | |
|---|---|----|
| | 3.5 VALUATION APPROACHES | 22 |
| | 3.5.1 COST BASED APPROACH | 22 |
| | 3.5.2 MARKET BASED APPROACH | 22 |
| | 3.5.3 ECONOMIC BASED APPROACH | 23 |
| | 3.5.4 ROYALTY METHOD | 23 |
| | 3.6 RELEVANCE OF IP AT BANKRUPTCY -IP LIQUIDATION VALUE | 23 |
| 4 | TRIPS AND ITS EFFECT ON DEVELOPING COUNTRIES | 25 |
| | 4.1 IPP REGIME CHANGE AND DEVELOPMENT OF LOCAL CAPABILITY: THE INDIAN CASE | 25 |
| | 4.2 A TEN YEARS TRANSITION TO PROVIDE PRODUCT PATENTS VIZ. TILL THE END OF 2004 | 26 |
| | 4.3 HIGHLIGHTS: INDIAN IPRS REGIME | 27 |
| | 4.4 BENEFITS OF SOFTER IP REGIME ASIAN EXPERIENCE | 27 |
| | 4.5 IMPLICATIONS OF THE TRIPS REGIME FOR DEVELOPING COUNTRIES | 28 |
| | 4.6 BENEFITS OF TRIPS IP REGIME | 30 |
| | 4.7 POLICY RESPONSES TO BE TAKEN AT THE NATIONAL LEVEL | 30 |
| | 4.8 POLICY RESPONSES AT THE INTERNATIONAL LEVEL | 32 |
| 5 | IP MEASUREMENT AND REPORTING IN FINANCIAL OR SUSTAINABILITY REPORTING | 34 |
| | 5.1 NEW AGE REPORTING ARE FOUND IN FORM OF | 34 |
| | 5.2 PROBLEMS OF NON REPORTING / DEFECTIVE REPORTING OF IP | 35 |
| | 5.3 LOSS OF CONFIDENCE OF STAKEHOLDERS | 36 |
| | 5.4 MANAGEMENT EFFECTIVENESS OF REPORTING | 37 |
| | 5.5 THE OBJECTIVES OF THE IP INFORMATION SYSTEM | 37 |
| | 5.6 IP INFORMATION SYSTEMS | 38 |
| | 5.7 CHECKLIST/ GUIDELINES FOR PREPARING AN IP REPORT | 41 |
| 6 | IP CONTROL SYSTEMS AND BEST PRACTICES | 44 |
| | 6.1 IP CONTROL SYSTEM'S COMPONENTS | 44 |
| | 6.2 BEST PRACTICE IN IP CONTROL SYSTEM | 46 |
| | 6.2.1 TECHNOLOGY AUDITS | 46 |
| | 6.2.2 SERVICE VALUE | 47 |
| | 6.2.3 INNOVATION DISCLOSURE | 49 |
| 7 | THE IP AUDIT | 50 |

| | | | |
|---|------|--|----|
| | 7.1 | CORE OBJECTIVES OF IP AUDIT | 50 |
| | 7.2 | THE TYPES OF IP S COVERED UNDER AUDIT | 51 |
| | 7.3 | TOOLS OF IP AUDITS | 51 |
| | 7.4 | KEY STEPS TO AN AUDIT | 51 |
| 8 | | BRANDS - VALUATIONS IN EMERGING MARKETS | 55 |
| | 8.1 | COMMUNICATION OF BRAND VALUE | 57 |
| | 8.2 | BRAND VALUATION | 58 |
| | 8.3 | USES OF BRAND VALUATION | 58 |
| | 8.4 | THE FINANCIAL USES OF BRAND VALUATION | 60 |
| | 8.5 | VALUATION METHODS | 60 |
| | 8.6 | BRAND CONTRIBUTION METHOD | 63 |
| | 8.7 | BRAND EARNING MULTIPLE MODEL | 64 |
| | 8.8 | DISCOUNTED FUTURE CASH FLOW MODEL | 66 |
| | 8.9 | STATISTICAL MODELING FOR BRAND VALUATION | 66 |
| | 8.10 | METRICS SCORECARDS FOR BRAND VALUATION | 69 |
| | 8.11 | CASE STUDY: READING THE TEA LEAVES | 69 |
| | 8.12 | BUILDING A BRAND VALUE TRACKER -PORTFOLIO VALUE ANALYSIS OF BRANDS | 70 |
| | 8.13 | BRAND VALUATION & ETHICAL PRACTICES | 71 |
| | 8.14 | CONCLUSIONS OF STUDY DONE ON BRAND EFFECTS BY T. GÜNTHER & C. KRIEGBAUM-KLING IN BRAND VALUATION AND CONTROL: AN EMPIRICAL STUDY | 71 |
| | 8.15 | BRANDS & ITS VALUATION IN EMERGING MARKET: | 73 |
| | 8.16 | CONCLUSION | 77 |
| 9 | | PATENTS – AND THEIR VALUATIONS | 79 |
| | 9.1 | WHAT IS PATENTS? | 79 |
| | 9.2 | PATENT VALUATION: | 80 |
| | 9.3 | RELEVANCE OF PATENTS TO DEVELOPING COUNTRIES | 82 |
| | 9.4 | WHY VALUE PATENTS? | 83 |
| | 9.5 | WHAT CIRCUMSTANCES ARE PATENTS VALUED IN? | 83 |
| | 9.6 | PATENT VALUATION METHODS | 84 |
| | 9.7 | CONCLUSIONS | 92 |
| | 9.8 | ALTERNATIVE VALUATION METHODOLOGIES | 92 |
| | 9.9 | POTENTIAL FOR FUTURE RESEARCH | 96 |

| | | | |
|----|---------|---|-----|
| | 9.10 | AGAINST PATENT SYSTEM | 97 |
| | 9.11 | PATENTS LIFE CYCLE AND MANAGEMENT | 98 |
| | 9.12 | THE USE OF INFORMATION CONTAINED IN PATENT APPLICATIONS: | 100 |
| | 9.13 | WAYS OF USING INFORMATION IN PATENTS | 100 |
| | 9.14 | THE PATENT APPLICATION'S INFORMATION'S | 101 |
| 10 | | HUMAN CREATES MOST VALUE | 102 |
| | 10.1 | VALUE OF HUMAN CAPITAL | 104 |
| | 10.2 | WHY TO VALUE HUMAN CAPITAL? | 105 |
| | 10.3 | VALUATION METHODOLOGIES | 106 |
| | 10.3.1 | COST BASED APPROACHES | 106 |
| | 10.3.2 | BEHAVIOURAL MODEL | 107 |
| | 10.3.3 | ECONOMIC MODEL | 107 |
| | 10.3.4 | SUGGESTED METHODOLOGY | 108 |
| | 10.3.5 | SOME BASIC ASSUMPTIONS FOR HR VALUATION | 108 |
| | 10.3.6 | UNDERLYING MEANING OF HR VALUE | 109 |
| | 10.3.7 | HUMAN CAPITAL AND PERFORMANCE: A LITERATURE REVIEW (DR PHILIP STILES AND SOMBOON KULVISAECHANA) | 109 |
| | 10.3.8 | MEASURING HUMAN CAPITAL | 110 |
| | 10.3.9 | REPORTING HUMAN CAPITAL MEASURES | 111 |
| | 10.3.10 | CONCLUSIONS | 113 |
| 11 | | INNOVATIONS AND THEIR VALUATIONS | 114 |
| | 11.1 | THE CONTRIBUTION OF R&D - THE VALUE CREATED BY INTANGIBLES | 116 |
| | 11.2 | INNOVATION MANAGEMENT | 117 |
| | 11.3 | MEASURING INNOVATION | 118 |
| | 11.4 | MEASURING UNDERDEVELOPED PATENTS / ONGOING INNOVATIONS | 120 |
| | 11.5 | MEASURING OF INNOVATION - OPTION METHOD | 121 |
| | 11.6 | PROBLEMS IN APPLYING OPTION PRICING BASED METHODS | 122 |
| | 11.7 | THE FRAMEWORK FOR INNOVATION PERFORMANCE MEASUREMENT | 123 |
| | 11.8 | VALUE APPRAISAL PERSPECTIVE OF INNOVATION | 124 |
| | 11.9 | ACCOUNTING OF INNOVATIONS | 125 |
| | 11.10 | THE CHANGES IN ACCOUNTING | 127 |

| | | |
|----|--|-----|
| | 11.11 ACCOUNTING POLICY OF MICROSOFT FOR R & D | 129 |
| 12 | IP ACCOUNTING – GLOBAL ISSUES | 130 |
| | 12.1 FAS 141 & 142: IMPORTANT STEPS TOWARDS THE RECOGNITION OF IP | 131 |
| | 12.2 “FAIR VALUE” NOT COMMUNICATING EVERY THING ABOUT IP | 132 |
| | 12.3 ACQUIRED AND INTERNALLY-GENERATED IP ACCOUNTING ARE DIFFERENT | 133 |
| | 12.4 LACK OF VISIBILITY OF IP ON THE BALANCE SHEET | 134 |
| | 12.5 THE TANGIBLES-INTANGIBLES ACCOUNTING | 134 |
| | 12.6 THE FAILURE OF FULL REVELATION FOR INTANGIBLES | 135 |
| | 12.7 THE CURRENT DISCLOSURE ENVIRONMENT IN US WITH BUT ONE IMPORTANT EXCEPTION – SOFTWARE DEVELOPMENT COSTS | 136 |
| | 12.8 STANDARDIZING INFORMATION ON INTANGIBLES - ACCOUNTING | 138 |
| | 12.9 AMORTIZATION OF INTANGIBLES | 138 |
| | 12.10 ACCOUNTING FOR INTANGIBLES – U.S. GAAP | 139 |
| | 12.11 ACCOUNTING FOR INTANGIBLES - INTERNATIONAL ACCOUNTING STANDARDS | 141 |
| | 12.12 ACCOUNTING POLICY OF MICROSOFT | 143 |
| | 12.13 HOW IFRS PUT IP ON THE BALANCE SHEET | 146 |
| | 12.14 ACQUIRED INTANGIBLE ASSETS | 146 |
| | 12.15 INTERNALLY GENERATED INTANGIBLE ASSETS | 147 |
| | 12.16 OTHER FEATURES OF IFRS 3 | 147 |
| | 12.17 GREATER ACCOUNTING HOMOGENY WILL MAKE GLOBAL STRATEGIC MANAGEMENT OF INTELLECTUAL PROPERTY LESS COMPLICATED. IFRS EXPERIENCE | 148 |

CHAPTER 1

1. INTRODUCTION

Accounting to take Lead Role Now

*// evam parampara - praptam
imam rajarsayo viduh
sa kaleneha mahata
yogo nastah parantapa //*

"This supreme science was thus received through the chain of disciplined succession, and the saintly kings understood it in that way. But in course of time the succession was broken, and therefore the science as it is appears to be lost." In Gita Chap 4 verse 2, Lord Krishna described about Transcendental Knowledge.

WIPO stated "Universal value of Intellectual Property and its enormous potential for good, through the inventions and creations that improve and enrich our daily lives and a resource for economic development, that is "Perpetual to all peoples".

Presently Proctor & Gamble is working on C & D (Connect & Develop - instead of R & D) which involves proving local concepts and transforming to Global innovation. The Top line growth expected by this is about 35% (as stated in Harward Business Review). Dow Chemical earned over US\$ 125 million in 2003 just through licensing its IP. Pfizer's IP contribute more than 50% to the total turnover of all products. Recent analysis for US markets shows that intangibles and goodwill constitute 74% of the average purchase price of acquired companies in 2003 with intangibles representing 22% and residual goodwill 52%. IFRS3 puts intangibles on the map as a core management issue by imposing mandatory reporting requirements on all companies reporting under IFRS.

1.1 WHY VALUATION?

Value is the representation of all future benefits of ownership, compressed into a single payment. Therefore, value is continually changing as the future benefits increase or decrease, either with the passage of time or with changing perceptions of what the future will bring. Value does not exist in the abstract and must be addressed within the context of time, place, potential owners and potential uses.

With the increasing global competition in Post WTO regime, companies are focusing their efforts on creating shareholder value in order to survive the intense competition. In view of this, it is becoming important for companies to measure the value they create for their shareholders in light of competitive situations.

1.2 WHY IP VALUATION?

Intellectual Properties increasingly play a lead role in promotion of innovation and economic growth in a knowledge-based economy. William Davidow – a venture Capitalist says, “Who in 21st Century will not be a Knowledge based company?”. Effective management and utilization of intellectual assets is essential to business performance and competitiveness, foreign direct investments decisions, Business combination decisions etc. Therefore there is a need to improve knowledge and information about the valuation and utilisation of Intellectual Property (IP).

1.3 VALUATION METHODS OF IP ESPECIALLY REAL OPTION

There are various methods and theories developed over a period to economically evaluate IP. The international valuation standards adopted in 2001 consist of standards proper and guidance for their application. Russell & Parr divide all possible types of valuation of individual IP into Cost, Market and Income based methods, the latter of which includes simple DCF methods (Parr and Smith 1994). Arthur Andersen in a report on valuing intangible assets divides valuation methods into Cost, Market Value and Economic Value methods (Arthur Andersen & Co. 1992). However for the purpose of this discussion it is perhaps better to classify valuation methods for individual IP by the extra features they account for over and above less sophisticated methods. These can be summarized in increasing order of sophistication as:

- i) **Costs** Cost based methods,
- ii) **Market conditions** Market based methods,
- iii) **Income** Methods based on projected cashflows,
- iv) **Time** DCF Methods allowing for the time value of money,
- v) **Uncertainty** DCF Methods allowing for the riskiness of cashflows,
- vi) **Flexibility** DCF based Decision Tree Analysis (DTA) methods

- vii) **Changing Risk** Option Pricing Theory (OPT) based methods
 - a) Discrete time Binomial Model (B-M) based methods
 - b) Continuous time Black-Scholes (B-S) option pricing model based methods.

1.4 IS REAL OPTION VALUATION USEFUL?

The Black-Scholes model applies to other than a financial instrument treated as Real Option. The real option theory for valuation is very useful where a contingent investment exists, a high volatility exists, and a future opportunity exists apart from value created by currently controlled assets, or when the investment can be divided and / or delayed or when the option entails a partially or totally exclusive right.

There are certain problems of Real Option Like Variance, Interim payments, and Cash flow projection. The current publication will seek new aspects of Accountants' perspective in 'Valuations in Constantly changing variables'.

1.5 IP VALUATION IN EMERGING MARKETS

The problems of Valuation in Emerging Markets are: Risk & obstacles in Business, Great micro economic uncertainty, Control on capital flow, Illiquid Capital Markets, Less rigorous Accountings or Financial Reporting Systems & high level of Political Risk, etc.

The Valuers generally take extra caution for valuing assets of / or corporate valuation of companies in emerging markets. McKinsey suggested (Koller, Whessels) the Mixed approach. They Add Country Risk Premium, Adjustment for Inflations & use of Comparable trade & transaction multiples. As most of valuers estimate on the basis of historical assumptions that in real term, GDP declines once in every five years for emerging market (on average), they take about 20 % addition in risk adjusted Cost of capital rate (for emerging market risk rate).

One myth is that IPs are not relevant to countries in development, because of the relatively low state of technological development. Some critics of the patent system claim that IP may even be harmful to developing nations because of the power over markets and price that IP confer on their owners that take them out of competition. Indeed, IP are power tools for economic development for Emerging Countries. The role of governments and policymakers of emerging countries is crucial in

determining whether such countries use the power of the IP system for economic development by implementing pro-active IP policies.

1.6 INDIA EMERGING MARKET OR DEVELOPED MARKET

Many analysts see India growing to rank as world's largest economy. Speculators of developments see various exotic situations like joint ventures, Merger & acquisitions, technology transfers, Foreign Direct Investments. For all these, valuations are quite important, especially for IPRs, where a lot of possibilities are hidden. The current publication will analyze some recent IP valuation in emerging markets as well in India by various practical methods and accounting standards. A comparative analysis of post transaction (payment of valuation at acquisitions & mergers) will be done to justify the Valuations simulations, particularly in India where parameters are suggesting to map like developed countries.

1.7 VALUATION OF IP AS INTANGIBLE ASSETS ACCORDING TO ACCOUNTING STANDARDS

The contradiction between economic valuation and financial accounting is that financial accounting is more a conservative institution than that of economic valuation; whereas Economic Valuation is management decision perspective oriented. Guidance note No. 8 to the TEGoVA 2000standards recognizes the assets liable to valuation to include "personal goodwill" and "trained and assembled workforce", but as separate assets. The standard for accounting of IA assumes that goodwill is one asset, while "trained and assembled workforce" is not taken into account in the asset but considered in "going concern" value of the firm.

Accounting as a discipline has laid down the "hard science" of asset valuation. It should follow, as closely as possible, the traditional assessments of cost, market, and income while also advancing a Class-specific asset method.

Taking into account intangible assets in accordance with the international standard International accounting standard (IAS) No.38, on intangible assets. IP is touched on by the provisions of IAS 22, on business combinations (revised 1998) issuance of IFRS 3 supersedes this, IAS 36, on impairment of assets and several others. IAS 38 provides that the company should recognize IA, at cost, if and only if: (a) It is expected that future economic benefits relating to the assets will flow to the company; and (b) The cost of the asset can be measured reliably. The two requirements are applied both to IA acquired externally and to those generated

internally (Para. 19). Under paragraphs 42 and 43, expenditure on research is always recognized as an expense when it is incurred. Indian AS 26 – intangible Assets and AS 28 -impairment of assets are quite similar to IAS except few instances.

FAS141 and 142 make the purchase method of accounting mandatory in acquisition reporting. Valuation of 'In Process R&D' ("IPR&D") is critical in purchase price allocation and goodwill impairment testing. Consistently the SEC has expressed concern about IP R&D write-offs. It has identified what are considered flaws in the way fair value is applied to estimate IP R&D.

Stern Steward in describing EVATM stated to add after-tax research and development (and marketing and advertising) spending to NOPAT and Capital, and amortize it over 5 years (3 years). This is to more accurately measure the returns and EVA (Adjusted Accounting Earnings) from investments in innovation and brand building (IP) & encourage managers to increase promising R&D and promotion spending and discourage opportunistic cuts to meet reported earning goals.

1.8 POTENTIAL FOR FUTURE RESEARCH:

Alternative approaches of valuation like using market benchmarking, Simplistic indicator evaluation scenarios where large portfolios of IP need to be evaluated quickly on a regular basis, With an eye on related future issues (such as IP accounting), Valuing synergies between individual IP within portfolios & Convergence of economic valuation and accounting valuations are areas where future research may be done. Issues of Taxation and Transfer pricing are to be combined in global perspective so that the same can be valued in global currency for comparability with IP of developed nations.

1.9 ROLE OF ACCOUNTING & CA

The New Age Chartered Accountants have to understand the economics of IP development & life cycles and its related technical aspects including IP portfolio Management Matrix to do justice to economic -financial accounting valuations. The current publication will cover some of these aspects to giving CA's a feel of such tools. In order to overcome the contradictions between valuation standards constructed on the basis of the IC approach and the standards of financial reporting, there is a need for joint efforts by the scientific community, practitioners of IP

valuation and associations of investors with an interest in more adequate reflection of the value of companies in reports.

As Krishna said, the Value Chain of succession of knowledge should be made disciplined (in form of strategic IP) so as to maintain it perpetual.

CHAPTER 2

2. VALUATION - WHY TO VALUE AND HOW?

2.1 WHAT IS VALUE?

Value is true representative of enterprise resources. It tells about the status of affairs of the enterprise but more is the representation of all future benefits of ownership, compressed into a single payment. Therefore, value is continually changing as the future benefits increase or decrease, either with the passage of time or with changing perceptions of what the future will bring. Value does not exist in the abstract and must be addressed within the context of time, place, potential owners and potential uses.

With the increasing global competition, companies are focusing their efforts on creating shareholder value in order to survive the intense competition. When value maximization becomes key theme, it is becoming important for companies to measure the value they create for their shareholders. Keeping track of the value created year-on-year enables companies to evaluate past decisions and make decisions that will improve shareholder value.

Intrinsic value is based on company's ability to generate cash flow in future. Change in accounting treatment will not affect market value if underlying cash flow is not effected. It may get affected to the extent of tax shields - "Tim Koller, Marc Goedhart, David Wessels, of McKinsey & Co. in their book, "Valuation".

Infosys, India's leading Software Company stated in its Annual Report

"Balance sheet describes the financial position of a company. The financial position of an enterprise is influenced by the economic resources it controls, its financial structure, liquidity and solvency and its capacity to adopt to changes in the environment."

Value extraction exercise has to be designed in perspective of enterprise and business environment, which includes:

1. Analysis of Historical performance (including reorganizing a company's financial statements to reflect economics)
2. Forecasting performance with emphasis on not just the mechanics of forecasting but also how to think about future economics.
3. Estimating Cost of Capital.
4. Result of valuation in competition, where value drivers of peers be taken care of.
5. Valuation multiples to core drivers
6. Develop corporate portfolio of value drivers
7. Assess major transactions, acquisitions etc. those effected by valuations.
8. Minimise risk in assessment.

2.2 WHY MAXIMIZE VALUE?

Profit and earnings are short-term perspective but value is a long term one. In recent past managers behaved to achieve more on earning management and forgot value creation. That makes value maximization more complex. Stock markets are indicators of performance but not true value indicators. Although earning is also one of the objectives of value maximization but not the sole one, there are other objectives, listed few:

- a) Enhanced Confidence of enterprise
- b) Indicator of effective utilization of resources
- c) Credibility to the real worth by knowing its intrinsic value.
- d) Strategy development as Due diligence reveals strength and weaknesses of the company.

Tangible Benefits:

- a) Helps in Capitalization decisions, as the value is true representative of enterprise

- b) Merger & Acquisition decision for finding and justifying true worth
- c) Licensing for appropriate price
- d) Fund Raising at minimal cost
- e) For taxation purpose

“There is a positive link between shareholder value creation and healthier employment growth, investment in research and development and Shareholder return.”

2.3 HOW TO IMPLEMENT VALUE MAXIMIZATION?

Traditionally valuation is being done for competitive advantage where peers use similar valuations for assessing price and strength of enterprise. Focus has to shift to long-term cash flow, breaking the perspective of peers typically in use.

In this new era CFO is a value creator taking advantage of tax and debt financing. He has to do the following to maximize enterprises value:

- Focus Planning for value rather than bottom line, as value is long-term perspective.
- Value oriented long term targets like ROIC to be more reliable and adhered.
- Restructuring and compensation systems are to link with value achieved.
- Value Communication with investors as value is more representative.
- Reshape Role of Managers, so as to make them value creators.

2.4 FRAMEWORK OF VALUATIONS

There are various methods available like historical income method, earning multiple method. For the purpose of this draft we are using Discounted Cash Flow Model.

For Getting Parameter value the following exercise has to be done:

1. **Analyzing historical Performance**
2. **Forecasting**

3. **Estimating continuous value**
4. **Estimating Cost of Capital**
5. **Using Multiples**

2.4.1. ANALYZING HISTORICAL PERFORMANCE:

“History is true teacher” - Analyzing historical data guides the way to go. There are many objects, systems which generates historical data, the best for finding value of enterprise are:

- Financial Results: These are best friends of Value analyzers but results of a fair period, say three to five years, should be taken. Financial results of peers could also be accumulated to eliminate any abnormal behavior of data.
- Information in footnotes: Every minute information cannot be part of financial results as these are governed by certain regulators. Explanatory Notes, footnotes are best used to find such details. Now a days corporates are providing additional information like value Reporting, sustainability reporting etc for better communication with stakeholders.
- Missing information: No Financial Report is providing complete information as the reports are being generated for specific purposes. The missing information in one financial statement may be found in other financial reports. There are certain basic checks where the particular missing information may be extracted.
- Getting from other sources: Like getting from returns filled at ROC, SEBI and other bodies. With transparent Governance policies these information are now easily available in developing countries like India also.
- Assumptions and estimates: On the basis of best available information, judgement and estimation may be done if at all the information is hard to get from other sources. These assumptions may be based on parameters of same line items in peer’s information, which is available. Otherwise estimates may be done on best industry benchmark system where the said enterprise stands.
- Calculate NOPLAT, Invested capital FCF, DCF: NOPLAT is Net Operating Profit Less adjusted Taxes, ROIC is equal to NOPLAT divided by invested

Capital, Invested Capital is Total Capital required including debt and equity. Free cash flow and Discounted cash flow could be calculated.

- ROIC ability to create value: Getting Return on Invested Capital is a step for finding its ability to create enterprise value.
- Break Revenue Growth: For good forecast revenue growth should be broken or decomposed to get the organic growth and non-operating growth separately. Organic revenue Growth - Core business is to Decomposing total revenue growth to Organic and non-operating will provide comfort of revenue stream of core business. The external affect on these like Currency effects, Acquisitions, Accounting Changes Leads to misrepresentation of organic growth, so the effect to these to be excluded while calculating organic growth. Only organic growth is real value creator. By separating it one can get its progression.
- Adjustments: Certain adjustments are required to get operating revenue in all such indicators - Invested capital, Net Operating Profits, Free cash Flow, Operating working capital, Goodwill etc. Adjustments like Excess Cash, Marketable securities are required to get Operating Working Capital. For Calculating Goodwill, hidden assets are required to be taken care of.

2.4.2. FORECASTING:

"To know the past, one must first know the future." This counterintuitive, yet profound statement comes from the mathematician Raymond Smullyan.

Obviously, "**to know the past**," namely report accurately on last quarter/year's earnings and assets/liabilities values, rate of default, or future wage increases. Thus, the quality. One must have a pretty good *knowledge of the future* (e.g., assets' useful life, customers' relevance of accounting-based information depends crucially on the extent of uncertainty surrounding future outcomes and the ability to pierce this uncertainty).

Line Item Analysis: In a comprehensive model for getting historical information line item break up of all financial items are needed:

- All P & L items at % to Revenue like Employees cost as % to sales / turnover etc.

- Tax on Pretax profits: To get average tax rates Tax on pretax profits to be calculated and forecasted.
- B/S items on % to revenue – convert into days. For better comparability BS items to be converted into units like sales per day. Days to be calculated as days equal to $365 * \text{BS line item} / \text{Revenue}$.

Non Financial Drivers like sustainability reporting: The Balance sheets are being drafted for statutory purpose not necessarily proving all information in the your format, to get information we have search for the data in allied information silos like notes on accounts, Management discussions, directors reports etc. There are few performance indicators effecting profitability of particular industry. Every industry in their financial report provides such information in one or other form. Like Airlines driving factor is ASM = Available Seat Miles, which to be factor to calculate all their costs and revenues. In refineries GSM = Gross refinery margins to be calculated. Service Industries calculating Minutes per Employees be calculated to get information on revenue stream. Some of the driving indicators which are common:

- Employee cost per unit
- Power cost per unit

Revenue Growth: Revenue growth on Year On Year (YoY) basis to get core business growth or Organic Growth. Non-operating profits to be separately treated for forecasting purpose. IBM – Palmisa Company declared 10 % Organic revenue Jump in Year 2000 in fact there was 2.6 % decline due to external factors effecting organic revenue. External factors like:

- Currency Effects: Y on Y constant currency ' where if currency remain constant what would be the growth.
- Merger & acquisitions: The premium paid for Merger and acquisition will effect the organic growth rate but the forecasting future growth may be increase due to merger.
- Accounting changes and irregularities: Changing of One method to other and using the famous accounting games are quite normal. One has to search the fine print of revenue reporting to get all such information.

Calculate Revenue per unit: decomposing Growth stream to units for comparability like:

- For retailing
- Rev per no of store
- Rev per sq ft
- Rev per transactions

Credit health & Capital structure: calculating Leverages & coverage's like Liquidity ratios, interest coverage ratios.

- Coverage Ratios: Return on equity etc
- Interest Coverage Ratio
- EBITDAR / interest +rent
(Earning before Interest, Tax, Dep, amortization, Rent)
- Leverages

Payout ratio: along with Payout ratio Cash flow Reinvestment ratio also to be calculated and analyzed.

GENERAL:

- Look far as possible – history of 10-15 years: Period of 10 to 15 years is fair enough to get revenue stream. (Abnormal years should be excluded).
- Disaggregate value drivers like operational indicators with value drivers
- Radical changes to be identified as Temporary and Permanent. Permanent changes are to be incorporated in forecasting.
- Re classification of provisions
 - Ongoing operations: provisions like warranty etc to be deducted from EBITA for calculated Revenue stream.

- Long term operating – like Decommissioning Reserve to be treated as non-operative and treated as Debt equivalent.
- One time restructuring Reserve to be treated as Non Operative and Treated Debt equivalent.

Income smoothing: Provisions for adjusting the revenue streams just to leap to another period to be treated as Operative and no adjustment is required for forecasting revenue stream.

Provisions & post retirement benefits: These provisions to be decomposed and service cost be treated Operating and Interest Paid and Received on planned investments be treated as Non operating.

Minority Interest to be excluded from NOPLAT and adjusted for calculating financing flow.

Forecasting Period: The forecasting period impacts a lot as valuation is including time value. The Fair Forecasting period of 10 to 15 years is well accepted. The forecasting period should be tracked as:

- Explicit – long enough that company can reach to steady state where company grows constant return and reinvest at constant rate.
- Explicit long enough to earn constant rate on new capital invested.
- Explicit long enough to get constant return on Base capital.
- Split - Total forecast period be split into two parts
 - ✓ 5-7 year detailed
 - ✓ Simplified for remaining period as '**continuous value**' where the business will reach to steady state.

MECHANICS OF FORECASTING:

- Prepare historic financials: Should use pre-formatted forms to get data required which will be comparable and also ensure that all data is collected. Sometimes consultants get good data relevant to industry. One has to prepare spreadsheets of raw data and then convert to pre-formatted data. Missing

information to be searched for in other sustainability reporting - MDA, director's reports. Further, missing information be filled using Best estimate methods. Information be classified and used on the concept of Materiality.

- Build revenue forecast: Revenue to be forecasted on the basis of Orders in hand, market conditions, Demand potential of country of operations etc. Normally in emerging Market, Top down approach to be followed where Market Share, Penetration etc to be calculated for forecasting Revenue. In steady market, Bottom Up approach may be used to get Demand growth, Projections etc.
- Forecast Income Statement like Line item wise %age to revenue, Estimate Ratios, Multiply ratios to drivers
- Forecast Balance Sheet items by decomposing line items by either stock method or flow method.
 - Stock Method: Stock method is to be used to get Line item %age revenue for items Assets, for Inventories at unit price and Receivables in days
 - Flow Method: Flow method is calculated for changes in items of historical streams with Changes in item due to change in revenue.

Stock Method is more used for forecasting.

Scenarios: Preparing scenarios are like preparing for future eventualities. These are best anticipation of good, Best and worse situations for making strategies like

- Business as usual
- Aggressive acquisitions
- Operating improvements,

2.4.3. ESTIMATING CONTINUOUS PERIOD VALUE:

Continuous value period is the period after enterprise value period. Continuous Value period is not necessarily competitive advantage period as there is no relation with explicit period. 85% of innovations value comes from continuous period. It should be broken into two parts. Continuous value is present value after project comes to steady state (where returns are constants), this will remain same for any number of years.

$$\text{Continuous Value} = \frac{\text{NOPLAT}_{t+1}(1 - g) / \text{RONIC}}{\text{WACC} - g}$$

For calculating Continuous value Identification and valuing Non -Operating assets to be valued separately. Like for Marketable securities as per SFAS 115, IAS 39, Illiquid investments – Discount enterprise DCF. For Non Equity Claims like Debts, Unfunded retirement Liabilities, Operating Lease, Contingent Liabilities, Preferred stocks, Employees Options & Minority Interest to be adjusted accordingly.

2.4.4 ESTIMATING COST OF CAPITAL:

Cost of Capital is Opportunity value of resources allocated in normal conditions. Estimating Cost of Capital is Final Step in the process of Valuation. It is to be used like Multiples for valuation. The COC should:

- ✓ Include Opportunity cost of all sources since FCF is available to all (debt and equity)
- ✓ Weight each security required return by target market based weightage, not by historical book value.
- ✓ Calculate After Tax
- ✓ Use same currency as in FCF
- ✓ Denominate in nominal term when cash flow nominal.

2.4.5 USING MULTIPLES

Multiples may be used sometimes, Peers comparisons being used in retailing as COMP Tables (comparable companies Tables). One may Choose comparables with similar prospectus ROIC, growth: A comparison variance float may be created Like if a peer company has some portion of other sector, the dependency of comparable to be calculated (if cement have 80% and steel 20%, if the steel prospectus is 50% good than variance float will be 1.1 of peer. If peer multiple is 15, this company's multiple will be $15 * 1.1 = 16.5$.

- Calculate mean of sample, take reciprocal of averages. Company with poor prospectus should not be compared with good prospectus company.

- For Multiple on forward looking estimates, Use enterprise value multiples based on EBITA to avoid one time loss or gain and Adjust enterprise value multiple for non operating items

Applying these techniques, one can get the value, which is truly representative. For finding value of IP many techniques have been tested. The Method of finding enterprise value should be treated as best method for finding value of IP also.

CHAPTER 3

3. INTELLECTUAL PROPERTY AND THEIR VALUATIONS

3.1 IP ASSETS:

An asset is a claim to future revenue streams, such as the rents generated by commercial property, interest payments derived from a bond, or cash flows from a production facility. An IP asset is a claim to future accruals that does not have a physical or financial (a stock or a bond) measurement. A patent, a brand, or a unique organizational structure (e.g., an Internet-based supply chain) that generates revenue stream, value or cost savings, are IP assets. IP assets possess the following attributes:

- Non physical in nature
- Capable of producing future economic benefits
- Protected legally or through a de facto right
- For Valuation purpose, the asset must also be readily identifiable and capable of being separated from other assets.

Throughout this report, the terms IP, knowledge assets, and intellectual capital are used interchangeably. All three are widely used—IP in the accounting literature, knowledge assets by economists, and intellectual capital in the management and legal literature—but they refer essentially to the same thing: a nonphysical claim to future benefits. When the claim is legally protected, such as in the case of patents, trademarks, or copyrights, the asset is generally referred to as intellectual property.

Physical and financial assets are rapidly becoming commodities, yielding an average return on investment, as in this era of global village, physical assets are available and its existence is transparent. Wealth and growth in today's economy are primarily driven by IP assets in form of intellectual properties. Value creation, Abnormal profits and dominant competitive positions achieved by IP. There are three major nexuses of IP, distinguished by their relation to the generator of the assets: innovation, 'organizational' designs and "Brands and human resources".

"Brands", a major form of IP prevalent particularly in consumer products beverages like Coke. Coke's highly valuable brand is the result of a secret formula and exceptional marketing savvy. In Internet companies like Infosys, IP assets are often

created by a combination of innovation. The unique products created and acquired by Infosys during the 1990s are responsible for its IP .The human resources are generally created by unique personnel and compensation policies, such as Talent pools, citation index of the organization, investment in training, incentive-based compensation, and collaborations with universities and research centers. Such human resource practices enable employers to reduce employee turnover, provide positive incentives to the workforce, and facilitate the recruitment of highly qualified employees. Specific organizational designs like Xerox's Eureka system, which is aimed at sharing information among the company's 20,000 maintenance personnel, enhance the value of the human resource-related IP by increasing employee productivity. While it is convenient to classify IP by their major generator—innovation, organizational design, Brands or human resource practices. The IP assets are often created by a combination of these sources.

3.2 FUNDAMENTAL CHANGES DRIVING IP

IP (intellectual capital or knowledge assets) are surely not a new phenomenon. With the creation of civilization whenever ideas were put to use in households, fields, and workshops, IP were created. Breakthrough inventions, such as Internet, mobiles, electricity, engines, the telephone, and pharmaceutical products, have created waves of IP. New driving surge in IP since 1980 is the unique combination of two related economic forces:

- a) Intensified business competition, brought about by the globalization of trade and deregulation in key economic sectors like telecommunication etc
- b) The arrival of information technologies (IT) and Internet.

"Ford announced in April 2000 that it would return \$10 billion to shareholders capital that would not be needed by the new leaner Ford. It was already in the process of spinning off most of its parts plants into Visteon. Henceforth, it would be just another supplier to Ford...While shedding physical assets; Ford has been investing in IP assets. In the past few years, it has spent well over \$12 billion to acquire prestigious brand names: Jaguar, Aston Martin, Volvo and Land Rover. It's about IP and brand building and consumer relationships.

The emergence of IP as the major driver of corporate value at Ford is thus the direct result of the two forces mentioned above: competition-induced corporate restructuring facilitated by emerging information technology. Production-centered

economies were sooner or later exhausted and could no longer be counted on to provide a sustained competitive advantage in the new environment: "...traditional economies of scale based on manufacturing have generally been exhausted at scales well below total market dominance, at least in the large U.S. market. In other words, positive feedback based on supply-side economies of scale ran into natural limits, at which point negative feedback took over. These limits often arose out of the difficulties of managing enormous organizations."

Once economies of scale in production have been essentially exhausted, production activities, intensive in physical assets, became commoditized and failed to provide a sustained competitive advantage and growth. Companies responded to this commoditization of manufacturing by:

- a) Outsourcing activities (e.g., Ford's parts production) that do not confer significant competitive advantages, and
- b) Innovation as the major source of sustained competitive advantage. Thus providing gateways for creating IP.

3.3 CONCERNS OF IP:

This analysis clarifies the relevance of intellectual Properties to wide range of business and society, with the following groups having primary interest in IP:

*** Promoters and shareholders** – IP investments are associated with excessive cost of capital. Excessive cost of capital hinders investment and growth. Promoters and shareholders are interested in mechanisms aimed at reducing the excess cost of capital.

***Capital market regulators.** – Research documents the existence differences in information about organizations between corporate insiders and outsiders in IP intensive companies. That may lead to consequences such as systematic losses to the less informed persons and thin volume of trade, which the regulators want to check.

***Accounting standard boards.** – The deficient accounting for IP leads to presentation of biased and less trustworthy and even fraudulent financial reports. This should obviously be of concern to regulators of financial information like ICAI, SEC, and FASB.

***Policymakers.** – In key areas, such as the assessment of fiscal policy (e.g., R&D tax incentives) supporting innovation, optimal protection of IP .A thorough examination of the attributes of IP and specific harmful consequences related to intellectual Properties should be concerned about.

WIPO holds that IP should be of benefit to all people and, in this sense, views IP protection as leading to IP opportunities. The basic ingredients that drive the knowledge economy and feed the IP system – **creativity and innovation** – are found all over the world. Lack of awareness of the enabling possibilities of IP systems paired with the unfortunate view that IP is merely a field of law have led many countries away from taking full advantage of IP regimes. What this view neglects is an actively managed IP. An IP system established with the needs of the country in mind and managed in the best interests of the country can substantially contribute to economic growth and the welfare of human beings all over the world.

To bridge the gap that currently exists in the use of the IP system, WIPO is actively seeking to bring knowledge about the appropriate valuation and use of IP to countries. In doing so WIPO builds on three decades of technical assistance through which it has sought to enable potential IP owners to become high performers. Jointly with IP stakeholders, WIPO has created toolkits that help countries and people to understand best practice IP management, has illustrated the real ‘value added’ of IP systems through concrete field studies and has promoted knowledge sharing among Member States by sharing IP success stories.

3.4 IP VALUATION:

NEED FOR VALUE REPORTING OF IP

IP assets surpass physical assets in most business enterprises, both in value and contribution to growth; remain absent from corporate balance sheets. This treatment of capitalizing physical and financial investments, while expensing IP, leads to biased and deficient reporting of organisations’ performance and value.

The market-to-book (M/B) value i.e. the ratio of the capital market value of companies to their net asset value, as stated on their balance sheets is frequently invoked to motivate the focus on IP. the mean M/B ratio of the S&P 500 companies has continuously increased since the early 1980s, reaching the value of \$6.0 in March 2000. This suggests that, of every \$6 of market value, only \$1 appears on the balance

sheet, while the remaining \$5 represents IP assets. Hence, some argue, the current focus on IP is warranted.

There are many Factors highlighted for Valuation of IP Assets like The subjectivity of the valuation process, the separability of IP assets from underlying business and the consistency of valuation method applied.

Anderson conducted study on IP assets and found

- Many IP assets are identifiable, separable and capable of being valued
- There was considerable consensus over valuation methodologies
- Valuation of IP may be subjective but not more than valuation of unquoted companies, pension funds and emerging markets.

3.5 VALUATION APPROACHES:

3.5.1 COST BASED APPROACH:

This approach may be used to assess the replacement cost of the IP or the cost of creating equivalent assets. This approach requires accumulation of costs invested in the IP. In this approach, costs are adjusted for Inflation and Required rate of return on investment.

Limitation of Cost Based approach:

- No correlation between expenditure and subsequent value.
- Lack of Information
- On separation of expenditure that enhance value and those distorts

3.5.2 MARKET BASED APPROACH

In Market based approach the IP are valued by reference to recent market transactions for comparable assets, which provides credibility and objectivity. In this approach term of most IP transactions are not disclosed. Values may have to be estimated from the sale of companies owning substantial IP assets.

3.5.3 ECONOMIC BASED APPROACH:

The Economic based approach is Identification, separation and quantification of cash flows attributable to IP and Capitalization of those Cash flows attributable to the IP assets. Various methodologies exist. Despite apparent differences, all methodologies seek to quantify parameters.

3.5.4 ROYALTY METHOD:

Under Royalty Method IP assets are valued by capitalizing estimates of annual post tax royalty payable under a licensing arrangement. Valuation parameters may be estimated using details of Arm's length arrangements for comparable intangible assets. Reasonable royalty approach is often used in the estimation of damages arising from patent infringement. There are many different sources of royalty data.

3.6 RELEVANCE OF IP AT BANKRUPTCY -IP LIQUIDATION VALUE

When Enron descended into Chapter 11 on December 12, the \$63 billion bankruptcy represented the largest-ever filing in modern history; the attorneys were to consider how to handle a bankruptcy when the debtor company's possessions are largely composed of intellectual property. According to Larcker "Perhaps the intangible assets are not much use to the business that developed it, but another organisation may find them to be very valuable." "Investors are often betting on cash flows they anticipate in the future," says King. "Therefore, a correct assessment of risk must be performed for the company being valued."

The declaration of bankruptcy may itself diminish the value of intellectual property and other intangibles." Invariably, some potential buyers will question the value of the intangible assets, considering that the company wasn't able to succeed," comments King. "We studied the brand value of a well-known consumer electronics company that declared Chapter 11 and found that its name still carried considerable value. But consider a company like Enron: That name currently has negative connotations and the market value of its intellectual property may now be significantly weakened. If the business is being reorganized and will continue to operate, the company will look at the assets' value as a continuing business, based on current value and whether there is an impairment of value. The liquidator of fashion retailer Boo.com, **for example, successfully sold Boo.com's technology and its web site to competitors.**

"Under FASB Statement No. 141, a recently issued regulation, intangible assets like patents, trade marks, intellectual property and copyrights must generally be valued when they are acquired as part of a business combination," says Halsey Bullen, a senior project manager with the accounting standards board. "But if a company develops intellectual property internally, it would generally be expensed as R&D." Although there are no prescribed rules for valuation of IP at bankruptcy, the practice of bankruptcy laws recognize valuation of intangible assets.

CHAPTER 4

4. TRIPS AND ITS EFFECT ON DEVELOPING COUNTRIES

IPP is expected to encourage innovation by rewarding the inventor. Strong IPP regime may also inhibit diffusion of knowledge and even technology development in the countries that are technology followers. Countries have fine-tuned their IPP regimes as per their developmental requirements. Against this backdrop, the ongoing attempt to strengthen the IPP regimes worldwide, as a part of the TRIPs Agreement, appears to adversely affect the technological activity in developing countries by choking the knowledge spillovers besides implications for the access and affordability to lifesaving drugs by the poor.

The global technology generation or innovative activity is highly concentrated in a handful of technologically advanced developed countries with just top ten countries accounting for as much as 84 per cent of global R&D activity, 94 per cent of US, and 91 per cent of global cross-border technological payments. Prominent among the emerging countries that are beginning to obtain US patents in increasing numbers are Taiwan and South Korea. Therefore these countries together with Japan make important cases for analyzing the role played by IPRs in their technology development.

4.1 IPP REGIME CHANGE AND DEVELOPMENT OF LOCAL CAPABILITY: THE INDIAN CASE

- India had inherited The Patents and Designs Act 1911 from the colonial times that provided for protection of all inventions and a patent term of 16 years.
- Under pressure from domestic industry, government adopted a new Patents Act in 1970 that reduced the scope of patentability in food, chemicals and pharmaceuticals to only processes and not products.
- The compulsory licenses could be issued after three years. It is by now widely recognized that the 1970 Act has facilitated the development of local technological capability in chemicals and pharmaceutical industry by enabling the process development activity of domestic firms as confirmed by a number of quantitative studies.

- The gradual build up of technological capability of Indian enterprises is visible from a rising trend of residents in patent ownership in India, and in terms of the ability of India to raise her share in the US patents.
- India ranked seventh amongst all developing countries in terms of US patents obtained (ahead of Brazil, China and Mexico) and fourth in the chemicals sector and in biotechnology (in 1998).
- With their cost effective process innovations, Indian Pharma companies have emerged as competitive suppliers in the world of a large number of generic drugs. A steady growth of India's exports of drugs and pharmaceuticals has transformed the industry from being one being highly import dependent to one that generates increasing export surplus for the country. The share of pharmaceuticals in national exports has increased from 0.55 per cent in 1970-71 to over 4 per cent by the 1999/00.
- The technological capabilities of Indian companies and institutions have attracted leading MNCs to start R&D joint ventures, commission contract research and set up R&D centres. It is a remarkable achievement especially because it has been accomplished within two decades of the change of patent regime.
- Over the past 30 years except for recent amendments brought to provide for exclusive marketing rights (EMRs) in tune with India's obligations under WTO's TRIPs Agreement. India joined the Paris Convention and the Patent Cooperation Treaty only in 1999.

4.2 A TEN YEARS TRANSITION TO PROVIDE PRODUCT PATENTS VIZ. TILL THE END OF 2004

- The gradual build up of technological capability of Indian enterprises is visible from a rising trend of residents in patent ownership in India.
- Improved technological capability is also reflected in terms of the ability of India to raise her share in patents granted by the US patents office from 0.02 per cent in 1977-87 period to 0.06 per cent during 1996-2000.
- In 1998, it ranked seventh amongst all developing countries in terms of the magnitude of US patents obtained, behind Taiwan, South Korea and Israel—the three leading nations—but ahead of Brazil, China and Mexico.

4.3 HIGHLIGHTS: INDIAN IPRS REGIME

- **Instrumental in building local capabilities :** Indian companies have emerged as competitive suppliers in the world of a large number of generic drugs.
- **Domestic enterprises are more dynamic in terms of growth of investment and output, export-orientation, R&D activity, technology purchases from abroad and in terms of labour productivity**
- However, MNC affiliates enjoyed considerably higher profit margins because of their greater focus on more value adding formulations and their well-established brand names
- **The development of process innovation capability of Indian enterprises has enabled them to introduce newer medicines within a short time lag.**
- The technological capabilities of Indian companies have grown to a point when leading MNCs have started to take note of it. For instance, Eli Lilly established a joint venture with Ranbaxy in the mid-1990s for development of a cost effective process for synthesis

4.4 BENEFITS OF SOFTER IP REGIME ASIAN EXPERIENCE:

- Countries, such as India, have successfully developed cost effective processes to produce life saving drugs with softer patent regimes.
- Enabled the national health system to provide affordable medicines to masses of poorer people.
- The utility models and industrial designs have allowed Japanese firms to receive protection on technologies that were 'only slightly modified from the original invention'.
- Quantitative studies have confirmed that the weaker patent system employed by Japan has facilitated absorption, transfer and diffusion of technology and contributed to the TFP growth during the period 1960-93. The scope of patent system was expanded to cover chemical and pharmaceutical products only in 1975 to provide protection to technological capability that had developed adequately by then.
- The growth rate of per capita income over the 1960-90 for these economies averaged over 5.5 per cent, making it the fastest growing region in the world sustaining such rates of growth over such a long span of time. Some analysts

have attempted to downplay the East Asian achievement as a result of factor accumulation along the production function. However, since then a number of studies have corroborated that a substantial proportion of East Asian growth was contributed by **growth of total factor productivity (TFP)** and it was not a result of merely factor accumulation.

- Encouraged minor adaptations and incremental innovations on the foreign inventions by domestic enterprises and developed a patent culture through utility models and design patents.

4.5 IMPLICATIONS OF THE TRIPS REGIME FOR DEVELOPING COUNTRIES

The international environment with respect to intellectual property has changed considerably with the conclusion of the TRIPs Agreement. The TRIPs Agreement accommodates the demands of the industrialized countries for higher international standards of protection by mandating the extension of patentability to virtually all fields of technology recognized in developed country patent systems, by prolonging the patent protection for a uniform term of twenty years, and by providing legal recognition of the patentee's exclusive rights to import the patented products. The patent rights are enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.

All the signatories to the trade negotiations are, therefore, obliged to adhere to the minimum standards prescribed by TRIPs Agreement and to provide product patents for pharmaceuticals and chemicals. The coverage of the patent protection has also been expanded by the provision for patents on micro-organisms and protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof.

- There are three ways that the strength of the IPR regime could affect economic growth indirectly:
- Affect the innovative activity that in turn is the source of total factor Productivity.
- The inflows of FDI and technology transfers and which could effect the growth.

- Redistribution of income between the countries and between communities within the country.
- The process of acquisition of local technological capability by developing countries is likely to suffer a set back.
- Limit the access of technology by developing country enterprises.
- Resulting in a concentration of the industry and dependence on imports may go up.
- Drug prices are likely to go up upon introduction of product patents with substantial welfare losses to developing countries.
- Increase inventive activity even in the developed world especially for solving the problems and diseases faced by developing countries.
- Slow down the pace of technological development by stifling the flow of R&D spillovers that are important inputs in research.
- Blocking the knowledge spillovers from industrialized countries to developing countries.
- FDI outflows are also governed to a large extent by the strength of created assets of their enterprises such as the ownership of technology.
- The developed countries that would stand to receive the additional income transfers resulting from stronger IPP regime.
- Critical in developing countries where much of the R&D activity is of an adaptive nature. A number of studies have empirically demonstrated the ability of rather weaker intellectual property rights in stimulating domestic innovative activity in developing countries to absorb spillovers of foreign R&D. Allow spillovers simultaneously to promote R&D and to have a positive direct effect on productivity' and concluded that the adoption of a 'stronger patent regime may not be optimal from either the short- or long-run perspectives'.
- The World Bank (1999:34) cautions 'stronger IPRs may adversely affect follow-on innovations, in developing as well as industrial countries, that draw on inventions whose patents have not yet expired. There is thus a concern that tighter IPRs may actually slow the overall pace of innovation'.

4.6 BENEFITS OF TRIPS IP REGIME

- Encourage innovation by rewarding the inventor with the grant of monopoly rights over the commercial exploitation of their inventions for a specified period.
- Inhibit diffusion of knowledge and even technology development in the countries that are technology followers
- Stronger protection increases the value or revenue productivity of a firm's intellectual property such as technology, brand and trade names.
- Stronger protection should help exporters by making imitation and counterfeiting more difficult.
- China, Brazil and other high-growth, large-market developing economies with weak protection would not have attracted nearly as much FDI'.
- The full implementation of the TRIPs Agreement is likely to have an important bearing on the patterns of development in developing countries.

4.7 POLICY RESPONSES TO BE TAKEN AT THE NATIONAL LEVEL:

a) Incorporating the Provisions of Compulsory Licensing in the IPR Legislation

Developing countries should build adequate provisions for compulsory licensing in their IPR legislation in order to safeguard them from possible abuses of monopoly power obtained by patent owners.

b) Incorporating the Research Exception

Developing countries could incorporate provisions allowing researchers to use a patented invention for research, in order to understand the invention more fully.

c) Early Working Exception or 'Bolar' Provision

It is possible to make provision for allowing manufacturers of generic drugs to use the patented invention to obtain marketing approval without patent owner's permission and before the expiration of patent. This facilitates the generic manufacturers to market their products as soon as the patent expires. This provision is sometimes called the regulatory exception or Bolar provision under Article 8

(WTO 2001). The US, Canada, Australia, Israel and Argentina have adopted Bolar exception in their patent legislation.

d) Resisting the Attempts to Evolve TRIPs Plus Regime and Ever-greening of Patents

The TRIPs Agreement however, is clear that a new use for an old formulation does not constitute an inventive step (Art. 27(1)). Therefore, member countries are within their rights not to permit the practice of ever-greening of patents.

e) Allowing Parallel Imports or Grey-Market Imports

Since ‘exhaustion of rights’ issue cannot be raised in the dispute settlement under TRIPs Agreement, developing countries should allow parallel imports or grey-market imports. The experience of several countries suggests that substantial costs savings could result from such imports because of differential pricing strategy practiced by MNCs depending upon the extent of competition in different markets.

f) Competition Policy

The patent system grants temporary monopolies to the firms that introduce innovations. The national competition or antitrust policies are needed to prevent the build up of excessive monopoly power of certain enterprises and to deal with possible abuse of monopoly power emanating from patent protection. The TRIPs Agreement (Articles 8 and 40, Section 8) explicitly provides for appropriate measures to prevent the abuse of IPRs or the resort to anticompetitive practices. Apparently in the US, ‘compulsory licensing has been specified as a remedy in more than 100 anti-trust cases making available some 40,000 to 50,000 patents at reasonable or no royalties’.

h) Price Controls for Essential Drugs

Governments may impose regulation of prices of essential drugs by transparent. Indian experience shows that price controls have proved to be effective means of keeping prices of life saving essential drugs under check.

i) Introduce Utility Models and Industrial Design Patents

Encouraging domestic enterprises to undertake minor adaptive innovations and foster an innovation based rivalry among them. Utility models and industrial

designs may encourage developing country enterprises, especially small and medium enterprises. In Brazil, utility models helped domestic producers gain a significant share of the farm machinery market by encouraging adaptation of foreign technologies to local conditions.

4.8 POLICY RESPONSES AT THE INTERNATIONAL LEVEL

The controversy concerning the HIV/AIDS drugs in South Africa, among other factors, has helped to focus attention of the international community on the possible adverse effects. In what follows is summarized a few avenues for possible international action.

- a) Consensus on the moratorium on further strengthening of IPR regime.**
- b) Granting Flexibility to Developing Countries in Implementing the Provisions of TRIPs:** Most of the adverse effects concerning TRIPs on poor countries arise not because of IPR regimes but from the attempt to harmonize them across the countries at different levels of development (Panagariaya 1999) built on the differential need of developing countries for IPR regime.
 - A possible revision of TRIPs could incorporate a provision that grants to developing countries flexibility to implement the TRIPs obligations until they reach a certain level of development defined in terms of some objective criteria such as per capita income. One possibility in this respect is to adopt a threshold of US\$ 1000 of per capita income.
 - Shorten the term of product patents applicable to low income countries.
- c) Incorporating Specific Provisions for Transfer of Technology**

The access to technology is increasingly becoming difficult for developing countries. There is need for defining conditions, norms and practices for facilitating transfers of technology for production of essential drugs and other critical inputs.

A review of the Agreement could address the important issue of transfer of technology and conditions under which technologically less advanced countries could seek transfer of technology from patent owners.

d) International Funding R&D Activity in Low Income Countries

To provide increased technical assistance and R&D funding to local enterprises to help them build local capabilities.

- Governments of developed countries donate a substantial proportion of technology license fees collected from low-income countries to a fund created in the respective countries to assist inventive activities of domestic enterprises.
- Technological activity of domestic enterprises by providing additional financing for undertaking such activity.

e) Differential Pricing for developing countries

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CHAPTER 5

5. IP MEASUREMENT AND REPORTING IN FINANCIAL OR SUSTAINABILITY REPORTING

There is a good link between presentation of Financial Report and reaction to it like stock price changes around the earnings release. It is an effective measure of the report content or usefulness of the report. Global researchers finds a negative / non correlative association between stock returns and various key financial indicators such as earnings, cash flows and book values.

Conventional reporting is meant for statutory filings and is generally physical assets centric. These reports are to be presented to shareholders for earnings, dividend etc and presenting mainly physical assets liquidity values. These reports are suitable for static business environment, where less focus is required on non-financial parameters. These reports have an Information GAP (whether deliberated or not) as mostly these miss the most valuable part of total assets, that is IP. At present there are reporting deficiencies for information about intangibles. The Organisational effectiveness of such measures are limited as reports are non standardized and not transparent. Hence these measures cannot be used for benchmarking. A comprehensive plan for improvement of IP measurement and disclosure are missing from reporting.

In today's global environment non-financial indicators and exotic financial reporting are only viable measurement of growth and sustainability. The new age reporting is required for:

- a) Taking strategic decisions like Merger & acquisitions
- b) Full and fair disclosures
- c) Forward looking statements
- d) Management Plans, Risk assessments.

5.1 NEW AGE REPORTING ARE FOUND IN FORM OF:

- a) Balance sheet and Financial results
- b) Directors Reports and Managements Discussions

- c) Sustainability reporting
- d) Value reporting like Infosys
- e) Internal Decision making reports
- f) Management and system control reports
- g) COSO/ internal control compliance reports
- h) Due diligence reports
- i) Special purpose reports
- j) Valuation tracking reports

5.2 PROBLEMS OF NON REPORTING / DEFECTIVE REPORTING OF IP:

Earning Management: IP is a soft area of reporting where the corporate managers may play with valuation of IP. They may increase or decrease valuation if the reporting is not structured.

Insider Trading – Intangibles like IP increase the volatility of corporate values. With lack of reporting, insiders may play around and in consequence, there may be substantial gains to informed investors by “insider trading”. Kyle, among others, established that informed persons would gainfully trade to exploit their private information.

Denying Fundamental information: Corporate manager may intentionally hide information, which are statutory or otherwise to be reported to public.

***Increasing bid-ask spreads of securities.** –Glosten and Milgrom established that information asymmetry is the major determinant of securities’ bid-ask spreads.

***Non-standardised and Non transparent Reports:**

***High Cost of Capital**

The studies reporting a positive link between the quality of financial reporting (not necessarily on intangibles) and cost of capital .The deficiencies in information disclosure to capital markets particularly for intangibles-intensive companies results in higher cost of capital, which in turn restrict investment and growth.

5.3 LOSS OF CONFIDENCE OF STAKEHOLDERS:

Intangibles' measurement and reporting problems are due to the attributes of these assets like high-risk lack of full control over benefits, and absence of markets. A productive discourse on intellectual Properties should be based on a thorough analysis of the economics of intellectual Properties.

The management of IP is aimed at maximizing the benefits. Patenting, cross-licensing, trade marking, moving first, or establishing an industry standard are ways to appropriate most of the benefits of intangibles. R&D and marketing alliances, trading in futures markets, and securitization are means of managing the risk of IP. The formulation of appropriate "exit strategies," such as licensing, IPO, or sale on an Internet exchange, is aimed at mitigating the non-tradability restriction.

*The above framework for the economics of IP is also useful in analyzing measurement and reporting issues. Thus, for example, to qualify as an asset for financial reporting, it has to be shown that:

- a) The corporation exercises a considerable degree of control over the asset, namely it is able to appropriate most of the benefits,
- b) The risk concerning commercial success has been considerably reduced (e.g., technological possibility has been established), and
- c) Market mechanisms are available to trade the asset or its consequent cash flows. Thus, a convincing case for recognizing an intangible as an asset on the balance sheet can be made if it is shown that the organisation will appropriate most of the benefits from the asset, its risk is relatively low (e.g., a drug that passed clinical tests), and that opportunities to license the technology exist.

In the following parts of the report, the use of the economics of intangibles in analyzing managerial, investment, and policy issues and advancing recommendations will be demonstrated.

*The major players in the information arena—managers, auditors, financial analysts— are generally comfortable with the current disclosure (rather nondisclosure) environment concerning intangibles. The immediate expensing of internal and acquired R&D, for example, is a recipe for boosting future growth of reported earnings. It also decreases managerial embarrassment and litigation exposure. In such a "comfortable" arrangement, it will take more than the frequently

heard calls for “voluntary information disclosure” and a “period of experimentation” to generate a significant change in the information environment.

5.4 MANAGEMENT EFFECTIVENESS OF REPORTING:

Investors and often managers too are deprived of intangibles-related information on essential business capabilities and performance characteristics. Examples follow:

***Utilization of intellectual property (IP).** Information on the extent of IP utilization—in the form of a breakdown of patents registered to those under development, licensed, in-collaboration, as well as the volume of licensing revenues—provides an important indication of the effectiveness of the organisations “management of knowledge.”

***Bringing new products to the market.** — Reliable indicators of innovation and commercialization capabilities are rarely available to investors. (The highly aggregated sales figures publicly disclosed are too coarse to indicate these capabilities.) “Innovation revenues,” a measure indicating the percentage of total revenues coming from products/services introduced in recent (e.g., past two to three) years is an effective indicator of the organisations innovation capacity and ability to bring products expeditiously to the market.

Since some of the proposed information is not transaction-based and is of a non-financial nature (e.g., quality of patents, products in the pipeline), the system extends well beyond the confines of traditional accounting, and can be considered a satellite information system to the current one.

5.5 THE OBJECTIVES OF THE IP INFORMATION SYSTEM

1. Missing is information on intangibles.
2. To provide the needs of the emerging constituencies: primarily individual investors and the myriad partners to the networked corporations,
3. Enabling these constituencies to make and execute decisions at the level of professional investors and managers.
4. In an increasingly democratized and externalized decision-making environment, to enable a larger population of investors to do things that until now only highly qualified financial analysts could do.

5. To provide a constantly increasing number of partners to the networked corporation with sufficient information for optimal decision-making. This is the major objective of the information system outlined below.

5.6 IP INFORMATION SYSTEMS:

The Fundamentals of the IP Value Information System

The information most relevant to decision makers in the current economic environment concerns the enterprise's value chain, means the fundamental economic process of innovation—vital to the survival and success of business enterprises—that starts with the discovery of new products/services/processes, proceeds through the development phase of these discoveries and the establishment of technological feasibility, and culminates in the commercialization of the new products and services.

A. Balanced Score Board:

In 1992 Robert S Kaplan and David P Norton and further in 1996 in their book *The Balanced Score Board*, prescribed translating strategy into action for corporate performance evaluation described a set of information both financial and Non financial for common objective of profitability, customer satisfaction, internal efficiency and innovation. They have prescribed a long-term perspective. This is not for external reporting purpose.

B. Value Dynamics:

Cracking the value code by Richard E S Bowton Barry D Libert, Steve D Samek of Arthur Anderson prescribed

- a) Existing FI data used
- b) Value creators including intangibles
- c) Potential source of revenue.

C. Global Reporting Initiatives (GRI)

Sustainability Reporting Guidelines 2000 / 2002 suggested various economic and social indicators, which are not being part of annual reporting be presented in structured form as per the guidelines. The GRI suggests Economic, Environmental

and Social indicators. For IP the Guideline suggests about measures taken for uplifting knowledge of employees, segmentation of knowledge employees etc are mentioned.

Reliance Industries Limited while presenting its maiden corporate sustainability reporting (CSR) in 2006 described the IP as their mainframe objectives. It described about the KSA (Key strength attribute of every employees), INLA (a step to identifying training needs), E-library, Knowledge Portals are mentioned as IP assets.

D. VALUE CHAIN INFORMATION:

Prof Bharuch Dev suggested a value chain method, which consists of:

- a) "Top line" (sales) indicators, currently outside obligatory disclosure by accounting regulations (GAAP). Foremost, among such measures is "innovation revenues," indicating the share of revenue coming from recently introduced (within three to five years) products.
- b) "Bottom line" (profitability) measures not routinely disclosed include productivity gains from process R&D, the extent of the organizations online supply activities (e.g., purchasing car components in Internet exchanges), the value-added of the organizations activities (i.e., earnings minus a charge for cost of capital), and the currently much focused-on measure of "cash burn rate" (months or quarters of operations supported by current cash) for Internet and biotech companies.
- c) Forward-looking information. This is the only component of the proposed value chain scoreboard that is not factually based. It informs on the product pipeline, crucial for estimating the prospects of pharmaceutical and software companies, among others. It provides managers' estimates about the expected efficiencies from restructuring activities and expected growth of market share. For losing enterprises (frequent in Internet, biotech), it also provides an estimate of time to breakeven. All of these information items are frequently and persistently sought from management in conference calls.

He suggested the Scoreboard Criteria as:

1. **Quantitative:** Like employee work practices, patent cross licensing

2. **Standardized**, compared across organizations for valuation and benchmarking purposes.
3. **Confirmed by empirical evidence:** generally by establishing a significant statistical association between the measures and indicators of corporate value (e.g., stock return, productivity improvement).

Infosys Score system:

Intangible assets score sheet

We caution investors that this data is provided only as additional information to investors. Using such reports for predicting our future, or that of any other company, is risky. We are not responsible for any direct, indirect or consequential losses suffered by any person using this data.

From the period of the 1840s, long into the early 1990s, a corporate's value was mainly driven by its tangible assets – values presented in the corporate balance sheet. The managements of companies valued those resources and linked all their performance goals and matrices to those assets – Return on Investment, capital turnover ratio, etc. Even in a mergers and acquisition scenario, the prices were based on the value of their tangible assets. The market capitalization of companies also followed the value of the tangible assets shown in the balance sheet with the difference being seldom above 25%. In the latter half of the 1990s, the relationship between market value and tangible asset value changed dramatically. By early 2000, the book value of the assets represented less than 15% of the total market value. So, what are the key drivers of the market value in this new economy? It is the intangible assets. Thus, in this information age, more and more companies are finding that assets that are easily measurable are not necessarily the most valuable.

A knowledge-intensive company leverages know-how, innovation and reputation to achieve success in the marketplace. Hence, these attributes should be measured and improved upon year after year to ensure continual success. Managing a knowledge organization necessitates a focus on the critical issues of organizational adoption, survival, and competence in the face of ever-increasing, discontinuous environmental change. The profitability of a knowledge firm depends on its ability to leverage the learnability of its professionals, and to enhance the reusability of their knowledge and expertise.

The stock price of a company is the result of the market's valuation of its earnings potential and growth prospects. Thus, the market provides a value to the off-balance-sheet assets of the company – that is, those assets which are invisible or which are not accounted for in the traditional financial statements. The intangible assets of a company include its brand, its ability to attract, develop and nurture a cadre of competent professionals, and its ability to attract and retain marqué clients.

Today's discerning investors take a critical look at both financial and non-financial parameters that determine the long-term success of a company. The non-financial parameters challenge the approach that evaluates companies solely on the traditional measures, as they appear in their financial reports. Thus, intangible assets of a company have been receiving considerable attention from corporate leaders in recent years. The intangible assets of a company can be classified into four major categories: human resources, intellectual property assets, internal assets and external assets.

Human resources

Human resources represent the collective expertise, innovation, leadership, entrepreneurship and managerial skills endowed in the employees of an organization.

Intellectual property assets

Intellectual property assets include know-how, copyrights, patents, products and tools that are owned by a corporation. These assets are valued based on their commercial potential. A corporation can derive its revenues from licensing these assets to outside users.

Internal assets

Internal assets are systems, technologies, methodologies, processes and tools that are specific to an organization. These assets give the organization a unique advantage over its competitors in the marketplace. These assets are not licensed to outsiders. Examples of internal assets include methodologies for assessing risk, methodologies for managing projects, risk policies, and communication systems.

External assets

External assets are the market-related intangibles that enhance the fitness of an organization for succeeding in the marketplace. Examples are customer loyalty (reflected by the repeat business of the company) and brand value.

The score sheet

We published models for valuing our two most valuable, intangible assets of the company – human resources and the "Infosys" brand. This score sheet is broadly adopted from the intangible asset score sheet provided in the book titled *The New Organizational Wealth*, written by Dr. Karl-Erik Sveiby and published by Berrett-Koehler Publishers Inc., San Francisco. We believe such representation of intangible assets provides a tool to our investors for evaluating our market-worthiness.

Clients

The growth in revenue is 34% this year, compared to 47% in the previous year. Our most valuable intangible asset is our client base. Marqué clients or image-enhancing clients contributed 48% of revenues during the year. They give stability to our revenues and also reduce our marketing costs.

The high percentage, 95%, of revenues from repeat orders during the current year is an indication of the satisfaction and loyalty of our clients. The largest client contributed 4.4% to our revenue as compared to 5.5% during the previous year. The top 5 and 10 clients contributed around 17.8% and 30.3%, of our revenue respectively, as compared to 21.0% and 33.6%, respectively, during the previous year. Our strategy is to increase our client base, and, thereby, reduce the risk of depending on a few large clients. During the year, we added 144 new clients as compared to 136 in the previous year.

Organization

During the current year, we invested around 4.48% of the value-added on IT infrastructure, and around 1.28% of the value-added on R&D activities.

A young, fast-growing organization requires efficiency in the area of support services. The average age of support employees is 30.8 years, as against the previous year average age of 31.9 years. The sales per support staff, as well as the proportion of support staff to the total organizational staff, have improved over the previous year.

People

We are in a people-oriented business. The education index of employees has gone up substantially to 148.499 from 100,351. This reflects the quality of our employees. The average age of employees as of March 31, 2006 was 26, the same as in the previous year.

Notes

- Marqué or image-enhancing clients are those who enhance the company's market-worthiness – typically Global 1000 clients. Often, they are reference clients for us
- Sales per client is calculated by dividing total revenue by the total number of clients.
- Repeat business revenue is the revenue during the current year from those clients who contributed to our revenue during the previous year also
- Value-added is the revenue less payment to all outside resources. The value-added statement is provided in the *Additional information to shareholders* section in this report.
- IT investment includes all investments in hardware and software
- Total investment in the organization is the investment in our fixed assets.
- Average proportion of support staff is the average number of support staff to average total staff strength
- Sales per support staff is our revenue divided by the average number of support staff (support staff excludes technical support staff)
- Education index is shown as at the year-end, with primary education calculated as 1, secondary education as 2, and tertiary education as 3

The Infosys intangible assets score sheet

| | Our clients (External structure) | | Our organization (Internal structure) | | Our people (Competence) | | 2006 | 2005 |
|--|-------------------------------------|-------|--|------|----------------------------|-------|----------------------------------|-------------------|
| | 2006 | 2005 | 2006 | 2005 | 2006 | 2005 | | |
| Growth / renewal | | | | | | | | |
| Revenue growth (%) | 34 | 47 | IT investment / Value added (%) | | 4.48 | 5.41 | Staff education index | 1,48,499 1,00,351 |
| Revenue from image enhancing clients / total revenue (%) | 48 | 50 | R&D / Value added (%) | | 1.28 | 1.31 | | |
| Exports / total revenue (%) | 98 | 98 | Total investment / Value added (%) | | 13.58 | 14.62 | | |
| Clients added during the year | 144 | 136 | | | | | | |
| Efficiency | | | | | | | | |
| Sales / client (in Rs. crore) | 20.70 | 16.28 | Average proportion of support staff (%) | | 5.60 | 5.40 | Value added (in Rs. crore) | |
| | | | Sales per support staff (in Rs. crore) | | 3.76 | 4.06 | software engineer | 0.19 0.20 |
| | | | | | | | employee | 0.18 0.19 |
| Stability | | | | | | | | |
| Repeat business (%) | 95 | 95 | Average age of support staff (Years) | | 30.76 | 31.92 | Average age of employees (Years) | 26.0 26.0 |
| Top client contribution to revenue (%) | 4.4 | 5.5 | | | | | | |
| Top 5 clients' contribution to revenue (%) | 17.8 | 21.0 | | | | | | |
| Top 10 clients' contribution to revenue (%) | 30.3 | 33.6 | | | | | | |
| No. of clients | | | | | | | | |
| 1 million dollar + | 221 | 166 | | | | | | |
| 5 million dollar + | 81 | 71 | | | | | | |
| 10 million dollar + | 54 | 42 | | | | | | |
| 20 million dollar + | 26 | 19 | | | | | | |
| 30 million dollar + | 19 | 11 | | | | | | |
| 40 million dollar + | 14 | 8 | | | | | | |
| 50 million dollar + | 9 | 5 | | | | | | |
| 70 million dollar + | 4 | 1 | | | | | | |
| 90 million dollar + | 1 | - | | | | | | |

The above figures are based on Indian GAAP consolidated financial statements.

5.7 CHECKLIST/ GUIDELINES FOR PREPARING AN IP REPORT:

As we understand IP reports are very critical and value important place in Financial and sustainability reporting. The reports should be comprehensive and structured, at the same time it should state the organizational objectives.

- **A narrative summary:** This summary should Analyze and explain the basic business model, plan and strategy. This should also describe the role to be played by IP. The Report should also state how IP will generate revenue stream.
- **Relate income streams to IP:**
 - ✓ What were the returns from IP-protected business segments?
 - ✓ How do your trade secrets / patents contribute to the new / improved / superior / better- functionality or features of your services/products as compared with those of your competitors?
 - ✓ How do/does your trademark(s) contribute to your company's or your company's products' / services' image, recognition, reputation or

branding strategy in the market in developing customer loyalty or attracting new customers?

- ✓ Do you use industrial designs to protect the unique look or packaging of your products?
- ✓ How do your trade secrets, such as know-how or business ideas, make your company unique?

- **IP and market Positioning:**

- ✓ Does the ownership of IP help you to gain/secure/improve your market share or profits?
- ✓ Are you using IP as an entry barrier to keep competitors out of a particular market?
- ✓ Does the IP of your competitors pose a threat to your business?
- ✓ Do you have "freedom to operate" in using your own new ideas, concepts, inventions and innovations, without being required to take prior permission (which may involve making a payment) of someone else (say, a competitor) to develop a new/improved product/service or add new features to an existing product/service?
- ✓ Does your IP provide you with some form of exclusivity in the market, and, if yes, for how long?

- **Managerial skills:**

- ✓ Are you pursuing a systematic strategy to exploit the commercial benefits of your IP?
- ✓ Have you understood how the exploitation of your IP relates to other complementary business assets that may be critically needed?
- ✓ How is your R&D focus aligned to your IP strategy and to your commercial goals?
- ✓ How do the financial plans for managing your IP relate to your overall financial and business goals?
- ✓ How determined are you to extract (further) revenue from your IP?
- ✓ What experience do you have in managing IP?

- ✓ How are you leveraging your IP to develop new relationships and business partnerships?
- **Legal scope of the IP rights:**
 - ✓ What level of practical protection does your IP have in a given business environment?
 - ✓ Can you operate in the market without infringing the IP rights of other market participants?
 - ✓ How likely is it that competitors will legally steal your ideas or creative expression or find legitimate ways to circumvent your IP and thereby effectively free ride on your creativity and innovation?
 - ✓ What is the risk of pirates and/or counterfeiting negatively impacting your market share, and to what extent?

CHAPTER 6

6. IP CONTROL SYSTEMS AND BEST PRACTICES

A set of activities and decisions involved with acquiring the best possible value from their organizations intellectual Properties performed into a planned process, called IP control systems. The activities of these Control systems are:

1. Information-gathering
2. Innovation Decisions
3. Decision processes Matrix
4. Activities & processes Automation
5. Structural evaluation of process & system
6. Acquiring value from IP & Perfect measuring.

6.1 IP CONTROL SYSTEM'S COMPONENTS:

The IP Control systems have the process / components to fulfill the organizations objects in structured manner. The following may be components:

A. Experience Management: The companies have to go through different experience during start up or going for new type of product process. Thread by analysis of these and putting to common sharing silos makes much more difference while utilizing the same for innovations. These can be done through automation of process and recording of data like machine settings, tools used, vendors of spares supply, total cost etc.

B. The Innovation Process & Decisions – Organizations should have their own structured innovation process.

- An innovation policy to evaluate the project before taken for R & D.
- Creativity department for service companies, with responsible chief officer.
- Employee's innovative ideas promotion activities
- Blogs Forums

- Common knowledge sharing servers

This decision that a new innovation should be sought to add to an existing innovation to make the first more marketable. Whether to seek the new innovation from inside or outside the company (through, e.g., in-licensing, acquisition of a company, etc.) requires support from IP Control systems.

C. Portfolio Decisions: The IP portfolio is in fact a series of sub-portfolios containing the organization's different kinds of IPs. Some of the portfolios may contain IP, others may contain documents of potential business interest like customer lists, business practices, internal processes and other knowledge processes and others may contain ideas or innovations.

Whether to Go for or No-Go Decision are most critical. Most organizations have to develop a control mechanism for evaluating the innovative ideas that emerge from the innovation process. Innovations that pass the screening—those that are likely to be useful to the company in pursuit of its strategy. Which innovations will be patented; Like The decision to patent requires an investment of up to certain cap to obtain and maintain legal protection for an innovation for its twenty-year life.

This decision is important for all companies because it separates ideas that are of particular interest to the firm from ideas that, though they may be good and interesting, are not aligned with the organization's strategy. (Where an organization decides to not patent, it often maintains an innovation in the know-how of its employees; sometimes formally protecting this knowledge as a trade secret.)

D. Measurement & Valuation Decisions: Innovation of potential interest be measured before it is reviewed for use. The first part of the valuation process is to theoretically describe how the IP is expected to bring value to the organization. And other is qualitative valuation, and where it is possible to do so, the organization should attempt to quantify the amount of value it expects the innovation to provide.

E. Business Strategy & Competition decisions: To fit between this asset and the organization's strategy. In the case of technology companies the focus might be on a competitor's technology as well as on its portfolio of patents. The IP may be commercialized or stored until another innovation is developed that makes the first one more marketable. This process results in a decision about which mechanism will be used to convert the innovation to cash.

6.2 BEST PRACTICE IN IP CONTROL SYSTEM:

6.2.1 TECHNOLOGY AUDITS:

In high technology industries with cutting edge technologies, it is important to accurately assess the value of one's company—and this value is more and more determined by an organization's intellectual Properties. It is also important in case of merger and acquisitions to defend hostile bids.

Nestle Faced with a requirement to merge its petrochemical business with Statoil's petrochemical business. Nestle conceptualized and conducted a **technology audit** to ensure it could obtain the most favorable terms for the impending merger.

The Objective of Nestle was to comprehensively **identify and categorize** all of its intellectual Properties. The technology audit was

- Given a broad mandate to assess the value and the extraction potential of Nestlé's existing intellectual Properties portfolio,
- Maximizing value acquisitions
- Minimizing the necessary costs of the upkeep and maintenance of an intellectual property portfolio.

Nestlé's vice president of corporate technology described the organization's intent "to establish an Intellectual Property Rights (IPR) management group whose charter is to use corporate IPR as a strategic asset and to use technology transfer as a tool to achieve other corporate objectives."

Action. —

- **The CEO and the president** became the lead sponsors of the project to centralize control of technology at the corporate level, which enabled maximum flexibility & develop a common language around intellectual Properties.
- This message also defined the technologies of interest and measurement techniques to be used. Being forthright with Nestlé's employees avoided much of the consternation and apprehension that surrounds similar change processes.

- A standard questionnaire was created to identify technology types, technology stages, legal ownership status, and commercialization options.
- Each technology was categorized as either existing or pre commercial.
- Each technology was assessed for its commercial viability.

Results (as stated by the person in charge of the IP program). –

- Nestle came to know that many of their technologies were not well protected, and considerable Resources were devoted to shoring up their assets.
- Over 50 percent of their patents were categorized as excess. Most of these were rapidly slated for abandonment or out-licensing .In a few situations, the patents could be used to develop novel business opportunities.
- These actions enabled immediate cost savings and increased revenue streams.
- Its innovation compensation system was also revamped to allow a more targeted value creation effort.

6.2.2 SERVICE VALUE:

The Dow Chemical Company one of the most successful corporations in America was inspired by ideas beginning to circulate in academia, such as the concept of “**service value**” proposed by Yale professor John Tobin. Tobin coined the term “service value” to refer to the gap between a company’s book and market values. Dow took the concept of service value and built a management system around it, or what they saw as IPs.

Dow envisaged the role of IP management as to “maximize the business value of Dow’s IPs and develop a management process that will help to maximize the creation of new valuable IPs.”

Action. –Realizing that this new tactic would require a

- Substantial amount of process reengineering through Management teams
- They began with a well-understood portion of their IP repository: patents.
- Several steps were taken to facilitate the IP management initiative. Following a model with six phases:
 - Portfolio: All of the active and the inactive patents were identified. Once identified, each patent was analyzed to determine where it fit best within

Dow's fifteen major business units. Then the business unit was given ownership and responsibility for the patent.

- Classification: Each patent was further categorized as to whether "the business is using, will use, or will not use" the asset.
- Strategy to accomplish two important objectives: Maximize value extraction by integrating the patent portfolio into the business's strategy, And identify any intellectual property shortfalls or gaps necessary to fill in order to realize the company's objectives.
- Valuation: The valuation phase determined the value and contribution of the intangible asset. Along with A. D. Little, developed a valuation technique they termed the "Tech Factor Method." It uses the NPV of incremental cash flows Along with utility and competitive issues to determine fair market value of IP.
- Competitive assessment: Patent trees are utilized to determine the relevant competitive factors surrounding a technology. These trees reveal the patents' strength and scope, but also depict blocking and opportunity windows.
- And investment: It is determined what technology must be acquired in order to carry out the business strategy and what the means of acquiring the technology will be (i.e., make, buy, joint venture, etc.).
- Applied the model to know-how. : Find a way to visualize and communicate know-how .In order to visualize the intangible assets, three questions were posed:
 - What is the key technical know-how of a business unit?
 - Where does it reside? How is it articulated?
 - The communication objective was addressed with a corporate-wide network.

Result: The initiative proved to be successful on a grand scale.

- The hypothesis that improved alignment of IPs to the business strategy would create greater value for the corporation was proven correct.

- Soon after the completion of its auditing and classification efforts Dow saved \$1 million. Over the life of its portfolio, Dow was able to save \$40 million dollars in patent tax maintenance fees.
- The identification of key patents generated fresh cash flows from patent licensing. In 1994 Dow received \$25 million in revenues from licensing, and by 2000 they hit approx. \$125 million.

6.2.3 INNOVATION DISCLOSURE:

Carly Fiorina, Hewlett Packard's CEO, understands the importance of innovation and the visceral role it plays in the viability of the organisation. She renewed Hewlett Packard's commitment to innovation at COMDEX '99 by emphatically stating that they would "drive inventiveness for the new economy." HP required a system to encourage its inventors to convert their tacit knowledge to explicit knowledge was the goal.

Associate General Counsel and Director of Intellectual Property for Hewlett Packard Stephen P. Fox notes that "it is important to dispel the notion that there is nothing good left to invent and encourage inventors to give themselves the benefit of the doubt when assessing whether they have invented something." Finally, the innovation cycle culminates with some form of legal protection enabling value to be extracted from the idea.

Hewlett Packard's incentive program ensures organizational alignment and encourages inventors to participate in the **invention disclosure process**. The program has four elements.

Results: The program has been extremely successful. The number of invention disclosures has DOUBLED SINCE THE INCEPTION OF THE PROGRAM.

These examples are best assessment of corporate inner self to utilise the best-benchmarked IP management tools for control the true valuable hidden assets IP.

CHAPTER 7

7. THE IP AUDIT:

Audit is a review process to validate the organisational methods and critically analyse the pros and cons of systems deployed or to be deployed. This is a tool to take stock of available assets so as to establish a system to protect the same .An IP audit is a systematic review of the IP owned, used or acquired by a company. The goal of an audit is to identify all the IP a company may have. It is all part of good business management and protection of your core business assets – often IP.

While some organisations have sophisticated processes and systems in place to identify, protect, and manage IP assets as they are created, majority may not. Some organisations have control for managing those IP rights that can be patented but find themselves in trouble when valuable staff members leave, taking undocumented know-how with them. "IP aware" organisations should periodically review.

While the use of IP audit is critical when the balance sheet fails to tell the complete story, this is only one of many times the IP audit should be used. In addition to valuation, IP audits are designed to identify those opportunities to exploit assets being under-utilized, to identify those areas where funds are being spent unnecessarily, and to correct those situations where legal or financial liability may be developing as a result of misuse of the IP owned by third parties.

7.1 CORE OBJECTIVES OF IP AUDIT:

- Whether or not your IP rights are registered?
- Who owns the rights? If you do not, then identify any conditions that apply to their use
- An assessment of whether your IP is being used effectively
- Whether your rights are being challenged or threatened by others? When to conduct an IP audit? IP audits are generally conducted as part of an ongoing IP asset management program, when a business is being bought or sold or when you are enforcing or defending your IP rights. An IP audit will give you a broad picture of your IP assets.

7.2 THE TYPES OF IP S COVERED UNDER AUDIT:

The audit falls into two broad classes:

1. IP created by the company itself.
2. Used by the company under a license from another party.

The Second class is comprised of software licenses necessary for operation of PCs, servers, networks, Web sites, Web hosting, offsite storage, disaster recovery, equipment licenses, etc.

7.3 TOOLS OF IP AUDITS:

Preparing IP Policies & Plans: The audit team can read policies, but if the policies are not followed, they provide little protection. A discussion of trade secrets will reveal far less than a quiz about what information the company most wants to keep from the competition.

Personnel surveys and direct observation: If a software license provides for 100 computers, then the count should be checked. If staff reductions mean that only 15 machines operate the software, then the license should be renegotiated rather than merely renewed. The information gathering process is the heart of the IP audit.

Internal Control systems & analysis. Identified contracts should be cataloged, patents listed, trade secrets categorized, and copyrighted materials indexed

Assessing Risk & Preparing Response plan. By Good ideas Policies need to be revised to better protect the trade secrets. Within the "to do" list generated by the audit, priorities must be set. The "to do" list will serve as a starting point for the next audit.

7.4 THE KEY STEPS TO AN AUDIT ARE:

1. Meetings with representatives:

- To decide on the areas of concern for them,
- The type of research to be carried out,
- The personnel to be interviewed, and
- Other factors affecting the audit.

2. Identification:

- Identifying, describing and defining the existing IP,
- Potentially patentable inventions,
- Potential or actual trade marks, copyright works and the like.
- Identifying staff know-how or trade secrets.

3. Scheduling:

- For most companies, no audit has ever been conducted, now is the time to start.
- For those with some history of IP audits, new updates are necessary whenever any of the following events occur.
- Mergers, acquisitions, and sales of significant corporate assets should trigger new audits.
- Planning tool in advance of any filings for bankruptcy, significant plans for employee layoffs, business closure, or abolition of significant lines of business.

4. Ownership:

Consideration of issues surrounding the ownership of the identified IP is the next step. It is essential to establish who or what entity owns the IP.

5. Legal Protection:

The next step involves developing and recording strategies on how to best protect any unregistered IP and what sort of IP applications should be pursued to maintain a competitive advantage for the business. Such an analysis will usually extend to provide guidance on protecting in-house know how and to protect trade secrets.

6. Liability Assessment:

This part of the audit will usually involve consideration of any liabilities or risks associated with the IP identified, including the likes of:

1. Are there ownership risks and liabilities?
2. What are the documentation/ record keeping standards like?

3. What risks are involved with trade secrets/know how?
4. Key personnel liabilities?
5. Potential or existing litigation/opposition issues.
6. Are there any obligations or encumbrances on the IP?

7. Valuation of IP:

The valuation step may also allow for some rationalization of the portfolio, especially if there are several pieces of IP being maintained that are not aligned with the current and/or future commercial direction of the business.

8. Recording:

After the IP audit has been conducted the findings of the audit should be recorded and perhaps even provided in an electronic format.

9. Others:

- List unregistered IP and give it a dollar value
- List other valuable assets such as client lists and corporate knowledge
- Check who has written and designed your marketing material (e.g. brochures, leaflets). Were they done in-house or were external contractors used? If an external contractor was used, did contracts specify who owned the IP that was created?
- Identify key staff involved in developing, maintaining and protecting your IP and investigate the feasibility of them signing agreements relating to confidentiality and competition
- Educate staff on the nature of IP, how to protect it and their responsibilities
Who can help?

10. SETTING UP SYSTEMS

- If systems are already in place, changes may be recommended depending on the findings of the audit.
 - The use of a 'watching service' to ensure a business is up to date with their competitors' IP protection strategies.
- If no system present develop a new system.

- R& D based business may wish to concentrate on establishing a system to identify and protect assets by obtaining IP registrations for the relevant technologies and documenting or recording non-registrable assets.
- A business may also wish to increase its competitors' time to market in order to obtain an edge in the market place usually achieved by monitoring the marketplace for infringement and by reviewing and selectively objecting to the IP registrations of competitors.
- A start-up company will usually want to gain the appropriate IP protection for its core technologies and/or other IP assets by Setting up systems for identifying IP at an early stage in the life of a company can also increase ingenuity based growth.
- A business acquiring or investing in another business will want to focus on valuing the assets of that business, including assessing the extent of IP rights. This is also an important consideration for organisations that are considering selling key IP assets.

An IP audit can have a big impact on the future potential of a business. As Intellectual Property assets become more important to organisations, those with a full appreciation of the value of these assets and strategies in place to deal with their protection will be in an excellent position to get the most out of their innovations.

CHAPTER 8

8. BRANDS - VALUATIONS IN EMERGING MARKETS

It has long been recognized that name and reputation are highly important. William Shakespeare wrote about this:

Good name in man and woman, dear my lord,

Is the immediate jewel of their souls:

The word Brand is derived from the word “burn” and it was by this method that in early period, man marked his livestock, from branding the livestock he moved on to branding his goods and his work. Brand Equity in short can be defined as the added value provided to a product or a company by its brand name. Most of the famous brands are even 100 years old. Corporate branding is different from Product branding at corporate, and they can be described as Brand House and House of Brand. A Corporate brand can be used in conjunction with product brand. The brand is a special intangible because of the economic impact that brands have. “If this business were split up, I would give you the land and bricks and mortar, and I would take the brands and trade marks, and I would fare better than you.” — John Stuart, Chairman of Quaker (ca. 1900).

After 1980 there was a paradigm shift in the creation of shareholder value. For years tangible assets were regarded as the main source of business value. These included manufacturing assets, land and buildings or financial assets such as receivables and investments. They would be valued at cost or outstanding value as shown in the balance sheet. The market was aware of intangibles, but their specific value remained unclear and was not specifically quantified. Even today, the valuation of profitability and performance of businesses focuses on indicators such as return on investment, assets or equity that exclude intangibles from the denominator. Measures of price relatives (for example, price-to-book ratio) also exclude the value of intangible assets, as these are absent from accounting book values.

Today the majority of business value is derived from intangibles like Brands. Management attention to these assets has certainly increased substantially.

- The brand is a special intangible that in many businesses because of the economic impact that brands have. Brands influence the choices of customers, employees, investors and government authorities. Such influence is crucial for commercial success and creation of shareholder value.
- Even non-profit organizations have started embracing the brand as a key asset for obtaining donations, sponsorships and volunteers.
- Some brands have also demonstrated an amazing durability. The world's most valuable brand, Coca-Cola, is more than 120 years old and the majority of the world's most valuable brands have been around for more than 60 years. This compares with an estimated average life span for a corporation of 25 years or so. Some suggests increase in life expectancy of corporate by developing a strong brand.
- The McDonald's brand accounts for more than 70 percent of shareholder value. The Coca-Cola brand alone accounts for 60 percent of the stock market value of the Coca-Cola Company.
- Studies by academics from Harvard and the University of South Carolina and by Interbrand of the companies featured in the "Best Global Brands" league table indicate that companies with strong brands outperform the market in respect of several indices.
- It has also been shown that a portfolio weighted by the brand values of the Best Global Brands perform significantly better than Morgan Stanley's global MSCI index and the American-focused S&P 500 index.
- Brand value depends upon Country of Origin (COO), higher value for developed countries brands.
- Today leading companies focus their management efforts on intangible assets. For example, the Ford Motor Company has reduced its physical asset base in favor of investing in intangible assets.

Fiona Gilmore In **Book Brand Warriors** stated “The companies which are rated by marketers as rising stars for future are those which clearly positioned, confident corporate brand. These companies deliver through their core competencies and more

importantly have inherent core value and emotional brand propositioned for consumer.”

It is easy to see that Brand commands price premium and creates a volume demand, which provides scale economics in procurement, manufacturing distribution and R&D. Once this achieved, it creates real entry barriers. Price premium is short-term performance targets but brand positioning and creating future brand economic value is long term perspective. Brand should be valued in term of prospective demand growth & positions. Like if per capita income of a country increases subsequent increase in demand of your brand and ability to fulfill the demand and brand position at that stage will create a value.

Brand is the most precious asset as regards to longevity and creates major barriers for the competitor. Philips Morris, Unilever, Procter & Gamble, Coca-Cola are among many others core brand groups. Some Major Corporate houses with strong brands such as Coca-Cola account between 90-96% of the total corporate assets' value from brands. Brands are the ultimate accountable institution. If people fall out of the corporate or product brand the corporate or the products go out of business.

The Brand can be one of the three types, they are:

1. Brands, which are, associated with the product and no association with the Corporate name e.g. Lux
2. Brands where the Corporate name is endorsed to a product e.g. Tata Indica.
3. Brands where the company and product name are blended e.g. Coca -Cola

8.1 COMMUNICATION OF BRAND VALUE

Positive communication of brand value to a company's various stakeholders has its advantages too and should be fully integrated into corporate strategy. Informing the trade and business press of the value of the intangible assets and what it means to the company can result in positive coverage – the benefits of which are obvious. Trade and business press communication is equally as important for consumer-facing companies as it is for business-to-business companies. Positive communication of a brand's value, comparable to its competitors, inspires confidence in the brand in the eyes of the consumer, which can directly lead to increased sales.

Internal communication is also an extremely beneficial and economical method of increasing awareness and understanding of a brand and its values. Informing employees of the value attributable to intellectual property alongside its associated strategy and their role in generating value through the brands will ensure that a positive and consistent brand picture is painted as well as enabling a more cohesive application of human resource. This is important for both consumer and business-facing companies as all interaction with customers reflects positively or negatively on the brand and other intellectual property.

Strategy should also include communicating the brand valuation findings directly to a company's customers. This can be done indirectly through PR or directly through other means such as the corporate website.

8.2 BRAND VALUATION

The brand value is the value of the asset at a certain point of time, created for its owners today from its current economic use. Brand value also depends on Country of Origin, higher value drives from developed countries' brands or value for skill set like IT services brands from India deserve more value. As the product progresses, brand shifts to new segment of value like from region to country, country to global etc. This shifting of new segment as market share or group leaders creates more value than other lower segments. This is considered in determination of future profit of brands.

8.3 USES OF BRAND VALUATION:

- Making decisions on business investments. By making the brand asset comparable to other intangible and tangible company assets, resource allocation between the different asset types can follow the same economic criteria and rationale, for example, capital allocation and return requirements.
- Measuring the return on brand investments based on brand value to arrive at an ROI that can be directly compared with other investments. Brand management and marketing service providers can be measured against clearly identified performance targets related to the value of the brand asset.
- Making decisions on brand investments. By prioritizing them by brand, customer segment, geographic market, product or service, distribution channel, and so on, brand investments can be assessed for cost and impact and judged on which will produce the highest returns.

- Making decisions on licensing the brand to subsidiary companies. Under a license the subsidiaries will be accountable for the brand's management and use, and an asset that has to be paid for will be managed more rigorously than one that is free.
- Turning the marketing department from a cost center into a profit center by connecting brand investments and brand returns (royalties from the use of the brand by subsidiaries). The relationship between investments in and returns from the brand becomes transparent and manageable. Remuneration and career development of marketing staff can be linked to and measured by brand value development. The range of applications for brand valuation has widened considerably since its creation in 1988, and it is now used in most strategic marketing and financial decisions.
- Allocating marketing expenditures according to the benefit each business unit derives from the brand asset.
- Organizing and optimizing the use of different brands in the business (for example, corporate, product and subsidiary brands) according to their respective economic value contribution.
- Assessing co-branding initiatives according to their economic benefits and risks to the value of the company's brand. Deciding the appropriate branding after a merger according to a clear economic rationale.
- Managing brand migration more successfully as a result of a better understanding of the value of different brands, and therefore of what can be lost or gained if brand migration occurs.
- Establishing brand value scorecards based on the understanding of the drivers of brand value that provide focused and actionable measures for optimal brand performance.
- Managing a portfolio of brands across a variety of markets. Brand performance and brand investments can be assessed on an equally comparable basis to enhance the overall return from the brand portfolio.
- Communicating where appropriate the economic value creation of the brand to the capital markets in order to support share prices and obtain funding.

8.4 THE FINANCIAL USES OF BRAND VALUATION INCLUDE THE FOLLOWING:

- Assessing fair transfer prices for the use of brands in subsidiary companies. Brand royalties can be repatriated as income to corporate headquarters in a tax-effective way. Brands can be licensed to international subsidiaries and, in the United States, to subsidiaries in different states.
- Determining brand royalty rates for optimal exploitation of the brand asset through licensing the brand to third parties.
- Capitalizing brand assets on the balance sheet according to US GAAP, IAS and many country specific accounting standards. Brand valuation is used for both the initial valuation and the periodical impairment tests for the derived values.
- Determining a price for brand assets in mergers and acquisitions as well as clearly identifying the value that brands add to a transaction.
- Determining the contribution of brands to joint ventures to establish profit sharing, investment requirements and shareholding in the venture.
- Using brands for securitization of debt facilities in which the rights for the economic exploitations of brands are used as collateral. Brand valuation is a powerful process that captures the present and future value of a brand.

8.5 VALUATION METHODS:

The choice of approach will be determined primarily by the Brands asset is to be valued, the circumstances of the specific transaction, the availability of information and the level of due diligence that the corporate is willing to take on. When multiple approaches are applied a comparison and reconciliation of resulting value is possible. There are four principle approaches, which are often used for valuation of Brand are:

- a) **Cost approach:** cost-based approach is the obvious one from the financial and accounting perspectives, given that it complies with standard accounting practices for valuing assets. This approach is conservative; it assumes that the asset in question depreciated with the time of use even at moment of its acquisition. While it is a useful element in performing a comprehensive Brand Valuation, its primary use is with traditional, tangible or physical assets.

A cost-based approach is not well suited to set values on brands – which typically do not decline in value from the moment of inception. Rather, when well managed, actually increase in value with their very use. The individual costs, which can be documented as the expenses incurred in creating the Brand from its earliest inception to its state at the time of valuation.

This method overlooks new Acquisitions value, which may have been contributed to the Brand since its inception through Brand-building activities. It also fails to provide any allowance for future replacement costs.

b) Market approach: This approach argues from what the Brand could be sold for in a market. This approach often assumes future benefits and values, which are yet to be captured by the Brand. Brand Valuation against market value is most easily addressed in public companies through the analysis of market capitalization. The Brand Value is equal to all or some of whatever market capitalization remains after subtracting the book value assets from total market capitalization.

Cases where Brands have been carefully developed, the Brand may account for all of the remaining market capitalization. As well, a market-valued Brand may be benchmarked against another Brand in the same market for which a Brand Valuation has previously been set – possibly in an acquisition where the Brand Value has been recorded on the Balance Sheet as “Goodwill.”

c) Income approach: This approach identifies “Brand after-tax operating income” to set a value, stating that Brand Value is the ability to produce after-tax income.

Various specific methods exist for setting an income-driven valuation, including:

- 1) Price premium over an unbranded or minimally branded entity in the marketplace.
- 2) An estimate of an annual royalty rate under a Brand Licensing Agreement.
- 3) Formal comparison of “Brand after-tax net income” between the target Brand and an unbranded or low-branded marketplace enterprise in the same category.

D) ON BRAND STRENGTH ASSESSMENT

- ROYALTY RELIEF METHOD
- BRAND CONTRIBUTION METHOD
- BRAND EARNING MULTIPLE MODEL
- FUTURE DISCOUNTED CASH FLOW MODEL

Leading brand owners across the world have used the **Brand Finance methodology**. The valuation framework in this method focuses on the return earned as a result of owning the brand – the brand's contribution to the business, both now and in the future. This framework is based on a discounted cash flow (DCF) analysis of forecasted financial performance and segmented into relevant components of value. A brand valuation study typically consists of four work streams: (1) Financial forecasts- forecasts revenues and costs, (2) Brand Value Added (BVA®) - analysis of the brand's contribution to demand – demand drivers, (3) BrandBeta® analysis - determination of the risk attached to future earnings – Discount, and (4) Valuation and Sensitivity analysis.

*ROYALTY RELIEF METHOD:

Used for valuating Indian Brands by Mr. Haigh of Brand finance

This intuitively simple approach assumes a company does not own its own brand and calculates how much it would need to pay to license the brand from a third party. The present value of that stream of (hypothetical) royalty payments represents the brand value. Benefits of this method are:

1. Tax authorities and courts favour this methodology because it calculates brand values by reference to documented, third party transactions;
2. It can be performed on the basis of publicly available financial information. This method also ensures these results are directly comparable year on year.
3. The brands were looked at without further segmentation: TCS, for instance, was assessed as a whole, whereas valuing it formally would have entailed aggregating it from a series of perhaps 30 segments separated by verticals and by geography.

Process of Royalty Relief Method:

- Obtain brand-specific financial and revenue data
 - Establish royalty rate for each brand
 - Calculate brand strength score and
 - Determine royalty rate range
 - Calculate future royalty income stream
 - Discount future royalty stream to a net present value, which is the value of the brand.

8.6 * BRAND CONTRIBUTION METHOD:

Developed by Arthur Anderson: This approach separates Brand contribution from profit by Identifying normal or utility cost charged for unbranded products and Deducting return on Capital on other products, Using premium profit - comparing other unbranded products cost and return and Premium price over unbranded prices of generic products.

Example

- Turnover Generated by product / service x
 - Less Utility cost of manufacturing (cost of subcontracting or full cost of average industry with average profit) y
 - Contribution x-y
 - Marketing Cost to maintain brand
 - Other Cost fair allocation
 - Brand contribution before tax
 - Tax
 - Brand contribution after tax

8.7 * BRAND EARNING MULTIPLE MODEL:

Adopted by Infosys for value reporting its Brand Equity: This method is based on Valuation of trademarks and Brand Names by Michael Birkin in the Book Brand Valuation.

Process of Valuation under this Method:

1. Determining Value

- Determine Brand Profits by eliminating the non-brand profits from the total profits of the company.
- Restate the historical profits at present day values by factoring inflation compound factor.
- Take weighted Average of Three Years (Five Years) profit assigning lightest to current year.
- Provide for the remuneration of capital to be used for purpose other than promotion of the brand
- Adjust for taxes

2. Determining Brand Strength Multiple: This is factor depends on

- Leadership
- Stability
- Market
- Internationality
- Trend
- Support
- Protection

An assessment to be done internally or through professional to get Score of Multiples, Usually for firm (brand) valuation between 8-10-12.

Extract of Brand Valuation of Infosys in Annual Report 2006:

Brand valuation

| | in Rs. crore | 2006 | 2005 | 2004 |
|--|--------------|--------|--------|--------|
| Profit before interest and tax | | 2,654 | 2,048 | 1,357 |
| Less: Non brand income | | 124 | 112 | 111 |
| Adjusted profit before tax | | 2,530 | 1,936 | 1,246 |
| Inflation compound factor | | 1.000 | 1.053 | 1.108 |
| Present value of brand profits | | 2,530 | 2,039 | 1,381 |
| Weightage factor | | 3 | 2 | 1 |
| Three-year weighted average profits | | 2,175 | | |
| Remuneration of capital (5% of average capital employed) | | 309 | | |
| Brand-related profits | | 1,866 | | |
| Tax | | 628 | | |
| Brand earnings | | 1,238 | | |
| Multiple applied | | 18.51 | | |
| Brand value | | 22,915 | | |
| | in Rs. crore | 2006 | 2005 | 2004 |
| Brand value | | 22,915 | 14,153 | 8,185 |
| Market capitalization | | 82,154 | 61,073 | 32,909 |
| Brand value as a percentage of market capitalization | | 27.9% | 23.2% | 24.9% |

Assumptions

- a. Total revenue excluding other income after adjusting for cost of earning such income is brand revenue, since this is an exercise to determine our brand value as a company and not for any of our products or services.
- b. Inflation is assumed at 5% per annum.
- c. 5% of the average capital employed is used for purposes other than promotion of the brand.
- d. Tax rate is at 33.66% (Base rate of 30.0%, surcharge of 10% on base rate and cess of 2.0%).
- e. The earnings multiple is based on our ranking against the industry average based on certain parameters (exercise undertaken internally and based on available information).
- f. The figures above are based on consolidated Indian GAAP financial statements.

Analysis of Infosys Brand Valuation:

1. *Infosys used Brand valuation using historical profits while for valuation of human capital they used future discount model of Lev & Schwartz.*
2. *The Earning Multiple Model directly capitalizing the brand value assuming perpetual theory of brand which is not universal for all firms. The business period depends on the establishment of brand. David Haigh, Chief Executive, Brand Finance Plc stated, “Well-managed brands can be timeless but it depends on which category you are in. In the FMCG category, it is possible for brands to get badly managed but in traditional areas where things move slowly, brands may have an infinite life. It is all about being badly managed and beaten up by*

bigger brands that will ensure that certain brands are not in the business for long. “

3. Brand valuation is of corporate value including all Patents and rights, the Acquired patents and rights are included in this valuation. That effect was very low in earlier years but that has to be excluded for practical approach. Also when the said rights been charged for impairment or otherwise the tax effect of the same have been capitalized, that should also be excluded.
4. The Developed countries the multiple ranges are between 6 to 12 but Infosys is using very high multiples. Whether there is a need for independent professional to assess the multiple on global parameters.
5. While calculating valuation of Human Capital Infosys used a Cost of Capital of 13.63 % with a beta of .98. But in Brand valuation the Capital used and excluded as Remuneration of Capital @ 5% only. This should be same as Cost of Capital.

Though Infosys Uses Brand Valuation in right context and directions, still lot of standardization is needed for Multiples and Cost of Capital. Infosys is torchbearer for Indian companies, which are late starter but eventually become world leader.

8.8 DISCOUNTED FUTURE CASH FLOW MODEL

This Model described in Separate chapter, where Valuation of Business being discussed using Discounting of Future Cash flow. This approach has more relevance.

However, there is a need to uniform valuation process in reporting.

8.9 STATISTICAL MODELING FOR BRAND VALUATION

Through different stages and depths of statistical modeling, these measures are arranged either in hierachic order, to provide hurdles that lead from awareness to preference and purchase, or relative to their impact on overall consumer perception, to provide an overall brand equity score or measure. A change in one or a combination of indicators is expected to influence consumers' purchasing behavior, which in turn will affect the financial value of the brand in question. However, these approaches do not differentiate between the effects of other influential factors such as R&D and design and the brand. They therefore do not provide a clear link

between the specific marketing indicators and the financial performance of the brand.

A brand can perform strongly according to these indicators but still fail to create financial and shareholder value. Given the direct link between brand value and both sales and share price, the potential costs of behaving unethically far outweigh any benefits, and outweigh the monitoring costs associated with an ethical business. The understanding, interpretation and measurement of brand equity indicators are crucial for assessing the financial value of brands. After all, they are key measures of consumers' purchasing behavior upon which the success of the brand depends. However, unless they are integrated into an economic model, they are insufficient for assessing the economic value of brands.

Premium Price Concept of Brand Valuation: In this concept price over generic product is valued as premium price. This is true for many durable and non-durable consumer goods categories. This method is flawed because there are rarely generic equivalents to which the premium price of a branded product can be compared. Today, almost everything is branded, and in some cases store brands can be as strong as producer brands charging the same or similar prices. The price difference between a brand and competing products can be an indicator of its strength, but it does not represent the only and most important value contribution a brand makes to the underlying business.

Economic use Approach of Brand Valuation: Approaches that are driven exclusively by brand valuation measures or financial measures lack either the financial or the marketing component to provide a complete and robust assessment of the economic value of brands. The economic use approach, which was developed in 1988, combines brand equity and financial measures, and has become the most widely recognized and accepted methodology for brand valuation. It has been used in more than 3,500 brand valuations worldwide.

The economic use approach is based on fundamental marketing and financial principles:

- The marketing principle relates to the commercial function that brands perform within businesses. First, brands help to generate customer demand. Customers can be individual consumers as well as corporate consumers depending on the understanding; interpretation and measurement of brand

equity indicators are crucial for assessing the financial value of brands. The nature of the business and the purchase situation. Customer demand translates into revenues through purchase volume, price and frequency. Second, brands secure customer demand for the long term through repurchase and loyalty.

- The financial principle relates to the net present value of future expected earnings, concept widely used in business. The brand's future earnings are identified and then discounted to a net present value using a discount rate that reflects the risk of those earnings being realized. To capture the complex value creation of a brand, take the following five steps:
 1. **Market segmentation.** Brands influence customer choice, but the influence varies depending on the market in which the brand operates. Split the brand's markets into non-overlapping and homogeneous groups of consumers according to applicable criteria such as product or service, distribution channels, consumption patterns, purchase sophistication, geography, existing and new customers, and so on. The brand is valued in each segment and the sum of the segment valuations constitutes the total value of the brand.
 2. **Financial analysis.** Identify and forecast revenues and earnings from intangibles generated by the brand for each of the distinct segments determined in Step 1. Intangible earnings are defined as brand revenue less operating costs, applicable taxes and a charge for the capital employed. The concept is similar to the notion of economic profit.
 3. **Demand analysis.** Assess the role that the brand plays in driving demand for products and services in the markets in which it operates, and determine what proportion of intangible earnings is attributable to the brand measured by an indicator referred to as the "role of branding index." This is done by first identifying the various drivers of demand for the branded business, and then determining the degree to which each driver is directly influenced by the brand. The role of branding index represents the percentage of intangible earnings that are generated by the brand. Brand earnings are calculated by multiplying the role of branding index by intangible earnings.
 4. **Competitive benchmarking.** Determine the competitive strengths and weaknesses of the brand to derive the specific brand discount rate that

reflects the risk profile of its expected future earnings (this is measured by an indicator referred to as the “brand strength score”). This comprises extensive competitive benchmarking and a structured evaluation of the brand’s market, stability, leadership position, growth trend, support, geographic footprint and legal protectability.

5. **Brand value calculation.** Brand value is the net present value (NPV) of the forecast brand earnings, discounted by the brand discount rate. The NPV calculation comprises both the forecast period and the period beyond, reflecting the ability of brands to continue generating future earnings.

This calculation is useful for brand value modeling in a wide range of situations, such as:

- Predicting the effect of marketing and investment strategies;
- Determining and assessing communication budgets;
- Calculating the return on brand investment;
- Assessing opportunities in new or underexploited markets; and
- Tracking brand value management.

8.10 METRICS SCORECARDS FOR BRAND VALUATION:

Advertising agencies need to consider a number of factors to calculate brand value. These are represented on a Brand Metrics Scorecards (see ‘Brand Scorecard’) and fall less than two umbrella terms, Consumer Metrics and Market Metrics, which then feed into the Value Metrics scorecard. Any number of factors can be added under these headings and weighted according to their importance or relevancy. Consumer Metrics, for example, can include customer satisfaction, brand preference, quality perceptions, value for money and good service. Market Metrics can include share of market, share of voice and growth statistics. The financial analysis in the Value Metrics scorecard includes a profitability analysis, sales and margin analysis which is linked to the consumer and market metrics to calculate the total brand value.

8.11 CASE STUDY: READING THE TEA LEAVES

The UK tea market has been in a gradual decline over the past five years, falling 12% between 1999 and 2004 from £707m to £623m respectively, according to Mintel

research. The tea market has traditionally been dominated by standard tea bags but sales of these, the traditional staple of the British diet, have been falling faster still, at 16%. If advertising investment remained a constant £2m each year the brand value would continue to decline from £17m in 2004 to £9m in 2010. However, with an investment of £4m a year this asset reverses its decline and increases in value to £23m. This increase is largely due to the tea brand increasing its market share and as a result the brand growing stronger.

8.12 BUILDING A BRAND VALUE TRACKER -PORTFOLIO VALUE ANALYSIS OF BRANDS

As traditional purely research-based measurements proved insufficient for understanding and managing the economic value of brands, companies have adopted brand valuation as a brand management tool. Brand valuation helps them establish value based systems for **brand-related investment decisions, refocus their businesses on their brands and to create an economic rationale for branding decisions and investments**. Many companies have made brand **value creation part of the remuneration criteria for senior marketing executives**.

Japan Tobacco International (JTI), following a **portfolio value analysis** the brands were categorised into three main groups according to the value they generated and the markets they operated in. Incremental opportunities across markets and portfolios were then easier to identify and develop.

Managing the culling of IP is one option, activation is another. A leading UK refrigeration brand had steadily been losing market share. The brand owners, therefore, decided to activate the brand. It did this not by investment but by **offering the brand on license to manufacturers of small domestic appliances**. Brand awareness would thereby increase, a new revenue stream would be created and the core refrigeration brand rejuvenated – all at no extra direct cost. A portfolio value analysis often reveals unexploited intellectual assets, which just need a bit of attention for them to spring back to life. It also reveals equity still present in a dormant or dying brand.

When evaluating brand value in a portfolio is neither to neither select nor activate an asset but to contain it, preventing competitors from benefiting. Allied Domecq did in a review of its coffee liquor IP Tia Maria and Kahlua. As these were the only major coffee liquor IP in the market, Allied Domecq decided to retain both brands and

focus investment on one brand. After a thorough strategic global value analysis, it selected Kahlua. What then to do with Tia Maria? Rather than sell it to a competitor, the decision was taken to maintain the brand, as it would be **more advantageous to manage the category**, remove potential competitive threats and retain strategic opportunities for the future. The Growth/opportunity portfolio analysis features a hypothetical model of a company with a portfolio of brands in the soft drinks market. This analysis highlights marketing investment in relation to market growth rates and value.

8.13 BRAND VALUATION & ETHICAL PRACTICES

There is direct link between brand value and both sales and share price, The potential costs of behaving unethically far outweigh any benefits, and Outweigh the monitoring costs associated with an ethical business. A number of high-profile brands have been accused of unethical practices. Some of the brands have been pioneering the use of voluntary codes of conduct and internal monitoring systems.

Nike, a company once criticized for the employment practices of some of its suppliers in developing countries, now posts results of external audits and interviews with factory workers at www.nikebiz.com. The concern of multinational companies is understandable, considering that a 5 percent drop in sales could result in a loss of brand value exceeding \$1 billion. It is clearly in their economic interests to behave ethically.

8.14 CONCLUSIONS OF STUDY DONE ON BRAND EFFECTS BY T. GÜNTHER & C. KRIEGBAUM-KLING IN BRAND VALUATION AND CONTROL: AN EMPIRICAL STUDY

The study derives the following implications for the accounting, control and valuation of brands in German companies:

- Brands are usually thought of as 'labeled products'. This finding emphasizes the close connection between the intangible asset 'brand' and the underlying tangible product. In many cases, companies regard brands and underlying products as one and the same.
- In practice, companies do not perceive brands as independent, intangible assets. A possible reason for this might be that only about a quarter of all

companies has ever purchased or sold a brand name without its underlying product.

- Despite most companies accept and appreciate the fact that brands as long-term investments, companies perform the actual valuation and control on a short-term profit- or cost-oriented perspective. Furthermore, only one-third of all investigated companies believe that they should do a monetary valuation, similar to the valuation of tangible assets. Thus they see a gap between perception and appreciation on one hand and the actual implementation on the other hand (implementation gap).
- Although they accept the valuation of brands as a suitable assessment of performance and an incentive for long-term-oriented behavior to increase a brand's value, more than 60% of all companies do not evaluate their brands.
- The lack of suitable methods to assess a brand's value is regarded to be a main reason for the neglect of brand valuation.
- If companies evaluate brands monetarily, the assessment is primarily based on the brand-related profit or revenue. Long-term future-oriented evaluation methods play no significant role in practice.
- Commercially available brand valuation models (such as the so-called Brand Performancer, Interbrand or GfK) are used infrequently.
- Companies perform evaluations primarily for internal control purposes and budgeting decisions. However, because of the irregular evaluation periods of at least 60% of all companies, these aims are unlikely to be reached.
- In strategic brand control, qualitative instruments dominate the forecast and the analysis.
- The sample companies note many factors that should influence a brand's value. Hence, we expect a complex network of causes and effects. However, our study shows that quantitative factors (such as market shares, revenues and contribution margins) that can be evaluated more easily, are applied more often in brand valuation than are the qualitative factors (such as product quality, customer satisfaction or the popularity of a brand) that are more difficult to derive.
- A brand's strength and value do not play a significant role as performance measures for incentive schemes. However, short-term measures (such as

brand related profit, brand-related revenues, product-related profit or market share) have great importance.

- The study shows differences between companies of the consumer goods and the durable goods industries. Consumer goods companies tend to put more effort into their brands. We find such companies are more likely to have departments with special responsibilities for a brand that they perform brand valuations more regularly, and that they construct brand-related budgets more frequently. They find a gap between the perception of a brand as an intangible asset that represents a long-term investment and the actual management of brands in practice.

Brand management predominantly focuses on short-term, tactical, single-period targets. This fact becomes obvious when they look at the present definition of 'brand', the state-of-the-art brand valuation, and the organization of brand management and control. They do not find any currently available method for brand valuation that can be used for control purposes.

Despite the fact that brand management has been focused in marketing management and marketing research for decades our results are disappointing. If they assume that the management of other intangibles such as knowledge or organizational capital is years behind the development of brand management, they might find an inconsistency when analyzing the management, control, and valuation of other intangibles. There remains much to be done in future research and in the future implementation in the companies.

8.15 BRANDS & ITS VALUATION IN EMERGING MARKET:

The ubiquity of global mega-brands has made branding the focus of discontent for many people around the world. They see a direct link between brands and such issues as the **exploitation of workers in developing countries** and the homogenization of cultures. Furthermore, brands are accused of stifling competition and tarnishing the virtues of the capitalist system by encouraging monopoly and limiting consumer choice. The opposing argument is that brands create substantial social as well as economic value as a result of increased competition, improved product performance and the pressure on brand owners to behave in socially responsible ways.

Competition on the basis of performance as well as price, which is the nature of brand competition, fosters **product development and improvement**. And there is evidence that companies that promote their brands more heavily than others in their categories do also tend to be the more innovative in their categories.

The need to keep brands relevant promotes increased investments in R&D, which in turn **leads to a continuous process of product improvement** and development. Brand owners are accountable for both the **quality and the performance**. The debate about bringing financial reporting more in line with the **reality of long-term corporate value** is likely to continue, but if there is greater consistency in brand valuation approaches and greater reporting of brand values, corporate asset values will become much more transparent.

Intellectual Properties play increasingly a lead role in promotion of innovation and economic growth in a knowledge-based economy. William Davidow – a venture Capitalist saying, “Who in 21st Century will not be a Knowledge based company?” Effective management and utilization of intellectual assets are essential to business performance and competitiveness, foreign Direct Investments decisions, Business combination decisions etc. Therefore there is a need to improve knowledge and information about the valuation and utilisation of Intellectual Property (IP).

The emerging market ever changing its shape. The market of developing countries tends to follow a certain pattern. At the outset there is always a thin layer of people who want and can afford luxury goods and buy higher priced things. Below that lies a very wide and unsophisticated mass market. But as income per head starts moving over certain amount the middle class begins to grow and have aspirations that are reflected in purchasing brands, which offer quality and right image.

In present scenario impact of WTO treaty and Globalization in general need critical evaluation to understand its implication on the brand. The external variable i.e. Globalization & WTO impact has given a new dimension to the valuation process and its importance needs to be urgently understood and addressed for formulation of business strategy .The impact of all these variables would vary from sector to sector and on type of brand and hence would need different weightage for evaluating.

Brand in emerging (Knowledge) Markets: IP-Valuation as a Tool to Sustain Innovation AUTHOR (S) Eric J. Iversen & Aris Kaloudis CLIENT (S) STEP - Centre

for Innovation Research stated, “Value-creation in the economy is connected to knowledge creation, dissemination, and utilization in its constituent enterprises and institutes. Methods to improve the way intangibles are recognized and valued via accountancy methods can improve the way the market for knowledge functions and, moreover, the way that emerging market interacts with established financial markets.”

Mckinsey on Brand valuation in emerging market: Emerging markets have a reputation for volatility that leads many companies to overestimate the risk, causing them to reject good investment opportunities and to underestimate the performance of existing businesses. While individual markets can be highly volatile, research shows that a diversified portfolio of investments in them can have risk levels comparable to—or even below—those of more developed markets. By taking a portfolio approach to investments in emerging markets, companies can diversify away the risk.

Case Tata (India): Source – Website: At Rs 24,396 cr, Tata is the biggest Indian brand.

In the midst of an investment drive, Tatasons today claimed that the brand value of group companies and products has shot up to Rs 24,396 crore and said over Rs 1,80,000 crore investment was being envisaged in the next 8-10 years. Pathfinders defines a brand leader as one who is high on affinity as well as relevance. The challenge for a brand aspiring to be a leader, then, is to be strong on these two factors, to be ahead of the competition and its peers, and to get stronger over time. This is what the Tata brand has succeeded in doing.

The emerging competition and the quest for cost leadership is forcing Tata Steel to take a close look at applied research. In all probability, the company's next growth wave will be driven more by its intellectual property than by its physical assets.

To make it functional operationally, Tata Steel has created a position called manager-patents, which has to coordinate all IP-related activities relating to identification, collection and processing of patent applications. A periodic newsletter called IP News is circulated among employees to increase IP awareness. The change in the mindset has been remarkable. Everyone in Tata Steel now sees IP as a big business opportunity.

Although the IP framework is ready, it has a long way to go as far as IP valuation, negotiation for third-party application and commercialisation are concerned. Mr. Muthuraman says, "We are at a learning stage in the area of patenting and commercialising. Our experience in this area is sketchy."

Case study: Case study of Crocin-was it a best buy?

Dr R K Srivastava, Jyoti Joshi, Aliasgar Hararwala, Mustafa Faizy & Rakesh Chandiwala

Glaxo SmithKline Beecham bought Crocin from Duphar Interfran Limited in 1996 and its brand value was estimated at Rs. 42.5 Crore. As per the RKS model the value of a brand depends upon the eight factors. Weights are assigned to the different factors as per their importance. The brand is then rated on each factor on a scale of 1 to 5. The rating for each factor is then multiplied by the respective weights to obtain the weighted score.

As calculated earlier the SAGR for Crocin through the years 1995 to 2003 comes out to 13.38%. Using this SAGR they compute the Sales of Crocin through the years 1996 to 2003. They assume the cash flow to be 10% of the sales each year. As there is a growth in sales each year, the cash flow through the years would increase and not remain constant. In such situations the payback period is calculated by cumulating cash flows till the time the cumulative cash flows become equal to the original investment outlay, which in this case would be the amount, paid for the brand value of Crocin i.e. Rs. 42.5 Crore.

If the RKS model was used for determining the brand value for Crocin, the amount to be paid would be much lower and would have been recovered in the year 2001 i.e. the payback period would be just about 3 years. Thus, they can see that the brand valuation of Crocin was much higher than it actually was. Thus, Crocin, it appears is not be best deal. Even after going OTC route fro the brand it has not overtaken Calpol. -Yet another brand of GSK.

GLENMARK PHARMA CASE

GPL acquired three brands namely Alex (cough syrup), Sensur (muscle relaxant) and Fluocort (dermatological) from Lyka Labs for Rs. 35.0 Cr. in FY01. Alex and Flucort have been valued at Rs. 48.0 Cr. by Ernst & Young while Sensur has been valued at

Rs. 20.0 Cr. by another firm. Alex has helped the company to consolidate its position in the cough syrup segment where it has its well-known brand Ascoril. Flucort is the addition to the Candid range in the dermatological segment. Flucort being a steroid based product it provides additional opportunity for the company, since the dermatology segment is dominated by steroid based products. These three brands have achieved sales of around Rs. 13.50 Cr. in FY01. The payback period for these brands has been estimated as three years. We expect improved performance for the year FY02 due to the thrust on marketing on these brands.

8.16 CONCLUSION

As global competition becomes tougher and many competitive advantages, such as technology, become more short-lived, the brand's contribution to shareholder value will increase. The brand is one of the few assets that can provide long-term competitive advantage.

Despite the commercial importance of brands, the **management of them still lags behind that of their tangible counterparts. Even though measurement has become** the mantra of modern management, it is astonishing how few agreed systems and processes exist to manage the brand asset. When it comes to managing and **measuring factory output the choice of measures is staggering**, as are the investments in sophisticated computer systems that measure and analyze every detail of the manufacturing process. The same is true for financial controlling. But, strangely, this cannot be said for the management of the brand asset. Although many brand measures are available, few can link the brand to long-term financial value creation. Nor has investment in brand management reached a level of sophistication comparable with other controlling measures.

There is a similar lack of detail about the contribution of brands in the financial reporting of company results. Investments in and returns from tangible assets are reported at sophisticated and detailed levels, but this is not true for intangible assets. For example, Coca-Cola's balance sheet, income statement and cash flow calculation tell us about working capital, net fixed assets and financial investments, but little about the performance of the most important company asset, the Coca-Cola brand. The same is true for most other brand owning companies. Current accounting regulations are deficient in their treatment of intangible assets.

The increasing value placed on intangibles through mergers and acquisitions over the past two decades has forced accounting standards to acknowledge and deal with intangible assets on the balance sheet. However, the standards deal only with the bare minimum accounting for acquired intangibles, formerly known as goodwill. As a bizarre consequence, the value of acquired brands is included in companies' balance sheets but the value of internally generated brands remains unaccounted for. Overall, there is an increasing need for brand valuation from both a management and transactional point of view. With the development of the economic use approach, there is at last a standard that can be used for brand valuation. This may well become the most important brand management tool in the future.

Notes and references

1. "The Best Global Brands", BusinessWeek
2. Interbrand, Brand Valuation

CHAPTER 9

9. PATENTS - AND THEIR VALUATION

Patents are gaining ground as a measure of corporate viability and future performance. In 1982, some 62 percent of corporate assets in the United States were physical assets, but by 2000, that figure had shrunk to a mere 30 percent. At the beginning of the 1990s, in Europe intangible assets accounted for more than a third of total assets. As early as 1992, in the Netherlands, for example, intangible assets accounted for more than 35 percent of total public and private investments. A recent study shows that, on average, 40 percent of the value of a company is not shown in any way in its balance sheet. For this reason, IP is sometimes referred to as a "hidden value". Whether hidden or expressly valued, it is now clear that patents, copyrights, trademarks, geographical indications and trade secrets are significant contributors to enterprise value.

A report issued by Pricewaterhouse Coopers in 1999 found that the global Patent licensing market totaled more than US \$100 billion, up from US \$50 billion in 1990. IP assets are used not only in business transactions, but are also traded in their own right. A good illustration of this emerging market is online exchanges for the evaluation, **buying, selling, and licensing of patents and other forms of IP. Patent sellers and buyers can manage their IP as financial assets** just as investors in stocks, options and other financial instruments.

Today, there are over 7 million patents in force worldwide, growing at 12 to 14% per year. Patent licensing revenues are growing at 25 to 35% per year, generating global revenues in excess of \$150 billion. In the U.S., the leading patent generating nation in the world, annual patent issuances have nearly doubled from 96,727 in 1990 to 187,822 in 2001. And, during 2002, 45 to 75% of the market capitalization of the Fortune 500 companies consisted of intangible, intellectual capital assets such as brands, patents, and knowledge.

9.1 WHAT IS PATENTS?

A patent is the legal process whereby technology is turned into controllable property with defined rights associated with its ownership. The right conferred by the patent grant is the right to exclude others from making, using or selling the invention (Parr and Smith, 1994, p 35)

The patent, the protection of a unique, new and useful idea, gives the inventor a temporary shelter from the forces of market competition. The shelter is limited to the precise terms of the claims of his patent, but it is sturdy and durable for many years. The premise of the patent system is that this shelter and resulting competitive advantage encourages inventions because inventors know that their inventive activity will be rewarded.

9.2 PATENT VALUATION:

Intellectual Assets, such as patents, play increasingly a pivotal role in fostering innovation and economic growth in a knowledge-based economy. Effective management and exploitation of intellectual assets are essential to business performance and competitiveness. Therefore we see a need to improve knowledge and information, both quantitative and qualitative, about the valuation and exploitation of Intellectual Property (IP).

Accounting as a discipline has laid down the “hard science” of asset valuation. So, to be broadly accepted and functional in real business, the valuation of any intangible asset must follow this basic accounting model. It should follow, as closely as possible, the traditional assessments of cost, market, and income while also advancing a category-specific asset calculus.

Patent valuation has seemed different to the traditional asset valuation provided by the cost, market, and income approaches. Why is this? These fundamentals, when applied to the valuation of brands have proven to be entirely satisfactory when supplemented with an integrative calculus that allows a qualitative assessment of a brand per se. Why hasn't patent valuation reached such a broadly accepted practical usefulness? With patents increasingly sharing the spotlight with brands in the world of intellectual capital assets and market capitalization analyses, it has become essential that patents join brands in lining up against traditional approaches to setting asset values. Despite the many factors impacting the value of a patent, the methods successfully pioneered by brand valuation provide the model for patent valuation methodology and the key to intangible asset valuation. A composite valuation, which consists of the three core elements of all asset valuation (cost, market, and income assessments) coupled with a patent strength assessment, provides a reliable method for setting patent valuations. Both in theory and practice, this is no different than tangible asset valuations for complex entities such as real estate.

In 1896, **Sakichi Toyota** obtained a patent for a version of the power loom, which resembled previous machines used in Europe. Thirteen years after his first attempt, Sakichi succeeded in inventing an automatic loom. A number of other patents were obtained to complement and fine-tune the invention and finally, in 1924, the Toyota Type G Automatic Loom reached the market. Kiichiro Toyota, Sakichi's son, reached an important agreement with Platt Brothers & Co. for the commercialization of the automatic loom. Platt Brothers paid Toyota £100,000 (equivalent to US\$25 million today) for the exclusive right to manufacture and sell the automatic loom in any country other than Japan, China and the United States. It provided a huge injection of capital for further investment in R&D. Toyota decided to invest the £100,000 as initial capital to set up an automobile company. (*Source: Tadashi Ishii, "Industrial Innovation in Japan and the Role of the Patent System": Case Study of Toyota (presented at Conference, Washington University, St. Louis Missouri, October 2000)*).

How patents stimulate economic development could be the subject of a multi-volume treatise, however the following sections attempt to distill how this process works and provide some facts and examples. Patents can be used to stimulate economic development in four ways:

- 1) Patent information facilitates technology transfer and foreign direct investment;
- 2) Patents encourage research and development at universities and research centers;
- 3) Patents are catalysts of new technologies and businesses; and
- 4) Businesses accumulate patents and engage in licensing, joint ventures, and other revenue-generating transactions based on such assets.

Dr. K. Anji Reddy's Group has rapidly expanded to become an international pharmaceutical company, providing high-quality and cost-effective pharmaceutical products to markets worldwide. Dr. Reddy's Research Foundation (DRF) was established in 1993 with the purpose of discovering new therapies. DRF attributes much of its success to patent protection. By protecting its innovations through patents, DRF is able to market and license its new drugs worldwide. DRF has filed patent applications in several countries for all its inventions, including 31 product patent applications in the United States, of which 17 have already been granted. In India, 110 products and process patent applications have also been filed. Because patent protection is central to its activities, DRF has established an in-house

Intellectual Property Management group to oversee all international patent filings and matters relating to patent strategy. *Source: Dr. Reddy's Research Foundation*

9.3 THE RELEVANCE OF PATENTS TO DEVELOPING COUNTRIES

IP valuation **in the emerging market** economies lacks

- Consistency in applying valuation standards and valuation experience.
- Sometimes usage of **technology by itself is not the right** way to extract value from an invention.
- Sometimes, linking to an already well-established brand with a good access to market, and the trust and confidence of consumers may bring much more financial profit.
- The real option theory for valuation is very useful if one thinks about it as a dynamic, not a static, process and its effective use depends on the quality of expertise in assessing uncertainty and the quality of assumptions but not the accuracy of mathematical calculations.

It is important to address the occasionally stated notion that patents, as opposed to other forms of IP, are not relevant to countries in development, because of the relatively low state of technological development in those countries. The argument is sometimes made that copyright, trademark and geographical indications may be useful and appropriate in the developing nation context, but not patents, except insofar as developing nations should offer patent protection in order to secure foreign direct investment. On the other hand, some critics of the patent system claim that patents may even be harmful to developing nations because of the power over markets and price that patents confer on their owners.

These ideas - that patents are not relevant to developing nations, or that they are incompatible with the economic objectives of the developing nations - are pernicious myths. The reason why these notions are pernicious is because they give the impression that it is possible to simply opt of the international patent system, and yet still achieve economic development. This is an error as patents are an essential component of economic strategy, regardless of whether the country is developed or in the process of economic development.

Developing countries today, some to a greater extent than others, are adroitly wielding the patent system for optimum leverage on economic development. Indeed, patents are power tools for economic development. The role of governments and policy-makers of developing countries is crucial in determining whether such countries use the power of the patent system for economic development by implementing pro-active patent policies.

9.4 WHY VALUE PATENTS?

For those managing both patent applications and granted patents it is essential to know the value of each sufficiently accurately if one is to make well-founded decisions about their management. Since only a **small proportion of patents turn out to be of extraordinary value in the long run** and given that IP department budgets are limited any methods which lead to a better understanding of the value of given patent applications or patents should be welcomed.

Valuation of a patent or patent application whether explicitly or implicitly involves making judgements about the future in much the same way that stock market prices have embedded in them judgements of investors about the future performance of a company. In that respect some degree of “speculation” is unavoidable. Valuation is also important to assess the companies overall capital allocation and overall financial planning. Valuation is very relevant when a decision for spent on or paid for a given patent or patent application when the returns are compared with those available from other similarly risky uses.

9.5 WHAT CIRCUMSTANCES ARE PATENTS VALUED IN?

Managers are always remembered as the person who did patent a successful invention. The application costs are negligible compared to overall development costs. It is also important for inventors to go further in the direction whether the same is going to be patented or not. If the enterprise deciding to Patent the same the inventor team will certainly give more weight.

Assessing a market valuation of a firm's technological knowledge using **the real option perspective** from the researchers' point of view. They underlined the importance of studying the impact of privatisation and liberalization programmes on innovation, the role of financial markets for evaluating innovation and described some challenges for public institutions, namely universities, in the exploitation of

innovation, in particular in terms of research funding. They further addressed the issue of the effect of market and technological uncertainty on the market value of R&D investments and concluded that uncertainty had a positive impact on the stock market valuation of a firm's technological knowledge. Finally, they outlined the main areas for further action as follows: harmonization of the IPR reporting rules and obligations; public disclosure of innovation-related information by private firms; diffusion of new valuation methods among financial investors; and the adoption of the real option method to account for uncertainty.

9.6 PATENT VALUATION METHODS

Martin Zieger and Guido von Scheffer - Methods for patent valuation stated, "Knowledge has become an independent economic resource. Through patenting, the key requirement for commercialisation is created. A lot of companies are offering their knowledge to third parties. Dow Chemical, for example, earned over US\$ 125 million in 2003 just through licensing its patents. Pfizer's licenses contribute more than 50% to the total turnover of all products. Nevertheless international accounting standards (such as IFRS or US-GAAP) already have an option to or must disclose development costs in the balance sheet the crucial question is the "True And Fair Value" of a company's internally generated IP assets to use as real assets like machinery or real estates.

In practice there is a need for a 'True And Fair View' valuation of patents. In particular the restrictive German accountancy rules but also the more liberal international rules do not cover the requirements for any innovative enterprise. According to the cause of valuation cost-approach, income-approach, market-approach have to be weighed up against each other. A focus should be taken on the new market-approach based on value indicators, which combines the classical market-approach with a quantitative database analysis. Using a multivariate regression-model gives reliable results especially for huge patent-portfolios can be generated. Due to the efficient and objective structure of the method nearly all options of financial usage known from classical assets can be applied to the patents – the new asset-class."

Russell & Parr divide all possible types of valuation of individual patents into Cost, Market and Income based methods, the latter of which includes simple DCF methods (Parr and Smith 1994). Arthur Andersen in a report on valuing intangible assets divides valuation methods into Cost, Market Value and Economic Value

methods (Arthur Andersen & Co. 1992). However for the purpose of this discussion it is perhaps better to classify valuation methods for individual patents by the extra features they account for over and above less sophisticated methods. These can be summarized in increasing order of sophistication as:

- i) **Costs** Cost based methods
- ii) **Market conditions** Market based methods
- iii) **Income** Methods based on projected cashflows
- iv) **Time** DCF Methods allowing for the time value of money
- v) **Uncertainty** DCF Methods allowing for the riskiness of cashflows
- vi) **Flexibility** DCF based Decision Tree Analysis (DTA) methods
- vii) **Changing Risk** Option Pricing Theory (OPT) based methods
 - a) Discrete time Binomial Model (B-M) based methods
 - b) Continuous time Black-Scholes (B-S) option pricing model based methods.

A. Cost Based method

However, valuation methods based on the historic costs of acquisition perhaps less any allowances for depreciation or obsolescence is worth only the very briefest of comment. Their most serious failing is that they make no allowance for the future benefits which might accrue from the patent. They are of no help other than in historical cost based accounting systems or where taxation methods dictate their use and useless for making rational decisions (Arthur Andersen & Co. 1992).

The cost approach: The cost approach is viewed in the literature on IP valuation as one of three possible approaches. It is considered suitable only as a supplement to the income method (if the valuation is not for bookkeeping purposes). This approach, can be applied in a number of variants.

Cost of asset reproduction (reinstatement)

The most consistent application of the cost approach is the direct calculation of the costs of activities whose outcome was a patentable invention, computer program, etc. It should be emphasized that what is involved is not accounting of costs with reflection in the accounts, but simply calculation. As a variant it is possible to

calculate which costs would be required for the conduct of the same activities taking into account the prices and rates of payment on the date of the valuation. Such calculations are often carried out when immovable property is being valued. However, with regard to IA they generally have no meaning. The result of creative activity is too much a result of creativity, and not a cost.

Replacement costs roughly the same can be said of another variant in the application of the cost approach, at the root of which lies the idea of replacement of one asset by another which is of equal value from the viewpoint of the function performed. To a certain extent this substitution is also possible with respect to IA. For example, the replacement of one entertaining film by another which is similar in content normally has no major significance, if the public merely wishes to pass the time happily, the advertiser to place the advertisement and the cinema owner to sell tickets. However, the possibility of making such a substitution is the exception rather than the rule.

The contradiction between valuation and accounting standards **Bookkeeping or financial accounting** is a more conservative institution than that of professional valuation. Consequently contradictions arise between them. Most obvious are the contradictions between the TEGoVA 2000 standard and IAS 1999. In particular this relates to the valuation and taking into account of IA. The list of assets liable to valuation and that of assets taken into account on the balance sheet does not coincide. In addition, **guidance note No. 8 to the TEGoVA 2000 standards** recognizes this fact to be unavoidable. The assets liable to valuation include "personal goodwill" and "trained and assembled workforce", but as separate assets. The standard for accounting of IA assumes that goodwill is one asset, while "trained and assembled workforce" is taken into account in the asset "going concern". This difference is easily explained. **The fact is that financial accounting is not intended for use in decision-making. Management accounting, including accounts on IA, exists for these purposes. Valuation is needed for management purposes rather than for financial reporting. The problem is that valuation is also needed for financial reporting.**

Cost based methods - Accounting for Historical Costs

Knowledge of at least the future costs of creating IPRs is needed as part of almost all valuation methods. However, valuation methods based on the historic costs of acquisition perhaps less any allowances for depreciation or obsolescence are worth only the very briefest of comment. Their most serious failing is that they make no

allowance for the future benefits which might accrue from the patent. They are of no help other than in historical cost based accounting systems or where taxation methods dictate their use and useless for making rational decisions.

B. Market Based Methods

The aim of market-based methods is to value assets by studying the prices of like assets, which have been traded between parties at arm's length in an active sell. Perhaps the clearest case where the method might be said to work and the only case where the cost of an IPR is a possibly useful guide to its value is when the cost concerned is the price paid for the same IPR in a very recent comparable commercial transaction (Arthur Andersen & Co. 1992). This is similar to the "Premium P/E" method, which ascribes the additional price and thus P/E ratio paid for a business with significant IPRs to the value of those IPRs (Arthur Andersen & Co. 1992).

Market based methods - Accounting for Market Conditions

The aim of market-based methods is to value assets by studying the prices of comparable assets, which have been traded between parties at arm's length in an active market. Perhaps the most obvious case where the method might be said to work and the only case where the cost of an IPR is a possibly useful guide to its value is when the cost concerned is the price paid for the same IPR in a very recent comparable commercial transaction (Arthur Andersen & Co. 1992). In other cases, comparability with other patents whose value is known from market transactions is the main problem. There is a risk that the comparisons made may not be justified and be no more than convenient measures of value. An important point made by Parr and Smith (1994) is that the transaction used may relate to an IPR whose use may not represent the best use of the IPR to be valued (it could even be the same IPR that has not been used optimally of course). For an IPR to be exploited to the maximum extent possible requires 100% of the potential protected market for the underlying invention to be accessed. Some sale or licensing agreements may prevent this and values derived from them will be suboptimal. Market based valuation methods may also be based on comparable royalty rates.

Comparison-of-sales method: The comparison-of-sales method in the traditional sense is practically not applicable in the sphere under consideration, except for the valuation of rights to programs for computers being transferred on the basis of shrink-wrap licenses. The comparison-of-sales method may also be used to supplement the income method. However, all transactions in which the need arises

to value IP are rather unique. It usually proves impossible to find suitable similar deals.

Use of industrial indices (standard royalty rates) One of the variants in the application of the market approach may be considered to be the use of standard industrial royalty rates. The literature describes cases where such industrial standards were established spontaneously and functioned for a number of years (Romary J.M. 1994).

Merits and shortcomings of the market approach The market approach has two undoubted merits. Firstly, it is based on the use of market information, and secondly, it is simple to use. However, the second merit can very easily prove to be a shortcoming. The simplicity of use of the market approach is merely apparent. The standard royalty rates for specific types of product, industrial indices and other indicators produce very approximate guidance for the conduct of actual transactions. The entire difficulty lies in taking into account the individual features of a specific transaction, and it is here that the market approach provides no guidance.

C. Income Based Methods - Accounting for Future Value

It may be possible to identify and/or estimate particular cash flows, which are associated with a particular IPR through licensing or through direct exploitation. On the other hand it may be possible to use ideas similar to those used in brand contribution methods to calculate the contribution to a business of a given Patent (Arthur Andersen & Co. 1992)

An additional and very common method based on industry average royalty rates assumes that the income due to a patent is the royalty which would have to be paid by a licensee. Needless to say the same cautions pertain as when setting royalty rates directly based on such average rates as described above.

Direct capitalization: Capitalization is a simpler procedure than discounting. However, its use is recommended when the asset being valued is already in use and when valuing investment projects the zero term of the discounted cash flow is generally negative. In examples of calculation of the value of IP rights given in textbooks, it is usually equal to zero.

Generating a steady income, or there is a need for a rapid fairly crude valuation of an asset which is expected to generate a steady income.

The market approach The market approach to the valuation of assets (including IA) is first and foremost a comparison of- sales method. In addition, under the market approach it is customary to consider other methods based on the use of generalized information on market sales.

Income based methods - Accounting for Future Value

Improvements on cost based methods of valuation include at least some forecast of future income from a patent and thus some appreciation of the value of the patent as opposed to just its estimated market price or its cost. This will inevitably also involve some element of forecasting the future cashflows. However it is only with the addition of trying to account for the elements of time and uncertainty in future cashflows as is the case with conventional discounted cash flow (DCF) methods that one begins to get valuation methods, which have some sound theoretical foundations.

It may be possible to identify and/or forecast particular cashflows, which are associated with a particular IPR through licensing or through direct exploitation. Alternatively it may be possible to use ideas similar to those used in brand contribution methods (Arthur Andersen & Co. 1992) to calculate the contribution to a business of a given patent.

D. DCF Based Methods - Accounting for Time & Uncertainty

Cash flow discounting In order to establish the market value of IP rights,

Method D1 calculation method may be broken down into the following seven stages:

1. A forecast is prepared of the volume of sales from which the payment of royalties is expected. The forecast is prepared in physical and value terms and broken down by year or shorter interval.
2. The royalty rate is determined. If experience in the sale of licenses of a similar type is lacking, the data are taken from the tables of standard royalty rates. The tables are also published.

3. The economic life of the patent or license is determined. It may be significantly shorter than the legal life, if the invention becomes obsolete before the validity of the patent expires.
4. Expected payments in the form of royalties are calculated. As a rule, royalties are deducted from the volume of sales in value terms for the periods into which the entire economic life of the patent or license is broken down. But royalties calculated on the basis of the number of units of manufactured production are also used.
5. From the expected payments in the form of royalties are deducted all costs associated with maintaining the patent in force etc. (if they are of the same order of magnitude as the expected royalties).
6. The discounted flows of the profit obtained from payments in the form of royalties are calculated. The discounting coefficients are determined on the basis of the sphere of application of the invention and of industrial and individual risks.
7. The discounted value of the profit flows for the entire period is determined. For this discounting operation the profit flows are added together. The flow of profit in the current year is recorded with coefficient. It is considered to consist of those resources, which are received or must be paid immediately.

DCF based methods - Accounting for Time & Uncertainty

Discounted Cash flow (DCF) methods of valuation are now used for all manner of applications. The two key factors they account for are the time value of money and to some extent the riskiness of the forecast cashflows. These two problems can be solved in two ways. Either by using a risk adjusted discount rate to discount the forecast cashflows, thus accounting for both factors at once. Or using certainty equivalent cashflows, in which forecast cashflows are adjusted to account for their riskiness and changing riskiness over time. These are then discounted at the risk free rate to account for the time value of money. The latter method separates the two issues of risk and time and can help avoid problems when the risk adjustment varies over time, as it will with patents.

In practice this would mean splitting the valuation of the patent into several distinct phases, for example, from application to receipt of search results, from the decision to continue to commencement of substantive examination, from acceptance to the

end of the first year after grant, from grant to the first year of commercialization and so on until the product becomes well established and the patent eventually expires. Those articles, which do deal with the valuation of patents or R&D from a DCF point of view, do not usually take account of such considerations.

Neil for example in writing on the valuation of "Intellectual Property" only uses a single discount rate and whilst not mentioning the variation of risk over a project's life takes the pragmatic view that small variations in the discount rate used will have a smaller effect than any possible errors in the forecast cash flow (1988).

Another example is that put forward by Stacey who advocates a probabilistic DCF approach (Stacey 1989). Since all the information involved in making a decision about Intellectual Property is highly uncertain the best that can be done is to consider the costs and revenues probabilistically, the end result being a frequency distribution of NPV values.

E. DTA based methods - Accounting for Flexibility

This is that no account is taken of the various possibilities open to managers of a project or in the case of this discussion a patent. For example at various stages in the life of a patent or application it could be allowed to lapse or be abandoned. Following the initial application there is also the option to expand the patent family making corresponding foreign applications. The big advantage of the DTA method over simple DCF analysis is that it builds in the value of flexibility encountered in a project or patent. This allows at least some account to be taken of the ability to abandon the patent though it does not solve the discount rate problem.

**** F. Option based Methods**

Option Based Theories are being used for real assets and now frameworks are proposed for its application to the task of valuing patents. In recent years concerns about IPR valuation have centered on Brand Valuation especially in the wake of takeover bids such as the Nestle bid for Rowntree in 1988 (Barwise, Higson et al. 1989). More recently this concern has broadened to include all Intangible Assets (Arthur Andersen & Co. 1992). However such concerns are primarily based on an accounting perspective.

Robert Pitkethly in his research "The valuation of patents: a review of patent valuation methods with consideration of option based methods" stated " Advances

in the past two decades in the understanding of the valuation of options over financial assets under uncertainty and more recent applications of that work to what are known as “**real options**” over non-financial assets under uncertainty have shown that many accepted valuation methods neglect the value of managerial flexibility. However, the direct financial value of a patent or patent application per se, must be the value of the potential extra profits obtainable from fully exploiting the invention defined by the patent’s claims in the patent’s presence compared with those obtainable without patent protection.”

9.7 CONCLUSIONS

1. There is a definite gap between theoretical findings in IP and the findings of practitioners from the Patent movement. The latter throw doubt on the applicability of certain fundamental theoretical propositions.
2. In order to overcome the contradictions between valuation standards constructed on the basis of the Patents approach and the standards of financial reporting, there is a need for joint efforts by the scientific community, practitioners of Patent valuation, Accounting Standards Bodies and associations of investors with an interest in more reliable and transparent reflection of the value of companies in reports.
3. IP valuation method to be credible should be applicable in practice and theoretically founded. Despite some shortcomings, a simplistic indicator evaluation method had already provided a value added to the company management especially when large portfolios of patents needed to be evaluated quickly.

9.8 ALTERNATIVE VALUATION METHODOLOGIES

European and international valuation standards as well as standards of financial accounting. The European valuation standards elaborated by TEGOVA are used for valuating all assets that influence the cost of business, including assets that are not on the enterprise balance. That is why they are better fitted for the valuation of intellectual capital and business within the knowledge-based economy than international standards. For the same reason, the TEGOVA standards cannot be coordinated with international standards of financial accounting. On the contrary, international valuation standards are coordinated with international standards of financial accounting that are obligatory but are badly adapted to the new challenges.

Such fundamental contradictions cannot be overcome at the level of professional societies that develop international and national valuation standards. In order to do this, it is necessary to go to the higher level that is not limited by narrow professional frames and to consider the situation as a whole from the investor's point of view. The High Level Task Force could do this since it consists of professionals of different profiles.

Baruch Lev – Patents management, measurement, and reporting: Stated that "These measurement difficulties have prompted a search for alternative and more reliable indicators of R&D *output* than reported sales and profitability measures. Two output indicators have received considerable attention: capital markets values of corporations and patents. Believers in efficient capital markets argue that stock prices and returns provide reliable signals of enterprise value and performance, hence R&D contribution can be evaluated using market values. Patents, and particularly citations in patent applications, provide an additional indication of the value of R&D and firms' technology."

Concerning capital market studies, the research persuasively indicates that investors regard R&D as a significant value-increasing activity. Thus, for example, a number of "event studies" registered a significantly positive investor reaction (stock price increases) to corporate announcements of new Patented R&D initiatives, particularly of firms operating in high-tech sectors and using cutting-edge technology. When information is available, investors distinguish among different *stages* of the R&D process—such as program initiation and ultimate commercialization—most significantly rewarding mature R&D projects that are close to commercialization."

1. Findings of the Patents Research: Various attributes of patents, such as the number of patents registered by a company patent counts, patent renewal and fee data, and citations of and to patents were examined by researchers. Both patent counts and the number of innovations emerging from a company's R&D program were found to be associated with the level of corporate investment in R&D (**the higher the R&D expenditures the larger, on average, the number of consequent patents and innovations**), as well **as with firms' market values** (the larger the number of patents and innovations, the higher the market value, on average). Patents are thus related to both inputs (R&D) and outputs (market values) of the innovation process, and therefore are meaningful intermediate value measures.

It is clear, however, that patents and innovations are noisy measures of R&D contribution, due to the “skewness” of their value distributions—that is, the tendency of a few patents or innovations to generate substantial returns (blockbusters), while the majority turn out to be virtually worthless. Citations (references) to a firm’s patents included in subsequent patent applications (“forward citations”) offer a more reliable measure of R&D value, since such citations are an objective indicator of the firm’s research capabilities and the impact of its innovation and activities on the subsequent development of science and technology.

2. Patent citations capture important aspects: Various studies have shown that **patent citations capture important aspects** of R&D value. For example, **Trajtenberg reports** a positive association between citation counts and consumer welfare measures for CAT scanners; Shane finds that patent counts weighted by citations (i.e., the firm’s number of registered patents divided by the number of citations by others to these patents) contribute to the explanation of differences in **Tobin’s *q*** measures (market value over replacement cost of assets) across semiconductor companies; and Hall et al. report that **citation-weighted patent counts are positively associated with firms’ market values (after controlling for R&D capital)**.

Patents and their attributes thus reflect technological elements used by investors to value companies. In a direct test of the usefulness of patent citation measures as indicators of value, studies have been conducted to examine the ability of various citation-based measures to *predict* subsequent stock returns and market-to-book (M/B) values of public companies.

The following three measures were found to possess such predictive ability:

- a) The number of patents granted to the firm in a given year;
- b) The intensity of citations to a firm’s patent portfolio by subsequent patents; and
- c) a measure based on the number of citations in a firm’s patents (“backward citations”) to *scientific papers* (in contrast with citations to previous patents). This latter measure reflects the “scientific intensity” of a patent and may provide a proxy for the extent of basic research conducted by the company. The fact that patent indicators are associated with *subsequent* stock prices and returns suggests that investors are not fully aware of the ability of these

measures to convey useful information about firms' innovation processes and capabilities.

This, of course, is not surprising, given the novelty of patent-related measures as indicators of enterprise value.

Patents are the intangible assets most actively traded in markets, in the form of licensing and sale of patents. An examination of firms' royalties from the licensing of patents indicates that

- a) The volume of royalty income is swiftly increasing, and
- b) Investors value a dollar of patent royalties (i.e., the implicit market multiplier of royalty income) 2–3 times higher than a dollar of regular income.

Reason for the high valuation of patent royalties probably lies in the stability of this income source (patents are usually licensed for several years), relative to other more transitory components of income. Patent royalties also impact investors' valuation of R&D, namely the market value they assign to a dollar of R&D expenditures. The valuation of the R&D of firms *with* royalty income is higher than the valuation of R&D of firms that do not license patents, probably due to investors' belief that the quality and prospects of R&D of firms able to license patents is relatively high.

3. Patent strength assessment can be portrayed along a **five-point scale** from least to most. As generally practiced by patent managers, these are, briefly:

- 1) Degree or Scope of Innovation : Innovation falls into three general categories: breakthrough, major, minor. Breakthrough patents, ones that establish whole new platforms or paradigms, are among the most valuable, with each of the other classifications falling along the scale.
- 2) Market/Industry Applications: The number and value (dollar size) of markets and industries for which the patent has significance is a leading indicator of the potential value of the patent. Similarly, we must consider whether or not a patent is central to the core of an enterprise, is more tangential, or is relevant to a non-business application.
- 3) Term: Early-term patents are generally more powerful than those that have been in force beyond a few years, and certainly more valuable than those, which are beyond their midpoint.

- 4) Third-Party Citations: While clearly a “lagging indicator,” the degree to which other patents have been issued around the technology of a given patent is a measure of the significance of that patent. Patent citation mapping can quickly suggest the significance of a patent and its contribution to subsequent invention.
- 5) Special Considerations:
 - a) Ability to expand patent scope: Are there significant areas within which an invention may be subject to further expansion?
 - b) Use in bracketing or clustering strategies and tactics: Can this patent be instrumental in blocking another patent, or providing additional competitive advantage by filling out an existing portfolio?
 - c) Patent equity transfer into a brand: Can the equity in this patent be converted into a brand?

As we consider and balance these various perspectives we derive the value of the patent. At the same time we see that we do have the theory, with asset-specific modifications, for valuing any intangible asset, since the valuation of any intangible asset can be approached in this same manner.

9.9 POTENTIAL FOR FUTURE RESEARCH:

The key areas for further research concern assessment of the magnitude of the values of options involved in overall patent values, the establishment of means for estimating the variables used in the valuation methods described above and the assessment of the effects of any simplifying assumptions which will enable them to be used readily by patent managers. This will involve studying the effect of various assumptions about discount rates, volatilities, compound and other factors on a rigorous approach. The aim being to determine when they should be used and to maximize their ease of use and utility when they are used.

It was argued that problems using market benchmarking might particularly occur in cases where it becomes costly to find spanning traded IP assets. This might especially be the case for portfolio valuations when several different spanning IP assets need to be found for the individual patents within the portfolio. Alternative approaches to the assessment of the present value of the cashflows and the volatility

of the cash flow could offer interesting alternatives in cases where market benchmarking falls short.

Despite their shortcomings, however, simplistic indicator evaluation as carried out in practice today already provide a value added to the management in various cases. They are especially appealing in scenarios where large portfolios of patents need to be evaluated quickly on a regular basis.

A patent's present value of cashflows is driven by the patent's novelty, its inventive activity (non-obviousness), breadth, disclosure, difficulty in inventing around, and the availability of complementary assets. Equally, it was argued that the volatility is determined by technical, market, and legal uncertainty. With an eye on related future issues (such as IP accounting) it might be especially rewarding to uncover indicator variables that are not endogenous from the perspective of the patent holder.

The question of valuing synergies between individual patents within portfolios, as of today most of the portfolio valuation approaches sum up the values of the inherent individual patents (or subgroups of patents). Obviously, in that way synergistic effects between individual patents that have an impact on the portfolio's value as a whole cannot be illustrated. Along the same line of thought but on a somewhat higher level it may be a crucial task to consider potential synergies between different types of intellectual property rights. The value of an individual patent may be significantly affected by the (lack of) support of a strong brand.

9.10 AGAINST PATENT SYSTEM:

Robert Barr, IPR department of CISCO stated“ My observation is that patents have not been a positive force in stimulating innovation at Cisco. Competition has been the motivator; bringing new products to market in a timely manner is critical. First of all, there is the well-known “hold-up” problem, where patents issue after the product is in the marketplace and design-around is costly.

It is virtually impossible to search all potentially relevant patents, review the claims, and evaluate the possibility of an infringement claim or the need for a license. The time and money we spend on patent filings, prosecution, and maintenance, litigation and licensing could be better spent on product development and research leading to more innovation. But we are filing hundreds of patents each year for reasons

unrelated to promoting or protecting innovation. A long time to wait for a patent is too long. ”

9.11 PATENTS LIFE CYCLE AND MANAGEMENT

Unlike Other IP Patents Like a tangible assets have a definite development Life cycle. Management of these cycles are required to be performed in specific manner to achieve the best out of them.

PATENT PROCESS LIFE CYCLE:

- **Application:** The application of Patent should have:
 - The invention must be disclosed in a specified format in a patent specification: This will structure the Patents to avoid any multiple applications.
 - An application, including a description of the patent and the claims sought,
 - A drawing (when appropriate),
 - A declaration that the applicant is the original inventor,
 - And a filing fee is made to the Commissioner of Patent and Trademarks.
- The patent application is examined by the patent office normally processed in turn and if it satisfies all the criteria of patentability. It is granted as a patent to the applicant
- The applicant is informed in writing of this decision in an office action. It is common for some or all of the claims to be initially rejected.
- The applicant must request reconsideration in writing, and clearly and completely explain the basis for their belief that the examiner has erred in the examination.
- The application is then put for reconsideration and a second Office Action is issued, If the patent is not granted, the process may go through a third round, after which the action usually is considered final.
- A granted patent has a specific "term" of 20 years as required by the TRIPS.
- Anything that already exist in nature or is already in the public domain cannot be patented anywhere in the world.
- Any interested person can challenge a granted patent if he believes that the patent should not have been given. The conditions under which a patent can be challenged are defined in the patent laws of various countries.

- A granted and valid patent gives the patentee the right to stop others from commercially practicing his invention without his permission.
- To use a patented invention of other for commercial purposes one must seek a license from the patentee or have the patent assigned to him at a cost. A granted patent is valid in the territory in which it is granted.
- **Periodically renewed by payment** of renewal fees to the patent office up to the end of the term to retain the rights from it up to the end of the term i.e. 20 years. If the renewal process is not done by the inventor/assignee as required by the Patent Act of the country, the patent rights of the patentee/assignee lapse and the patent then becomes public property for free use there by anyone.
- The patent in general cannot be **renewed beyond its term of 20 years**. However in several countries, under certain special circumstances, a patent term can be extended maximum up to 5 years beyond the term.
- **Nothing called an “international patent”**. Therefore the patentee is expected to file his patent in all countries of his business interest and has to hire a patent attorney in those countries to follow-up at the patent office to have them granted in such countries to enable him to enforce his rights in those countries.

Patent laws in most countries have special sections, as allowed by TRIPS, that entitles the government of that country to exercise control on misuse or over use of the rights by the patentee by issuing compulsory licenses for specified periods under special situations such as a national emergency, epidemics etc. The terms of compulsory licensing are defined in the respective National Patent Acts and those interested in these aspects must go into the details of the Patent Laws / Competition Laws/Anti-trust Laws in those countries. Articles 27-34 of TRIPS outline the minimum standards for the patent laws in the member counties.

Information in Patents and its use

A patent is one of the most well structured document in which inventions covering all fields of technologies is first reported and is archived in organized databases in a classified manner so that they can be easily retrieved. It is the largest single source of technical information. It is also well accepted that more than 80% of the technical information covering inventions are reported only disclosed in patents and are not reported elsewhere.

The information in patents can be used freely by anyone without paying any royalties or compensation to the patent applicant or patent holder. It is well established that less than 10% of the granted patents are commercialized around the world. Similarly several patent applications are not taken to the granting stage after they are published in the gazettes. More than 50% of the patents granted in various patent offices around the world are not kept live till the end of their term for non-payment of the annual renewal fees. Such patents become open to the public for use without any obligation of licenses, royalty etc. As patent rights are territorial, one can find out the countries in which the patents have been granted with respect to a product or process and plan its business to avoid those countries for marketing and exploit markets where the patents on these products/processes are not granted.

9.12 THE USE OF INFORMATION CONTAINED IN PATENT APPLICATIONS:

- Prevent duplication of efforts if the problems have already been solved
- Identify the difficulties faced by others while solving similar problems
- Identify work done by specific people if you want to collaborate or want inputs
- Derive ideas for research & development
- Avoid infringement of patents
- Challenge any patent if it obstructs one's business interest

9.13 WAYS OF USING INFORMATION IN PATENTS:

1. It is a secret document with the patent office only for 18 months after it is first filed in a patent office.
2. Thereafter the filed patent specification is officially published in a gazette.
 - Procure it from the patent office of that country
 - Download it from the Internet if available.
 - Patent applications made under the Patent Cooperation Treaty (PCT) are also published after 18 months of their priority.
 - After the patent application granted the final document is also published in the official gazettes of the patent offices.

- It may be noted that such patent application publications are only for the purposes of information to the public and not for free / unauthorised commercial usage of the invention.

9.14 THE PATENT APPLICATION HAVE THE FOLLOWING INFORMATIONS:

Bibliographic:

- Titles, inventor, applicant, serial no., date of application, Priority time
- Country of publication
- Reference cited by examiner, Abstract
- National patent classification, International patent classification

Technical:

- Object of invention - problem and solution
- Prior art- similar patents scientific literatures, publicity broachers.
- Disclose/describe invention. Examples with supporting data
- Claims defining the monopoly

Legal:

- Deals with ownership issues
- Assignments, Reassignments
- Licensing, Validity, Expiry
- Geographical coverage of protection
- Overlapping claims

Notes and References:

1. Intellectual Property Rights.... Unleashing the Knowledge Economy"
Prabuddha Ganguli;
2. Parr and Smith 1994,

CHAPTER 10

10. HUMAN CREATES MOST VALUE

God had gifted one sacred thing only to Human is ‘knowledge’. Think how the battle of Mahabharata been won by few Pandavas, only through supreme knowledge of Lord ‘Krishna’. How Vishnugupta became King, only and only by brainstorming by Kautilya. How the Microsoft ruled the world only through the knowledge employees of Microsoft under mentoring of Mr. Bill Gates. The knowledgeable Humans created are the most valuable thing in this material world. But when it comes to value the Humans, it has never been valued, thinking the same is invaluable. True the role of Krishna is not measurable but certainly the role of Bill Gates and associate is.

The material effect of knowledge on commercialized enterprise and its growth moves with the human who possess the same. Think whether valuation of Bell Laboratory be same if Noble laureates were not working for it.

The New age global companies are not only communication savvy than its industrial-era predecessor, they are also more bank on its most sacred resources “employees”. Economic developments particularly in services sector have greatly undermined corporate control over human resources. The human face is being treated as most valuable one.

As human has become more important enterprises control on it for three reasons. First, the easier access to financing like venture capitals etc has increased employees’ outside options. Second, the opening up of global trade built up much scope for many free global access. This generated many alternative employment opportunities, making employees’ human face less sticky to their present employer. Third, knowledge attracts knowledge, where the employee finds more knowledgeable person around the employees moves to get some access to it.

The increasing rate of employee attrition harms corporate in big way. There is a value chain, which generates value with constant knowledge human force. Companies that are able to maintain a constant human force are more valuable. As a significant portion of the value created by employees possess valuable employee-related intangibles.

The massive loss from employee turnover is demonstrated by the finding that 71% of the enterprises in the “Inc. 500” list (a group of young, fast-growing companies) were established by persons who replicated or modified innovations developed within their former employers. This suggests the gravity of the loss from failure to retain key employees (who possess the value knowledge) and secure the value created by them. Specific training programs, compensation practices like substantial stock-based compensation awarded deep down the corporate hierarchy, and innovative arrangements, such as the establishment of entrepreneurial centers within corporations, were found to be effective in stabilizing the knowledge workforce. Human resource intangibles are now pronounced in successful corporations.

While quantification of the benefits of investment in human at the enterprise level is difficult, cross-sectional statistical analysis focusing on such investments and controlling for other factors (e.g., enterprise size, industry factors, risk) is possible. For example, various studies have examined the effect of specific work practices and human resource policies on employee productivity and enterprise value. Human resource policies and practices, such as the implementation of EVA, Six Sigma, Total Quality Management (TQM) programs, teamwork training, pay-for-skill, ESOPs and profit sharing systems, can create intellectual Properties, providing that they generate sustained benefits that exceed the costs of such programs. A recent study yields tentative results concerning such benefits.

“The results of our analysis suggest that the effects of these work practices on productivity appear to be positive, consistent with other recent research. There are benefits to *employees* from innovative work practices based on employee involvement in the form of higher labor cost/higher compensation. There is no evidence of net benefits to *employers* associated with these practices, as labor cost increases tend to offset any productivity increases. It is possible that “high performance” work practices have other beneficial consequences (higher morale, greater adaptability, lower waste, etc.) that either do not affect enterprise performance measurably or do so in ways not captured by our performance measures.”

In contrast with discovery and Human intangibles for which systematic evidence indicates the existence of significant links between investment and value created. The research on human resource expenditures and programs has thus far come short of substantiating strong and sustainable links between expenditures and enterprise value.

A study measured biotech enterprises' intellectual human capital by counting the number of scientific articles the enterprises' employees co-authored with "star scientists" (e.g., Nobel laureates), including cases where the enterprises' scientists were themselves stars. The authors report that these human resource measures are associated with biotech companies' future economic success and market values.

Rosett constructed a measure of enterprise-specific human capital based on the present value of expected costs of compensating employees. This is an implementation of a methodology proposed by Lev and Schwartz for the estimation of enterprise's human capital value. Rosett reports that the estimated human capital values are positively associated with enterprise risk, as perceived by the capital market (beta values). The reason being that the human capital values, which are missing from the assets section of the balance sheet, have an associated *liability* in the form of an obligation for future employee compensation, which is also missing from the balance sheet. Rosett argues that off-balance-sheet liability increases the enterprise's financial leverage (debt/equity ratio), relative to that reported on the balance sheet. Hence the finding that the inherent risk of the enterprise increases with the value of its human capital.

It is not even clear which expenditures on human resources (training? incentive-based compensation?) indeed create assets. Research on human resource intangibles will significantly advance only with the disclosure of meaningful data by the corporate sector.

10.1 VALUE OF HUMAN CAPITAL:

Identifying and measuring the value of human capital can be a process worth investing. The concept of value has essentially two different meanings. 'Value' expresses the utility or service of a particular resource like future use of a capital asset and the purchasing power of the resource e.g. money. If anything is not capable of providing future economic services no value deemed to be attached to it.

Employees are the most valuable resources of comparison in the service sector. Like all other resources of the company, the employees possess value because of providing future services.

"Human Resource Valuation means identifying and measuring value of human resources and communicating the information to the interested parties."

10.2 WHY TO VALUE HUMAN CAPITAL?

In this Global competitive era the success of organisation depends on increasing business opportunities of future, and simultaneously maintain or improve upon the current level of performance. This has made organisations to look consciously into the manpower as the future leverage for success. Coupled with the above-mentioned situation, adopting a 'prudent and comprehensive disclosure policy' has become the key differentiating agent among players in the same industry.

In India HR valuation was first implemented by the public sector giants (e.g. BHEL, SAIL, etc.). HR value reporting has gained momentum amongst the software companies, as these are people intensive. These companies have valued their Human Resources, which have been disclosed in their Annual Reports as a statement of intangibles (additional notes to the accounts).

The benefits of Human Value Reporting are:

- 1) A move towards investor friendly disclosure, to make them fully aware of the company's human assets. The investors can also assess the return on human capital, which is in essence the return they are getting from people who are managing their wealth / investment. For the foreign institutional investors, who are not fully aware of the day to day happenings of the company,
- 2) HR value reporting is a decision making for investment in the company's equity. An assurance to customers - the company has the human capital reserve to service their demand.
- 3) A feeling of comfort for the company's employees that they are assets and not expenses of the enterprise.
- 4) A future tool for better performance appraisal and manpower assessment. The management can also realise the present value of its future commitment of providing employee compensation.
- 5) HR value services as a benchmarking parameter with other value presenters of the industry.

10.3 VALUATION METHODOLOGIES

Before suggesting an approach to HR valuation, let us look into the various methods available for HR valuation:

10.3.1 COST BASED APPROACHES:

Historical cost method: This method was proposed by Brummet to measure an enterprise's investment in human resources. The human resource costs are current sacrifices for obtaining future benefits and therefore to be treated as assets. The method suggests capitalising the enterprise's expenditure on recruitment, selection, training and development of employees and treating them as assets for the purpose of human resource accounting.

However, capitalisation of costs, besides being contrary to traditional accounting norms, does not reflect value. Also, accumulated costs of human resource acquisition and development may not reflect their value. Instead, total performance needs to be judged in relation to the total cost associated with HR to reflect their value.

Replacement cost method: This method involves assessment of replacement cost of individuals, and rebuilding cost of the organisation to reflect HR asset value of both the individuals and the organisation. However, the replacement cost may not reflect either the actual costs or the contribution associated with HR.

Opportunity cost method: This model envisages computation of monetary value and allocation of people to the most promising activity and thereby to assess the opportunity cost of key employees through competitive bidding among investment centres.

As an example, let us suppose that oracle applications development business unit's target ROI is 16% and it has a capital base of Rs. 1, 00,00,000 but its profit is only Rs. 13, 00,000 that is Rs.3, 00,000 short of the target. It is felt by the unit that if it can acquire the services of a particular executive, its profit improves by Rs. 4, 00,000. The profits will be Rs. 17, 00,000, i.e., Rs. 100, 000 more than Rs. 16, 00,000 (the target ROI). Rs. 100, 000 capitalised at 16% comes to Rs. 6, 25,000 and the unit can bid upto Rs.6, 25,000 for the services of the executive.

10.3.2 BEHAVIOURAL MODEL:

This model aims to establish a set of causal variables through psycho-social test results reflecting the appreciating or depreciating condition of human organisation as reflected by a set of intervening variables, which in turn, are likely to result in the achievement of the end result variables. The investments in HR value have been proposed to be amortised over the years in tune with the condition of the human organisation. However, psycho-social measures of the condition of the human organisation may not be reliable towards measure of HR as an asset in the absence of its established valid relationships with the organisational performance.

10.3.3 ECONOMIC MODEL:

Lev & Schwartz advocated the estimation of future earnings during the remaining life of the employee and then arriving at the present value by discounting the estimated earnings at the employee's cost of capital. The formula adopted for computation of the present value of the future earnings is an extension to the above formula propounded by Lev & Schwartz is that one can consider the probability of the person dying before the retirement age.

Flamholtz proposed HR value on par lance with the roles the employees perform which is in accordance with the service state they occupy. The model also considers the present value of the future services at different service states and takes into consideration the migration of an employee from one service state to the other. However, the estimates of the employees occupying different service states in his/her career in the organisation can be highly probabilistic and unreliable.

Harmonson advocated the HR value as the present value of the future wages payable for the next five years discounted at the adjusted rate of return. The adjusted rate of return is the average rate of return on the owned assets of all enterprise in the economy multiplied by efficiency ratio of the organisation. This method attempts to bring into question the effectiveness of ROI of the industry on the assumption that there are no extraneous factors and that the results were due to efforts of the employees.

However, the model is very subjective as it considers the present value of the future wages only for the next five years, efficiency ratio based on the rate of return of the last five years and the assignment of weights to past rate of return.

Each model has its own negatives and positives when it comes to practical application. In an Indian context, the Lev & Schwartz model has an edge over the other models. Since the method has been widely adopted by Indian companies such as Infosys, DSQ Software Ltd., Satyam Computers, BHEL and SPIC, it enables the company to benchmark the performance and the efficiency of their human resources with others. The assumptions in this model are realistic and scientific. The method has practical applicability when availability of quantifiable and analysable data is concerned.

10.3.4 SUGGESTED METHODOLOGY

Lev & Schwartz model for valuing their human resources of a company after parallelly ascertaining a human organisational inventory (HOS) to assess the effect of qualitative human variables (e.g., employee job satisfaction, 360 degree peer evaluation, etc.) on HR value. In a nutshell, the approach involves valuing the employees of the organisation by projecting the current direct and indirect benefits, cost to company enjoying by the employees (a future cash outflow to the company) till retirement and consequently discounting the CTCs at the Weighted Average Cost of Capital of the enterprise (WACC) to arrive at the present value which is to be furnished in Annual Report. The WACC is calculated taking into consideration the target debt equity proportion, weighted average cost of debt, and cost of equity adjusted with company specific beta value, volume of trading and equity premiums. The optimum HR strategy for the future can be formulated by combining GroupWise HR value, the findings from the HR inventory, and analysing the efficiency of the recruitment and training cost centres of the company.

10.3.5 SOME BASIC ASSUMPTIONS FOR HR VALUATION

Each employee's cost to company (CTC) should be forecasted and discounted back separately. Thus a separate database comprising compensation details, age and experience details, and historical promotion pattern for each employee should be constructed. The database serves as a powerful MIS tool for value interpretation.

The growth rate of earnings of each employee till retirement should be determined for projecting the CTCs after looking into the company's compounded annual growth in CTC's for different employee classes, global industry trends for the future (e.g., what happens after 5 years when the demand for Y2K jobs in the software

sector obliterates), and sustainable growth rates for the next 25-30 years given the nominal interest rates of the Indian economy.

The attrition rates for the company / industry should not be considered as a deduction factor, as the employees who leave the company will be replaced by others to maintain the level of operations, and thereby the employee strength remains unchanged (conservation of employee stock / inventory). This is also consistent with the going concern concept.

10.3.6 UNDERLYING MEANING OF HR VALUE

The HR value per se throws valuable insights into the HR strategy of the enterprise. On one hand, it is a value of the employees of the company - thinking differently managements should realise that HR value is the future commitment, which the enterprise has to pay to its employees for the career span in the company.

Thus, a high or low HR value will have to be justified with the returns it can achieve. Hence the return on HR value (ROHA) should be the efficiency measure of human resources on a year-to-year basis. The ROHA factor will assist management to manage the value / commitment better in future years. The HR turnover ratio can also be taken as an indicator of efficiency.

Companies can also make a conscious move to capture its costs related to HR department by developing a human resource accounting system, which complements the HR valuation exercise. The system can provide a cost clarity in all relevant areas related to the human resources of the company. In future, managements should begin to use HR value in regular MIS reports, in areas such as measurement of SBU profitability, SBU performance trend analysis, etc. which can fine-tune the appraisal system.

10.3.7 HUMAN CAPITAL AND PERFORMANCE: A LITERATURE REVIEW (DR PHILIP STILES AND SOMBOON KULVISAECHANA)

There is much evidence that establish a positive linkage between the development of knowledge capital and organizational performance. The emphasis on human capital in organisations reflects the view that market value depends less on tangible resources, but rather on intangible ones particularly human resources. Recruiting and retaining the best employees is only part of the equation. The mapping of

knowledge level while recruiting is crucial, regular study on KM level of employees and finding for right KM is essential. The organization also has to leverage the skills and capabilities of its employees by encouraging individual and organizational learning and creating a supportive environment, in which knowledge can be created, shared and applied.

Human capital in a real sense is an ‘invisible asset’ (Itami 1987). The importance to the strategic aims of the organization of the human capital pool (the collection of employee capabilities), and how it is managed through HR processes, then becomes apparent.

10.3.8 MEASURING HUMAN CAPITAL

Measurement is obviously important to measure the impact of human capital interventions and address areas for improvement. But measurement of human capital is like measuring human brain, which is very critical issue. The process identified by some academics (e.g. Guest et al 2000, Patterson et al 1997) is to specify the key human capital dimensions and assess their characteristics. It is then essential to measure these practices in terms of outcomes. These outcomes differ along a number of familiar categories: either (i) financial measures; (ii) measures of output or goods and services - units produced, customers served, number of errors, customer satisfaction) or (iii) measures of time - lateness, absence etc. (Locke & Latham 1997, Guest et al 2000).

1. In terms of outputs, on employee turnover, productivity, and financial performance (Delaney & Huselid 1996).
2. Some may be focused on market share, others on profit, for example, and the HR practices may not be the same in both. If research is at an organizational level, rather than at a business unit level, such differences may reflect in a poor linkage between human capital and unit performance (Becker & Gerhart 1996).
3. Guest et al (2000) also point to the problems in variations of accounting practices between countries, which may render comparisons in financial performance problematic.
4. The adoption of a stakeholder perspective reflects the concern to have multiple measures of performance outcome. This perspective is supported by the popularity of the ‘balanced scorecard’ concept (Kaplan & Norton 1993),

which is intended to weigh the interests of various stakeholders. According to Kaplan & Norton, attention should be given not just to traditional financial measures, but also to people, processes and customers.

The results of a Conference Board (2003) survey into human capital measurement showed that many **HR professionals were developing human capital metrics** (see Table) but this activity was often conducted in isolation, with organisations choosing not to collaborate with other enterprises or consultancies, or with their own organization's finance or strategy colleagues. Where HR professionals did use external benchmarks, they were often inappropriate internally, and they did not tie up the metrics to the business goals.

10.3.9 REPORTING HUMAN CAPITAL MEASURES:

Reporting of Human Capital is essential because of two major issues:

First, there is no common framework for reporting that goes beyond historical measures (e.g. cost of selection, or training) to 'more detailed information on workforce quality'

Second, many enterprises lack databases and audited information that can give strong and relevant information to investors. Developing a consistent and coherent internal HR architecture on human capital measurement is a necessary condition for effective external reporting.

Nevertheless, the report asserts that the measures, which are most frequently reported, are:

- The percentage of employees in stock plans
- Revenue per employee
- Average pay
- Training expenditures
- Compensation.

HUMAN CAPITAL MEASURES

| Human capital activities | Possible measurements |
|---------------------------------|--|
| Recruitment | Time, cost, quantity, quality, meeting strategic criteria |
| Retention/turnover | Reasons why employees leave. |
| Employee attitude/engagement | Attitude, engagement and commitment surveys |
| Compensation | Pay level, and differentials, and equity assessment, customer satisfaction, employee satisfaction, diversity |
| Competencies/training | Measuring competency levels, skills inventory, tracking competencies and training investments |
| Workforce profile | Age, diversity, promotion rate, participation in knowledge management activities |
| Productivity measures | Revenue per employee, operating cost per employee, real added value per employee |

(Adapted from Conference Board 2003)

Human resources Measurement - Infosys Annual Reports 2006 – Lev & Schwartz Model:

Human resources accounting

The dichotomy in accounting between human and non-human capital is fundamental. The latter is recognized as an asset and is, therefore, recorded in the books and reported in the financial statements, whereas the former is ignored by accountants. The definition of wealth as a source of income inevitably leads to the recognition of human capital as one of the several forms of wealth such as money, securities and physical capital.

We have used the *Lev & Schwartz* model to compute the value of human resources. The evaluation is based on the present value of the future earnings of the employees and on the following assumptions:

- Employee compensation includes all direct and indirect benefits earned both in India and abroad
- The incremental earnings based on group / age have been considered
- The future earnings have been discounted at 12.96% (previous year – 13.63%) the cost of capital for us. Beta has been assumed at 0.78, the beta for us in India.

| As of March 31, | 2006 | | 2005 | |
|--|--------------------|---|-----------|-----------------------------------|
| | Employees (No.) | Value of human resources (in Rs. crore) | Employees | Value of |
| | | | (No.) | human resources (in Rs. crore) |
| Software delivery | 49,495 | 43,336 | 34,747 | 26,550 |
| Support | 3,220 | 3,301 | 2,003 | 1,784 |
| Total | 52,715 | 46,637 | 36,750 | 28,334 |
| in Rs. crore, unless stated otherwise | | | | |
| Employees (No.) | | | 52,715 | 36,750 |
| Value of human resources | | | 46,637 | 28,334 |
| Software revenue | | | 9,521 | 7,130 |
| Total employee cost | | | 4,801 | 3,539 |
| Value added excluding exceptional items | | | 8,027 | 6,053 |
| Net profits excluding exceptional items | | | 2,479 | 1,846 |
| Key ratios | | | | |
| Total software revenue / human resources value (ratio) | | | 0.20 | 0.25 |
| Value added / human resources value (ratio) | | | 0.17 | 0.21 |
| Value of human resources per employee | | | 0.88 | 0.77 |
| Employee cost / human resources (%) | | | 10.29% | 12.49% |
| Return on human resources value (%) | | | 5.32% | 6.52% |

Calculation of Value addition:

Value-added statement

| | 2006 | 2005 |
|--|--------------|--------------|
| Total revenue including other income | 9,660 | 7,254 |
| Less: Software development expenses (other than employee costs and provision for post-sales client support) | 826 | 604 |
| Selling and marketing expenses (other than provisions) | 231 | 182 |
| General and administration expenses (other than provisions) | 576 | 414 |
| | 1,633 | 1,200 |
| Total value-added | 8,027 | 6,053 |
| Applied to meet | | |
| Employee costs | 4,801 | 3,539 |
| Dividend (including dividend tax) | 1,412 | 357 |
| Income tax | 313 | 326 |
| Minority interests | 21 | – |
| Provision for bad and doubtful debts and loans and advances | 10 | 24 |
| Provision for investments | 1 | – |
| Provision for post-sales client support | (14) | 31 |
| Retained in business | 1,483 | 1,776 |
| Total | 8,027 | 6,053 |

Note: The figures above are based on the consolidated Indian GAAP financial statements.

10.3.10 CONCLUSIONS

The measurement of human capital remains an area where little commonality can be found. Perhaps this reflects the sheer number of contingencies facing organizations and the idiosyncrasies inherent in specific enterprise contexts. There is agreement, however, on the point that just relying on financial measures of performance is likely to result in a highly partial evaluation. A stakeholder view or balanced scorecard approach is seen as most appropriate to capture the complexity of human capital activity.

CHAPTER 11

11. INNOVATIONS AND THEIR VALUATIONS

'God provided everything, Man to innovate.'

Innovation is a thinking process of human development which comes by specific needs . This is process of creating novel things or by creating something new. In economics innovations means creating values, customer base, product development or process the intended object of innovation are to betterment . The succession of many innovation are growing or exelerating economies of developed countries . Innovation has always been an important activity of individuals (e.g., Thomas Edison, Alexander Graham Bell) and business enterprises. The prospects of abnormal profits or monopoly rents, protected for a certain period by patents or "first-mover advantages," have always provided strong incentives to innovate. The great scientific and industrial inventions of the 19th and 20th centuries—electricity, the internal combustion engine, chemical and pharmaceutical discoveries, new communications and information technologies—attest to the age-long strong incentives to innovate. Clearly, innovation is not unique to the current economic environment.

Man by nature is only creator who can think and he thinks every moment . There are lot of questions which arise in his mind every moment which he tries to betteroff, alternate or innovate . When there is a process which links to commercilise the thinking process its innovation .

The dictionary definition of **innovation** is the process of making changes to something established by introducing something new. In economics, business and government policy,- something new - must be substantially different, not an insignificant change. In economics the change must increase value, customer value, or producer value. Innovations are intended to make someone better off, and the succession of many innovations grows the whole economy. The term innovation may refer to both radical or incremental changes to products, processes or services. The often unspoken goal of innovation is to solve a problem. In the organisational context, innovation may be linked to performance and growth through improvements in efficiency, productivity, quality, competitive positioning, market share, etc. All companies can innovate whether government or public service compnaies like hospitals.

While innovation typically adds value, innovation may also have a negative or destructive effect as new developments clear away or change old organizational forms and practices. Companies that do not innovate effectively may be destroyed by those that do. For the last many years technological innovation has been regarded as the bringing of new or significantly improved products (goods or services) to market or the introduction of new or significantly improved processes for the production or delivery of products. This can be regarded as the use of knowledge both internal and external to the firm to create value.

There are different kinds of Innovations :

1. Fresh Brains
2. Experience
3. Process Needs
4. Competition
5. Problem Solving
6. Performance linking
7. Sustainability of previous Innovations

As Davila et al (2006) note," Companies cannot grow through cost reduction and reengineering alone . . . Innovation is the key element in providing aggressive top-line growth, and for increasing bottom-line results"

Companies such as General Electric and Procter & Gamble have embraced the management of innovation enthusiastically with the primary goal of driving growth and, consequently, improving shareholder value. Companies spend a large amount of their networth on innovation by creating changes to their current products, processes and services. The investment may vary from as low as a half a percent of turnover for companies with a low rate of change to anything over twenty percent of turnover for companies with a high rate of change. The average investment across all types of organizations is four to five percent. Baruch Dev Stated "On average, investments in innovations are clearly creating value, namely, yielding a return above the cost of capital; why else would business enterprises invest heavily and consistently in R&D, employee training, , organizational change, and other forms of innovation? "

A survey across a large number of manufacturing and services companies found the common goals as ranked in decreasing order of popularity Improved quality :

- 1) Creation of new markets
- 2) Extension of the product range
- 3) Reduced labour costs
- 4) Improved production processes
- 5) Reduced materials
- 6) Reduced environmental damage
- 7) Replacement of products/services
- 8) Reduced energy consumption
- 9) Conformance to regulations

11.1 THE CONTRIBUTION OF R&D - THE VALUE CREATED BY INTANGIBLES:

A Case Study by Baruch Lev:

The research on the contribution of R&D described was a sample of 83 publicly traded chemical companies was used in the analysis, which covered the period 1975-1998. The return on (contribution of) R&D to the investing companies was measured by statistically estimating the contribution of one R&D dollar spent in a given year to the company's operating income in that year and the subsequent 10 years, controlling for the contribution to income of physical assets (property, plant, and equipment) and of brands (advertising). The focus on the contribution of R&D to current and subsequent income derives from the fact that successful R&D projects have sustained, long-term effect on profitability. This research yielded the following conclusions:

- Dollar invested in chemical R & D increases, on average, current and future operating income by 16.5% after taxes. 16.5% after-tax return indicates a very substantial contribution of chemical R & D to corporate value, given that the

weighted average (equity and debt) cost of capital of most chemical companies ranges 10–12%.

- In contrast with the abnormal (above-cost-of-capital) return on chemical R & D, the study documented only average return on physical assets (10% after taxes) and slightly below average return to advertising expenses. Physical assets behave like commodities, earning the cost of capital.
- With respect to the capital market valuation of chemical R & D, investors were found to fully appreciate (price) the prospects of R & D.

11.2 INNOVATION MANAGEMENT

The “value chain” of knowledge-based enterprises

- a) *Discovery of idea*
- b) *Technological development phase*
- c) *Commercialization of the innovation*

Innovation management is the process of managing innovations.

There are various stages of Innovations :

1. **Generate an idea.** It is a technical insight into a product or process or thought about a service. In cases ideas arises from
 - Observed problems either now or in the future.
 - **Stimulated by the goals** of the company
 - **opportunity that appears** suddenly
 - Reading magazines
 - Observing problems to visiting other companies and
 - Informal discussions with colleagues.
2. The **recognition stage** involves the idea evaluation stage where **ideas are prodded and tested**. Often ideas are **improved, merged with other ideas** and

in many cases abandoned. An important test for an idea is that it matches the goals of the company and available resources – people and money.

3. The **development phase** may involve prototype development and marketing testing. Many ideas wait at the end of the development phase for market conditions to be right. There are currently many new products languishing in the laboratories of Philips and Nokia waiting for their moment to begin replacing or even disrupting existing technology.
4. The final stage of the innovation process is **realisation** and in many cases exploitation where the customer makes the final evaluation.

The Booz Allen report found that the "high-value innovators" have strong capabilities in each stage of the innovation value chain, which it terms as the ideation process (basic research and conception), project selection (the decision to invest), product development, and commercialization, but a distinctive competitive advantage in at least one element. Certainly, CFOs have a key role to play in project selection. And as consumers in China and India become more important customers, these countries will play more and more of a role in the commercialization of new products.

11.3 MEASURING INNOVATION

Traditionally performance measures of the Innovation in form of R&D function have more frequently been related to R & D input than output. This lies on the belief that there *should* be a positive relationship between amount of resources allocated to R & D and R & D output and therefore, the higher R & D expenses, the more effective output. Moreover, there are a series of works focusing on quantitative measures of the impact of R & D on business performance. They are usually based on measures of profitability or market share and implicitly lie on the assumption that there is a relationship between R & D success and market share and profitability.

Foster et al. (1985) in **Contribution of technology stated that** R & D return (defined as the ratio of profits to R & D investment) is viewed as the result of two major factors:

1. **R & D productivity**, that is the ratio of technical progress to **R & D investment**,
2. **R & D yields** that is the ratio of profits to technical progress.

Chiesa et al. (1996) stated that “Benchmark or self-assess the firm’s technical innovation capability for best practice of a number sub-processes identified as key for success in innovation (generating new product ideas, product development, production process innovation, technology acquisition, leadership, use of systems and tools in support of innovation, funding mechanism).”

Individual and team-level assessment can be conducted by surveys and workshops. Business measures related to finances, processes, employees and customers in balanced scorecards can be viewed from innovation perspective (e.g. new product revenue, time to market, customer and employee perception & satisfaction). Organizational capabilities can be evaluated through various evaluation frameworks e.g. **efqm** (European foundation for quality management) -model.

The **OECD Oslo Manual from 1995** suggests standard guidelines on measuring technological product and process innovation. Guidelines on how to measure the activity of innovation were codified in 1992 as the Oslo Manual (OECD 1992) and revised in 1997 (OECD/Eurostat 1997). The indicators, resulting from three rounds of the European Community Innovation Survey (CIS), are published by the EU (European Communities 2004) and by individual governments, as are indicators derived from surveys in non-EU countries (Gault 2003). They include the propensity to innovate as well as a number of indicators related to sources of information, outcomes, use of intellectual property, and barriers to innovation.

The most recent revision of the **OECD/ Eurostat Oslo Manual incorporates** these changes and will be released in 2005. This will lead to new indicators of innovation which will show how knowledge from different sources combines to add value to the firm and to have impact on businesses and people. There are many indicators of the activity of adopting technologies and practices and of related activities, much as is the case for the activity of innovation. The OECD publishes indicators of the use of biotechnologies, information and communications technologies (ICTs), and of nano technologies (OECD 2003, 2002a) and of knowledge management practices (Foray and Gault, 2003)

Statistical formulation of measuring Technology value of R &D is for the value of Operating Earnings for the period of Business :

R & D = R & D Expenses per time for creating technology

OE = Operating Earning per time unit from marketing the technology

The Goal is $OE(t_0) > R \& D + Interest$

11.4 MEASURING UNDERDEVELOPED PATENTS / ONGOING INNOVATIONS

Research, Development and Test Market Expenses Firms that spend considerable amounts of money on research and development and test marketing are often blocked when they try to evaluate these expenses, since the payoffs are in terms of future projects. At the same time, there is the very real possibility that after the money has been spent, the products or projects may turn out not to be viable; consequently, the expenditure must be treated as a sunk cost. In fact, R & D has the characteristics of a call option. The amount spent on the R&D is the cost of the call option and the projects or products that might emerge from the research provide the payoffs on the options. If these products are viable (i.e., the present value of the cash inflows exceeds the needed investment), the payoff is the difference between the two. If not, the project will not be accepted and the payoff will be zero. Several logical implications emerge from this view of R & D. Research expenditures should provide much higher value for firms that are in volatile businesses, since the variance in the product or project cash flows is positively correlated with the value of the call option.

Minnesota Mining and Manufacturing (3M), which expends a substantial amount on R & D on basic office products, such as the Post-it pad, should receive less value for its dollar of research than does Amgen, whose research primarily concerns biotechnology products. Second, the value of research and the optimal amount to be spent on research will change over time as businesses mature. The best example is the pharmaceutical industry - pharmaceutical companies spent most of the 1980s investing substantial amounts in research and earning high returns on new products, as health care costs expanded. In the 1990s, however, as health care costs started leveling off and the business matured, many of these companies found that they were not getting the same payoffs on research and started cutting back. Some companies moved research dollars from conventional drugs to biotechnology products, where uncertainty about future cash flows remains high.

The degree of uncertainty of an R&D activity is very high; second, once completed the R&D output is itself often highly fuzzy and not definable and, thus, not

measurable; finally, the ultimate result of R&D activity can be viewed after years, once an innovation has been brought to the market, but, at this time, the outcome is the result of the efforts of both the R & D unit and the other company functions. For these reasons, R & D has always been treated as an expense centre and R & D planning has been the result of a negotiation between R&D and corporate on the amount of resources to allocate in R & D.

As far as individual R&D projects are concerned, the evaluation of the impact on the economics of the firm can be conducted using three major categories of techniques:

- Discounted cash flow (DCF) techniques (Net Present Value, Profitability Index)
- Option-based techniques
- Non-financial techniques (including profile methods, checklists and scoring methods).

11.5 MEASURING OF INNOVATION - OPTION METHOD:

Since Innovation has all characteristics, which are essential for assets to be valued by option method, Aswath Damodaran suggested valuing an Innovation as an option. He writes “Consider the payoff to the firm from its use of the patent. The firm will develop a patent only if the present value of the expected cash flows from the product sales exceeds the cost of development. If this does not occur, the firm can shelve the patent and not incur any further costs. If I is the present value of the costs of commercially developing the patent and V is the present value of the expected cash flows from development, then:

$$\text{Payoff from owning a product patent} = V - I \text{ if } V > I = 0 \text{ if } V \leq I$$

Thus, a product patent can be viewed as a call option, where the product is the underlying asset.

The value of a firm that derives its value primarily from commercial products that emerge from its patents can be written as a function of three variables.

*The cash flows it derives from patents that it has already converted into commercial products,

*The value of the patents that it already possesses that have not been commercially developed and

*The expected value of any patents that the firm can be expected to generate in future periods from new patents that it might obtain as a result of its research.

*Value of Firm = Value of commercial products + Value of existing patents + (Value of New patents that will be obtained in the future – Cost of obtaining these patents)

The value of the third component will be based upon perceptions of a firm's research capabilities. In the special case, where the expected cost of research and development in future periods is equal to the value of the patents that will be generated by this research, the third component will become zero. In the more general case, firms such as Cisco and Pfizer that have a history of generating value from research will derive positive value from this component as well.

11.6 PROBLEMS IN APPLYING OPTION PRICING BASED METHODS

Variance of future returns will be different as the fact that the patent has survived thus far makes it increasingly likely that it will be successful and profitable. As we have seen single options or DCF valuations, which do not take account of this and use the same discount rate and variance at all stages in the life of the patent/application are flawed. Some provision or estimate of the cost in inaccuracy of ignoring this will have to be made.

Newton for example has outlined how one might begin to obtain volatilities for applying Option pricing theory to R&D even if not to patents. The overall approach adopted treats R&D as a call option on the development of the R&D results (1992). It is a straight application of Black and Scholes formula to R&D with the consequent need to derive measures of volatility for what takes the place of the underlying security - the R&D project. Newton discussed how these volatilities of R&D projects might be deduced. However the method proposed did not take account of the fact that as with patents the variability of returns to an R&D project will probably vary throughout its life. Final clinical testing of a proven pharmaceutical is obviously going to be less variable in its possible outcomes than early exploratory research on an unproven discovery. (**A review of patent valuation methods with consideration of option based methods and the potential for further research Robert Pitkethly**)

Case study: Innovation - Valuations - Internally acquired R & D Rights. (Master Thesis: Valuation of Intangible Assets - Goodwill & Patent Right, the Case of ABB) Group by Winfred Agbeko Torgby Emmanuel Kofi Penney.

The ABB is one of the world leaders in power and automation technologies. Issues discussed here are company profile, mission and strategy, Intangibles Assets and research findings on goodwill and patent right.

A steadily growing interest is being shown by ABB Group in Patents and intellectual property, not least due to the increased resources allocated to research and development and the growing competition on the world market. This group makes sure that innovations made by ABB are protected by appropriate rights (patents, trademarks, design registration and copyright). The company protects and manages the group rights and defends them against all kinds of infringements and misleading domain names.

On the other hand the company uses a substantial cash flow in conducting research and development in its entire laboratory. A case in point is the about 450 patent applications that the ABB Group filed this year and also the progressive increments of patent application in Poland all of which were internally generated. These research activities require a lot of cash, hence the requirement of the standard for such expenditure to be treated as revenue expenditure and not a capital expenditure leads to gross understatement of the value of the ABB's assets.

11.7 THE FRAMEWORK FOR INNOVATION PERFORMANCE MEASUREMENT

R&D activities can be described as creation of the know-how and know-why of new materials and technologies that eventually translate into commercial development [Wheelwright-Clark 1992]. According to this definition, R & D activities can be summarized in two main phases, which differently contribute to the company growth and shareholder value creation process.

These two phases can be identified as:

Table 1: Methodologies for the evaluation of R&D value creation

| Phase of the innovation process | Methodology for evaluation |
|---------------------------------|---|
| Generation | Reproduction cost Updated cost Empirical coefficients and sectoral indicators Multipliers and ratios |
| Transition | Discounted cash flows Net present value Incremental profitability Expected royalties Cost of loss Real options Multipliers and ratios |

1. **The generation:** All those Innovation activities whose output is mainly the technological progress. The metrics for "generation" should be different from those for "transition", as a consequence of the different goals of these two phases of the overall innovation process. The "diffusion", those activities in charge of the commercial release and the launch of the new product on the market.
2. **The transition:** All those Innovation activities whose aim is to transfer the knowledge on the products or on the manufacturing processes [Baglieri, 1997].

Of course, the shareholder value increases, with the capital market translates it in higher stock performance, only if "transition" takes place successfully with deep impact on customers and market share.

11.8 VALUE APPRAISAL PERSPECTIVE OF INNOVATION:

In terms of value appraisal, technical knowledge embedded in the innovation generation and in the transition phase, should be split in two main components:

1. **Value of the Knowledge on the shelf (Kos):** all the scientific and technical knowledge that can be counted
2. **Value of the Knowledge in progress (Kip):** consists of two components: (i) the overall knowledge embedded within projects 'in progress' and (ii) the

knowledge fed by the competencies and expertise the R&D people make use of running R&D projects.

Therefore, the value of Innovation consists of the value of both the above kinds of knowledge: **WR & S= WKos + WKip**.

Three basic dimensions influence the value of innovation:

- The incremental cash flows related to R&D activities emerging during the evaluation period
- The duration of such cash flows (*time*), that is industry specific upper and lower specifications to defend the competitive advantage.
- The *risk* and uncertainty associated to the cash flows.

The value of R & D is partially related to the content of the R & D output and partially to the R & D process. Whereas knowledge on the shelf (Kos) has a value only if there is a market value and, therefore, if the content is recognized as having a market value, knowledge in progress (Kip) has a value which is partially related to the content of the activities and partially to how things are done within the project. The performance impact, defined in the field test, identifies the latter contribution to value generation.

11.9 ACCOUNTING OF INNOVATIONS:

The term “in-process R&D” (IPR&D- innovations) refers to research and technology projects in the development process that are acquired by business enterprises, often with other tangible and intangible assets. Which were derived from IBM’s third quarter (September 30) 1995 report, provide an example of the IPR&D included in the acquisition of the Lotus Development Corp. by IBM. Thus, IBM estimated \$1.84B as the value of IPR&D (essentially software programs and products under development) included in the Lotus acquisition, i.e., 57% of the total acquisition price (\$3.24B).

United States’ accounting regulations (generally accepting accounting principles; GAAP) prescribe that IPR&D (Innovation), once identified and valued, should be immediately and fully expensed in the acquiring company’s financial report. This expensing caused IBM to report a whopping loss of \$538M in the third quarter of

1995, compared with a profit of \$710M in the same quarter a year earlier. IBM is not an aberration. The acquisition of R&D and technology has been mushrooming in recent years as companies attempt to shore up their technological capabilities, with many companies having multiple acquisitions per year and staggering IPR&D write-offs. For example, during 1997– 1999, Cisco Systems conducted 14 acquisitions that were accounted for by the “purchase method.” The total price paid for those acquisitions was \$1.77B, of which \$1.36B (77%) were expensed as IPR&D.

An accounting rule that forces corporate executives to declare a major part of the value of corporate acquisitions a current expense, in the process depressing reported earnings and asset values. In fact, however, when the FASB announced in 1999 its intention to change the IPR&D expensing rule, it encountered such strong opposition by managers that it backtracked from the change. Why the opposition to a change of clearly inappropriate procedure— expensing asset values acquired in arms-length transactions? Enter the “politics” of intangibles’ disclosure.

The massive expensing of practically all investments in intangibles—both internally developed (e.g., R&D, customer acquisition costs) and acquired from others— as mandated by GAAP, is a recipe for inflating future reported profitability and growth, as well as serving to protect managers against embarrassments. When IBM expenses almost 60% of Lotus acquisition, or Cisco writes off almost 80% of its acquisitions’ value, they guarantee that future revenues and earnings derived from these acquisitions will be reported unencumbered by the major expense item—the amortization of the acquisition costs. Hence the inflation in future profitability and growth. The expensing of intangibles also causes commonly used profitability measures, such as the return on equity (ROE) or return on asset (ROA)—often among the drivers of management compensation—to be inflated, since the denominators of these ratios (equity and total assets, respectively) are missing the expensed part of the acquisitions. Even when acquisitions fail to yield the expected return, the low (after IPR&D expensing) equity base in the denominator will obscure the failure from outsiders. And what about the depressed earnings due to the expensing of IPR&D? Not to worry. Investors generally consider these write-offs as “one-time items,” of no consequence for valuation. Thus, companies get the best of all worlds from the IPR&D expensing: no price hit at the time of expensing, and a significant boost to future reported profitability.

The immediate expensing of these investments and virtually no information disclosure about the progress of products under development, or return on

investments, suit managers well, particularly given the generally high level of uncertainty associated with intangibles. Failures generally draw attention more than do successes, and immediate expensing upon acquisition or investment, as well as minimal information disclosure about project development, obscures most failures.

11.10 THE CHANGES IN ACCOUNTING.

A voluntary information structure that complements financial reports.

Such change, however, will require regulatory intervention—changing current accounting rules and regulations—which is bound to raise significant managerial antagonism.

Therefore, the priorities of the plan to enhance the likelihood of success was changed: start with a voluntary, yet well-defined and structured reporting system and proceed with changing the accounting system.

The most significant and **urgent change required**, in the present:

Accounting system relates to the recognition of assets. The current practice essentially rules out practically all intangibles from being recognized as assets. This includes both internally generated intangibles and most acquired In Process R & D. Such a broad denial of intangibles from being recognized as assets detracts from the quality of information provided in the balance sheet. Even more serious is its adverse affect on the measurement of earnings. The matching of revenues with costs—the fundamental process underlying earnings measurement—is distorted by front loading of costs (the immediate expensing of intangibles) and recording revenues in subsequent periods unencumbered by those costs.

What is required is a significant broadening of the recognition of assets in financial reports, relaxing to some extent the requirements of reliability (i.e., that expected benefits of the asset should be subject to highly reliable estimation) and control (that the benefits of the asset will be under the complete control of the enterprise).

As the discussion of the attributes of intangibles made clear, the benefits of intangibles are, in general, riskier (more uncertain) than those of physical assets, and full control of benefits of intangibles (excludability of non owners) is in most cases impossible to achieve.

The Broadening of Asset Recognition: Accommodating the uncertainty concerns, it makes sense to recognize intangible investments as assets, when the uncertainty about benefits is considerably resolved. As projects under development advance from formulation of the initial idea through increasingly demanding feasibility tests (e.g., alpha and beta tests for software products) to the final product, the notorious **uncertainty about technological feasibility and commercial success continually decreases**. Accordingly, a reasonable balance between relevance (to investors) and reliability of information would suggest the recognition of an intangible investment as an asset, when the project successfully passes a significant technological feasibility test, such as a working model for software products or a clinical test for a drug. Surely, uncertainty about the future benefits of a clinically proven drug is not larger than the uncertainty associated with the expected benefits of commercial property in a newly developed area, or a loan granted to an enterprise operating in a developing country, which are both recognized as assets. This suggested approach to asset recognition is the one underlying U.S. software-for-sale standards (the major exception in the United States to intangibles expensing), and in the recently enacted international standard for intangibles.

Accordingly, it is proposed to recognize as assets all innovation investments with foreseeable revenue stream that have passed **certain pre-specified technological feasibility tests** and would like to depart from the software capitalization standard by proposing that, once asset recognition commences (**post feasibility test**), all the project-related previously expensed R&D should also be recognized as assets. Given that the uncertainty about the project's viability has been substantially reduced, one sees no reason for a different accounting treatment of **pre and post feasibility R&D**.

A major advantage of the proposed asset recognition is its allowance of managers to convey important information about the progress and success of the development program. Indiscriminate capitalization of all expenditures on intangibles does not provide such information.

Abbody and Lev reported that the annual values of software development costs recognized as assets are associated with subsequent changes in earnings, suggesting that such asset recognition provides relevant information for the prediction of future earnings—an important objective of financial information. An earlier U.S. study of cellular companies indicates that investors implicitly recognize customer acquisition costs as assets, rather than expenses; whereas, internationally, it was found that revaluations of intangibles by Australian companies are associated with market

values. Finally, a simulation-based analysis demonstrated the general superiority of intangibles' recognition as assets vs. immediate expensing in providing meaningful performance data to investors.

11.11 ACCOUNTING POLICY OF MICROSOFT FOR R & D:

"We account for research and development costs in accordance with several accounting pronouncements, including SFAS No. 2, Accounting for Research and Development Costs, and SFAS No. 86, Accounting for the Costs of Computer Software to be Sold, Leased, or Otherwise Marketed. SFAS No. 86 specifies that costs incurred internally in researching and developing a computer software product should be charged to expense until technological feasibility has been established for the product. Once technological feasibility is established, all software costs should be capitalized until the product is available for general release to customers. Judgment is required in determining when technological feasibility of a product is established. We have determined that technological feasibility for our software products is reached shortly before the products are released to manufacturing. Costs incurred after technological feasibility is established are not material, and accordingly, we expense all research and development costs when incurred. " (Research and development expenses include payroll, employee benefits, stock-based compensation, and other headcount-related costs associated with product development)

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*EVALUATING INTANGIBLE ASSETS: THE MEASUREMENT OF R&D PERFORMANCE

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CHAPTER 12

12. IP ACCOUNTING - GLOBAL ISSUES

In the mid-1980s, Reckitt & Colman, a UK-based company, put a value on its balance sheet for the Airwick brand that it had bought. In 1988, Rank Hovis McDougall (RHM), a leading UK food conglomerate, played heavily on the power of its IPs to successfully defend a hostile takeover bid by Goodman Fielder Wattie (GFW). RHM's defence strategy involved carrying out an exercise that demonstrated the value of HM's IP portfolio. This was the first independent IP valuation establishing that it was possible to value IPs not only when they had been acquired, but also when they had been created by the company itself. After successfully defending the GFW bid, RHM included in its 1988 financial accounts the value of both the internally generated and acquired IPs under intangible assets on the balance sheet.

In 1989, the **London Stock Exchange** endorsed the concept of IP valuation as used by RHM by allowing the inclusion of intangible assets in the class tests for shareholder approvals during takeovers. This proved to be the drive for a wave of major Companies having good IP to recognize the value of IPs as intangible **assets on their balance sheets**. In the UK, these included Cadbury Schweppes, Grand Metropolitan (when it acquired Pillsbury for \$5 billion), Guinness, Ladbrokes (when it acquired Hilton) and United Biscuits (including the Smith's IP). Today, many companies including LVMH, L'Oréal, Gucci, Prada and PPR have recognized acquired IPs on their balance sheet. Some companies have used the balance-sheet recognition of their IPs as an investor-relations tool by providing historic IP values and using IP value as a financial performance indicator.

UK, Australia and New Zealand have been leading in term of Accounting Standards, the way by allowing acquired IPs to appear on the balance sheet and providing detailed guidelines on how to deal with acquired goodwill. In 1999, the UK Accounting Standards Board introduced FRS 10 and 11 on the treatment of acquired goodwill on the balance sheet. The International Accounting Standards Board followed suit with IAS 38. And in 2002, the US Accounting Standards Board introduced FASB 141 and 142, scrapping pooling accounting and laying out detailed rules about recognizing acquired goodwill on the balance sheet. There are indications that most accounting standards including international and UK standards will eventually align to the US GAAP . This is because most international companies that wish to raise funds in the US capital markets or have operations in

the United States will be required to adhere to US Generally Accepted Accounting Principles (GAAP).

Internationally recognized bodies like the Financial Accounting Standards Board (FASB) and the Securities and Exchange Commission (SEC) determined for the harmonization of accounting standards at the global level. They have recognized the existing gap between the kind of information provided by accounting and the information needed by investors and stakeholders. The concerns raised by the FASB have led to a revision of the way in which IP is treated in Mergers and Acquisition (M&A). The new approach to IP in M&As is generally considered to be a very progressive step as it allows, for the first time in the history of accounting, to separately list the respective IP of the firms involved in the M&A and to put a value on such IP. The principal stipulations of all these accounting standards are that acquired goodwill needs to be capitalized on the balance sheet and amortized according to its useful life.

Recommended valuation methods are discounted cash flow (DCF) and market value approaches. The valuations need to be performed on the business unit (or subsidiary) that generates the revenues and profit. The accounting treatment of goodwill upon acquisition is an important step in improving the financial reporting of intangibles such as IPs. It is still insufficient as only acquired goodwill is recognized and the detail of the reporting is reduced to a minor footnote in the accounts.

There is also still a problem with the quality of IP valuations for balance-sheet recognition. Although some companies use an IP-specific valuation approach, others use less sophisticated valuation techniques that often produce questionable values. The debate about bringing financial reporting more in line with the reality of long-term corporate value is likely to continue, but if there is greater consistency in IP-valuation approaches and greater reporting of IP values corporate asset values will become much more transparent.

12.1 FAS 141 & 142: IMPORTANT STEPS TOWARDS THE RECOGNITION OF IP

Before the introduction of FAS 141 and FAS 142 in the US GAAP, **goodwill** was the only vocabulary used by the accounting profession to speak about IP. Historically, goodwill has been primarily defined in residual terms, that is, as the price a market

participant is ready to pay in excess of the value of a firm's tangible assets. (White G.I./Sondhi A.C./Fried C., 1994) The concept of goodwill is rather vague since anything that justifies a higher price for a company may be grouped under goodwill. This makes it rather difficult to compare the goodwill of different companies .

FAS 141 and 142 revised the way goodwill is treated in Mergers and Acquisitions. Whereas historically the balance sheets of two merging companies were simply added together (called the "pooling of interest for business combinations" method). The purchase method requires identifying each single acquired asset and determining its '**fair value**'. The overall purchase price must be distributed across all business items (intangibles and tangibles) that qualify as assets.

FAS 142 abolished the amortization of goodwill. Companies need to review on an annual basis the acquired IP and conduct an '**impairment test**'. To what extent the IAS 38 "Intangible Assets" which still requires the amortization of goodwill over a period of 20 years can be aligned to US GAAP. For example, Since German companies registered in the US can make their income statement under US GAAP incentives have been strong to report adequately valued trademarks on the balance sheet.

Further adaptations will be necessary to adequately reflect IP on the balance sheet. Apart from the fact that FAS 141 and 142 address M&A the implicit definitions in these paragraphs are not compatible with the characteristics of IP. Under FAS 141 and FAS 142, IP can be accounted for if it qualifies as intangible assets. Much of the IP held in a company will hardly pass that test. According to IAS 38, "an intangible asset must be identifiable, controlled by an enterprise as result of past events and should generate future economic benefits for the enterprise."

12.2 "FAIR VALUE" NOT COMMUNICATING EVERY THING ABOUT IP

A lot of the IP that a company owns has an indirect impact on its cash flows **Exclusivity in the relevant market** and/or the '**freedom to operate**'. This is also one of the major reasons why the notion of fair value does not reflect the value of IP. Under US GAAP fair value is defined as "the amount at which that asset could be bought or sold in a current transaction between willing parties, other than in a liquidation."

Accounting standards recommend a **benchmark approach** in order to determine the fair value of an asset. A benchmark provides little information about the relevance of IP to a particular company. Whereas some assets are general in use, others are special in application. There is no "one size fits all" approach to determining the value of IP. A benchmark is also difficult to establish in the absence of active markets. The markets for IP are much less established and unclear.

Context is an essential criterion to grasp the true value of IP. Take the example of a patented drug. Whereas it may be of immense value to a pharmaceutical company which has the necessary knowledge and experience to make use of it. It may be of very little value to a car manufacturer who has no use for it. This distinguishes IP fundamentally from many tangible assets, which are much easier to interchange and are usable in various contexts.

12.3 ACQUIRED AND INTERNALLY-GENERATED IP ACCOUNTING ARE DIFFERENT

Accounting has so far developed a very scarce vocabulary and syntax to communicate the value of IP to investors and managers. In accounting, the financial position of a company is phrased in terms of profits or losses, assets or liabilities. Among these variations the combinations that accounting currently allows to phrase IP are rather unsatisfactory and even the internationally most widely-accepted standards, the US GAAP and the International Financial Reporting Standards (IFRS) (formerly called - IAS) are not well equipped to deal with IP.

Internally generated IP is treated as an immediate expense. The same applies to Research and Development (R&D) related to the creation of IP. This means that the balance sheet offers distorted information on how IP is made. The costs incurred for the creation of IP are reported at **one single point in time**, while the IP is accounted for only in the context of a commercial transaction.

Unlike internally generated IP, acquired IP is reflected on the balance sheet. For example, according to US GAAP, IP is valued at its acquisition cost and amortized over a maximum period of 40 years. However, this may lead to serious confusion, whereas internally generated IP is considered to be worth nothing, the IP that change hands may be worth hundreds of millions of Dollars. Thus, a company which decides to sell or license internally generated IP appears to create profits virtually out of nothing, as the IP that generated these profits does not appear on its

balance sheet. To outsiders, this might look like magic, whereas it is nothing but the expression of unfortunately stated information. (Licensing Executive Society, 2002)

12.4 LACK OF VISIBILITY OF IP ON THE BALANCE SHEET

The lack of visibility of IP on the balance sheet makes it very difficult for management to shift the focus to developing and sharpen their IP strategies. A study conducted by the management-consulting firm McKinsey & Company found that in the US companies create on average not more than 0.5% of their operating income from the licensing of IP. McKinsey, however, calculates that firms could earn up to 10% of their revenues from the sale or licensing of IP. Top management also loose their focus without information. An IP report issued together with the accounting reports can be considered as a good interim solution to overcome the current communication gaps.

12.5 THE TANGIBLES-INTANGIBLES ACCOUNTING

“Tangible” and “intangible” assets receive differing accounting treatments, the former are considered assets, while the latter are ‘expensed’. This is primarily because of the high uncertainty regarding future outcomes of intangible investments, partial lack of control and non-tradability.

The high uncertainty of intangibles also highlights the importance of information concerning risk sharing. Similarly, information about trading knowledge assets in the traditional and virtual (Internet) markets for intellectual properties is highly relevant to both managers and investors. These indicators will also have important accounting implications. Effective exclusion of outsiders implies *control* over assets, an essential condition for asset recognition in financial statements. Thus, reliance on the economic framework for intangibles allows one to specify information relevant to decision makers.

An appreciation of the nature of accounting as it relates to intangibles also allows for a critical assessment of current proposals for information disclosure. Consider, for example, the suggestions for *continuous* (e.g., daily, weekly) financial reporting instead of the current quarterly and annual financial reports. No doubt, frequent releases of information on key items—such as software sales last month, airplane occupancy last week, or even daily store revenue by retailers—may provide relevant information to investors. For example, on November 27, 2000, three days after

Thanksgiving, *The Wall Street Journal* reported that Wal-Mart “said same-store sales on Friday rose 4% to 6% over the same day last year, while total sales for the day increased to more than \$1.1B, up slightly from last year.”

The crucial factor is *reliability* of the estimates underlying earnings and asset measurements. In general, the shorter the reporting period (a quarter, say, compared with a year), the *less* reliable are the estimates underlying the computation of earnings and asset values. For example, the estimate of the provision for customers' defaults. A default estimate based on past experience with *annual* sales, may provide a reasonable estimate of future default, since many transitory events and factors are smoothed out over the course of a year. In contrast, an estimate of customers' default related to last week's or yesterday's sales (continuous reporting) will be subject to enormous random errors, and hence be highly unreliable. This will adversely impact the quality of reported earnings and asset values. Indeed, empirical studies show that the longer the accounting period (a quarter, a year, five years), the more reliable earnings are as measures of corporate performance.

12.6 THE FAILURE OF FULL REVELATION FOR INTANGIBLES

Why does the full revelation principle fail to operate in the intangibles context? Why did a recent extensive study by the FASB of voluntary information disclosure by public corporations conclude the following: “The Steering Committee was pleasantly surprised to discover that companies presently are voluntarily disclosing an extensive amount of useful business information...The results of the over-all study included some *disappointments*. One was the general *lack of meaningful and useful disclosures about intangible assets*.” If after 10–15 years of unprecedented growth in the value and economic impact of intangibles, the Financial Accounting and Standards Board (FASB) still concludes that there is “lack of meaningful and useful disclosures about intangible assets,” one must ask whether this “experimentation process” is working, and how long might it last?

But why the information failure when it comes to intangibles?

- Motives of the major players in the information arena—managers, auditors, and well-connected financial analysts. This web of motives is referred to as the “politics of intangibles’ disclosure.” A specific example will highlight the argument. (Baruch Lev)

- In reality, there is only scant evidence of a link between improved disclosure and cost of capital, and the estimated reduction in cost of capital is very modest.
- The CFO mainly concerned with shareholder lawsuits, are comfortable with accounting rules that eliminate risky assets from the balance sheet that, in the occurrence of company failure.
- The Analysts particularly well-contacted ones believe that they obtain from managers sufficient information about firms' innovation activities. In fact, public disclosure in financial reports of such information may strip them of privileged information.

12.7 THE CURRENT DISCLOSURE ENVIRONMENT IN US WITH BUT ONE IMPORTANT EXCEPTION – SOFTWARE DEVELOPMENT COSTS – practically all-intangible investments are expensed as incurred in financial reports.

The costs of developing software products beyond the stage of technological feasibility usually determined by the existence of a working model, i.e., successful alpha or beta tests), have to be capitalized—namely considered an asset—and amortized according to the expected useful life of the software products.²¹ In 1998, The American Institute of Certified Public Accountants (AICPA) issued a Statement of Position (SOP) extending the capitalization of software development costs (beyond technological feasibility) to products intended for *internal use*.

- The justification for the software exception to the general rule of expensing intangibles appears to be that software projects are generally well defined (separable), of relatively short duration (compared, say, with drug development), and their benefits can in most cases be directly attributed to the investments. Such separability of projects and identifiability of benefits is missing, argue accountants, from most other intangibles.

In reality even this limited requirement to capitalize software development cost is ignored by many software companies, including the industry leaders, Microsoft and Oracle. These and other firms routinely expense all software development costs.

Financial analysts' uncertainty of the capitalization of intangibles strongly drives the expensing decision of many successful software companies. The fall on future earnings due to the amortization of capitalized software or write-off software capital

that is no longer commercially viable—is an additional deterrent to following the FASB’s software capitalization requirement. Whether capitalized or expensed, **R&D expenditures** are at least *reported separately* (a line item) in companies’ financial statement. This is not the case for most other intangible investments. In general no information is provided in financial reports on firms’ expenditures regarding employee training, IP enhancement, information technology investment, or other intangibles. No information on intangible investment (except for R&D) is provided to the general public.

The distinction between the **measurement** issues concerning intangibles and the **disclosure** of substantive information about intangibles is often lost in the professional’s debate. Some Professionals say “It’s impossible to value intangibles and, therefore, no change should be made in current corporate disclosures.” The difficulties in *valuing* intangibles—a measurement issue—should not preclude the disclosure in footnotes to financial reports or by other means of factual, important information, such as on investment in IT, employee training, customer acquisitions costs, Internet activities, etc.

It is widely recognized that the current accounting system does not convey relevant and timely information about

- Investment in discovery/learning both internal and acquired is expensed immediately in financial reports with most expenditures (e.g., on employee training, software acquisitions, investment in Web-based distribution systems) not even separately *disclosed* to investors.
- Ignores the implementation stage of the value chain (e.g., an FDA drug approval, a patent granted, or a successful beta test of a software product), although considerable value creation or destruction, as well as risk reduction, generally occurs during this stage. And even the commercialization stage which generates recordable costs and revenues, is reported in a highly aggregated manner, defying attempts to evaluate the efficiency of the firm’s innovation process, such as the assessment of return on R&D or technology acquisition, the success of collaborative efforts, or the firm’s ability to expeditiously “bring products to the market.”
- The structure of accounting, which essentially reflects **legally binding transactions with third parties**. In the current, knowledge-based economy, much of the value creation sometime by years, the occurrence of transactions.

The successful development of a drug, for example, creates considerable value, but actual transactions (sales) may take years to materialize. This is, by the way, the major reason for the growing disconnect between market values and financial information.

12.8 STANDARDIZING INFORMATION ON INTANGIBLES - ACCOUNTING

An appropriate accounting policymaking body, preferably the FASB with strong encouragement and oversight by the SEC, will take upon itself the major task of standardizing intangibles-related information.

By standardization,

- a) Creating a coherent structure of information, and
- b) Defining the individual information items composing the information

The individual items that make up the information structure—such as expenditures on customer acquisition, Internet traffic measures, or innovation revenues—will require *careful definition*. And valuation criteria must be clearly specified. The availability of a new disclosure structure, endorsed by the major accounting policymaking institutions—and perhaps by other influential bodies. **No news is bad news in capital markets, silence is penalized.**

12.9 AMORTIZATION OF INTANGIBLES

As with tangible assets, the amortization of **intangibles**

- Based on management's estimates of productive lives;
- Guided by industry norms and research findings;
- Rates may be revised as the actual benefits of intangibles materialize;
- A strict periodic impairment test should be applied as a safeguard against overvaluation.

When intangible inputs R&D expenditures, IP enhancement are expensed up front, and their benefits recorded in later periods, the reported earnings of both the early and subsequent periods are distorted. Recognition of intangibles as assets will lead

to reported earnings that more meaningfully reflect enterprise performance. Asset recognition will lead to more realistic earnings growth patterns.

12.10 ACCOUNTING FOR INTANGIBLES – U.S. GAAP

I. GENERAL PRINCIPLES

The broad principles governing the accounting for Intangible assets are laid out in APB 17. According to APB 17, Paragraph 9, a company should **record costs of intangible assets acquired from others, including goodwill, as an asset**. All costs incurred to develop **intangible assets that are not specifically identifiable should be recorded as expenses**. Where an intangible asset has been recorded, its **cost should be amortized by systematic charges to income over the estimated period of benefit** of the asset. The amortization period **should not exceed forty years** in any case.

The provisions of APB 17 apply to intangible assets recorded on the acquisition of some or all of the stock held by minority stockholders of a subsidiary company. The provisions of APB 17 are also applicable to costs of developing goodwill and other unidentifiable intangible assets with indeterminate lives, provided that a company records such expenditure as assets. APB 17 itself does not mandate as to what type of expenditures should be deferred as assets.

1. ACQUIRED INTANGIBLE ASSETS

Intangible assets acquired singly should be recorded at cost at date of acquisition. Cost is measured by the:

- a) Amount of cash disbursed, or
- b) Fair value of other assets distributed, or
- c) Present value of amounts to be paid for liabilities incurred, or
- d) Fair value of consideration received for stock issued as described in paragraph 67 of APB No. 161.

Intangible assets acquired as part of a group of assets or as part of an acquired company should also be recorded at cost at date of acquisition. Cost is measured differently for specifically identifiable intangible assets and those lacking specific identification. The cost of identifiable intangible assets is an assigned part of the total

cost of the group of assets or enterprise acquired, normally based on the fair values of the individual assets. The cost of unidentifiable intangible assets is measured by the difference between the cost of the group of assets or enterprise acquired and the sum of the assigned costs of individual tangible and identifiable intangible assets acquired less liability assumed. Cost should be assigned to all specifically identifiable intangible assets; cost of identifiable assets should not be included in goodwill.

Goodwill

Goodwill is defined as the excess of the cost of an acquired company over the sum of identifiable net assets. It is the most common unidentifiable intangible asset. While identifiable intangible assets may be acquired singly, as a part of a group of assets or as part of an entire enterprise, unidentifiable assets cannot be acquired singly.

Amortization of Goodwill. – APB 17 requires that goodwill be amortized using the straight-line method unless a company can demonstrate that another systematic method is more appropriate. In order to use an accelerated method to amortize goodwill a company has to demonstrate that:

- a) The amount assigned to goodwill represents an amount paid for factors such as those listed in paragraph 27,2 but there is not a satisfactory basis for determining appraised values for the individual factors, and
- b) The benefits expected to be received from the factors decline over the expected life of those factors.

APB 17, paragraph 31, also specifies that a company has to continuously evaluate the period of amortization of intangibles to determine whether later events and circumstances warrant revised estimates of useful lives. However, the useful life of the unidentifiable intangible asset cannot be revised upward in any case.

Subsequent Costs

Costs of developing, maintaining, or restoring intangible assets should be deducted from income when incurred provided any of the following conditions are satisfied:

- a). The asset is not specifically identifiable
- b). The asset has an indeterminate life

- c). The asset is inherent in a continuing business and related to an enterprise as a whole.

12.11 ACCOUNTING FOR INTANGIBLES - INTERNATIONAL ACCOUNTING STANDARDS

IAS 38 deals with the accounting for Intangible Assets.

I. General Principles

According to IAS 38, an intangible asset is recognized on the balance sheet if the asset's cost can be reliably measured and all future economic benefits specifically attributable to the asset will flow to the enterprise. All other costs incurred for non-monetary intangible items should be expensed. The intangible asset is reported in the balance sheet at its cost less any accumulated amortization and any accumulated impairment costs.

1. Definitions

Intangible Assets. – Intangible Assets are defined as non-monetary assets without physical substance held for use in production or supply of goods or services, for rental to others, or for administrative purposes:

- a) That are identifiable;
- b) That are controlled by an enterprise as a result of past events; and
- c) From which future economic benefits are expected to flow to the enterprise.
- d) The definition of intangible assets requires that the asset be identifiable in order to distinguish it from goodwill.

Goodwill. – Goodwill represents future economic benefits from synergy between identifiable assets or from intangible assets that do not meet the criteria for recognition as an intangible asset.

Cost. – The amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or production.

2. Recognition and Measurement of Intangible Assets

According to the standard an intangible asset should be recognized as an asset if and only if:

- a) It is probable that future economic benefits specifically attributable to the asset will flow to the enterprise,
- b) The cost of the asset can be measured reliably. The asset that is recognized should be initially measured at cost. The future economic benefits flowing from an intangible asset may include revenue from sale of products or services, cost savings, or other benefits arising from use of the asset by the enterprise itself. The standard lays down rules for an enterprise to demonstrate that future economic benefits specifically attributable to an intangible asset will flow back to an enterprise. The enterprise is required to show that:
 - a) The intangible asset will enhance the enterprise's net inflow of future economic benefits,
 - b) It has the intention and ability to use the intangible asset,
 - c) It has the adequate technical, financial and other resources available to obtain the expected future economic benefits.

3. Internally Generated Goodwill

Under no circumstances should internally generated goodwill be recognized as an asset.

Internally generated goodwill is not recognized as an asset because no resource is created that is controlled by the enterprise, which will generate specific future economic benefits and that can be reliably measured at cost.

4. Subsequent Costs

Subsequent costs on an intangible asset should be recognized as an expense when they are incurred unless:

- a) It is probable that those costs will enable the asset to generate specifically attributable future economic benefits in excess of the originally assessed standards of performance,
- b) Those costs can be measured and attributed to the asset reliably.

In the absence of these conditions, the subsequent costs incurred on the intangible asset should be expensed.

5. Amortization

IAS 38 requires that cost of the intangible asset be amortized over the estimated useful life of the asset. In the absence of any other information to the contrary, the useful life of an intangible asset is presumed to be 20 years.

12.12 ACCOUNTING POLICY OF MICROSOFT:

We account for research and development costs in accordance with several accounting pronouncements, including SFAS No. 2, *Accounting for Research and Development Costs*, and SFAS No. 86, *Accounting for the Costs of Computer Software to be Sold, Leased, or Otherwise Marketed*. SFAS No. 86 specifies that costs incurred internally in researching and developing a computer software product should be charged to expense until technological feasibility has been established for the product. Once technological feasibility is established, all software costs should be capitalized until the product is available for general release to customers. Judgment is required in determining when technological feasibility of a product is established. We have determined that technological feasibility for our software products is reached shortly before the products are released to manufacturing. Costs incurred after technological feasibility is established are not material, and accordingly, we expense all research and development costs when incurred.

NOTE 9 INTANGIBLE ASSETS – MICROSOFT US

The components of finite-lived intangible assets are as follows:

| (In millions) | | | | | | |
|-------------------|-----------------------|--------------------------|---------------------|-----------------------|--------------------------|---------------------|
| June 30 | 2004 | | | 2005 | | |
| | Gross carrying amount | Accumulated amortization | Net carrying amount | Gross carrying amount | Accumulated amortization | Net carrying amount |
| Contract-based | \$ 908 | \$(476) | \$432 | \$957 | \$(606) | \$351 |
| Technology-based | 278 | (183) | 95 | 309 | (200) | 109 |
| Marketing-related | 35 | (19) | 16 | 35 | (25) | 10 |
| Customer-related | 30 | (4) | 26 | 40 | (11) | 29 |
| Total | \$1,251 | \$(682) | \$569 | \$1,341 | \$(842) | \$499 |

During fiscal year 2004, we recorded additions to intangible assets of \$355 million, of which \$266 million was related to a comprehensive intellectual property license that we received in conjunction with the settlement of *InterTrust v. Microsoft*. During fiscal year 2005, we recorded additions to finite-lived intangible assets of approximately \$90 million. No other material intangibles were acquired in fiscal year 2004. We estimate that we have no significant residual value related to our finite-lived intangible assets. The components of finite-lived intangible assets acquired during fiscal years 2004 and 2005 are as follows:

| <i>(In millions)</i> | | | | |
|---------------------------|---------------|------------------------------|---------------|------------------------------|
| Year Ended June 30 | 2004 | | 2005 | |
| | Amount | Weighted average life | Amount | Weighted average life |
| Contract-based | \$324 | 9 years | \$16 | 6 years |
| Technology-based | 28 | 4 years | 64 | 5 years |
| Customer-related | 3 | 3 years | 10 | 5 years |
| Marketing-related | - | - | - | - |
| Total | \$355 | | \$90 | |

Acquired finite-lived intangibles are generally amortized on a straight-line basis over weighted average periods. Intangible assets amortization expense was \$170 million for fiscal year 2004 and \$161 million for fiscal year 2005. The estimated future amortization expense related to intangible assets as of June 30, 2005 is as follows:

| <i>(In millions)</i> | |
|---------------------------|---------------|
| Year Ended June 30 | Amount |
| 2006 | \$123 |
| 2007 | 99 |
| 2008 | 81 |
| 2009 | 50 |
| 2010 | 39 |
| Total | \$392 |

12.13 HOW IFRSS PUT IP ON THE BALANCE SHEET

The IASB, in its reasoning accompanying the issue of international accounting standard (IAS) 38, intangible assets, noted that intangible assets were becoming an increasing proportion of the assets of many entities, and pointed to the lead given by Canadian and US standard setters whose view was that the usefulness of financial statements would be enhanced if intangible assets acquired in a business combination were distinguished from goodwill.

The equivalent US GAAP standard, statement of financial accounting standards (SFAS) 141, is more explicit, stating that “Users of financial statements also indicated a need for better information about intangible assets because those assets are an increasingly important economic resource and are an increasing proportion of the assets acquired in many business combinations.”

So, if better information for users of financial statements is a key driver, logically those users would wish to be better informed, not only about future business combinations as and when they arise, but also about those past business combinations that created the company they see today.

For some businesses, the strength of their brands is the key driver of future profitability and cash flows. Recognizing these key assets, at least when they have been acquired in a business combination, will reinforce the message to investors and help them to judge whether those brands are in good health. Investment in brands will become a more important measure, when the brands themselves are financially visible. A company that starves its brands of investment to deliver better short-term profits will not be rewarded by investors. And while analysts have routinely added back goodwill amortization to profits as this was a non-cash item, they would do well to pay attention to impairment charges against brand values, as required under IFRS36 (see below), as these will be clear indicators of damage to future cash flows.

12.14 ACQUIRED INTANGIBLE ASSETS

Intangible assets acquired in a business combination must be recognised separately from goodwill if:

- They are identifiable
- Their cost, based on fair value, can be measured reliably

The fair value can be based on:

- A quoted price in an active market
- The amount the entity would have paid in an arm's length transaction
- A calculated value using earnings multiples, the relief from royalty method or discounted cash flows

12.15 INTERNALLY GENERATED INTANGIBLE ASSETS

Internally generated intangible assets resulting from development expenditure must be recognised if certain conditions are met. The key conditions are that:

- The asset is identifiable
- Future economic benefits are probable
- The company has the intent and ability to complete the asset.

12.16 OTHER FEATURES OF IFRS 3

- You can elect to reclassify prior business combinations.
- The standards specifically exclude research expenditure and brands, mastheads and customer lists
- Internally generated intangible assets, arising from development work on such things as pre-production prototypes, new materials, devices, products etc. must be recognised on your balance sheet if a series of tests are passed. Expenditure on brands, mastheads and similar are specifically excluded.
- Intangible assets must be assigned a useful life and will be amortised over that life.
- It is possible to assign an indefinite useful life in which case there is no amortisation charge.
- Goodwill arising from a business combination must be reported on the balance sheet and is not amortised.

- Intangible assets with an indefinite life and goodwill must be tested annually for impairment and any resulting reduction in value charged to P&L.
- Restatement to IFRS may result in material adjustments to your balance sheet and profits.
- This may be classified as price sensitive information and must be handled accordingly.

12.17 GREATER ACCOUNTING HOMOGENY WILL MAKE GLOBAL STRATEGIC MANAGEMENT OF INTELLECTUAL PROPERTY LESS COMPLICATED. IFRS EXPERIENCE

This will be evident in both internal and external licensing. The licensing of intellectual property between US parent companies and their global subsidiaries or vice versa can be an effective measure of profit contributions from different territories and business divisions, something which companies such as Walt Disney, Dolby and IBM use to great effect.

1. **Licensing** intellectual property to subsidiaries also forces them to appreciate and develop the intangible asset value they are paying for and responsible for applying in the market. For European companies too, such as Nestlé, this new legislation will facilitate internal licensing and support strategic intellectual asset management. Nestlé holds all its intellectual property centrally in Switzerland. Its different global subsidiaries pay a royalty for the use of its trademarks, patents and licenses.
2. With a more common accounting standard the amount of revenue generated by subsidiaries will be more comparable. More comparable accounts will give strategists a more balanced view of the value contribution from intellectual property.
3. IFRS will also help highlight which intangible assets are generating most revenue and from which division, territory and subsidiary.
4. Royalty rates for external licensing agreements will be able to be set more accurately.
5. The value of intangible assets on the balance sheet of competitors could be used as an additional benchmark for setting royalty rates for comparable intellectual property.

6. **M&A decisions:** Another strategic benefit of greater transparency of accounting information on intellectual property will arise following a merger or acquisition. Following the acquisition, **ebookers** planned to benefit from an increased scale with higher margins and improved buying power; a potential crossover of the most valuable intangible assets – the brands; the Bridge the World brand was valued at £2m and the Travelbag brand value was £32m. , Then the decision on which brand to keep and which one to dispose of, suddenly became very easy – they had the value of both brands. As it transpired, ebookers decided to keep both the acquired brands as they complemented the overall ebookers strategy. In different circumstances, however, having the value of the intangibles already on the balance sheet in mergers or acquisitions would make the choice a lot simpler.
7. **The final analysis:** What becomes apparent from a thorough understanding of the implications IFRS has for intellectual assets is the amount of potential benefits and strategic advantages it creates, specifically for capitalizing unexploited intellectual property. The key thing, however, is the word **potential**. It is possible to leave IFRS in the hands of the accountants and this will serve no purpose other than straight compliance. To fully realize intellectual property equity and to extract maximum value from it, it is necessary to fully commit to building intellectual property valuations into overall strategic intellectual asset management.
8. There are two main reasons the accountants want to gain control of brands. Firstly, intangible assets such as brands generally account for the majority of a company's market value: 70% for Disney, 76% for Nike, 85% for Heinz and 98% for Microsoft. Secondly, brands are the vehicle through which companies generate cash.
9. One of the main strategic benefits of applying IFRS for brands is the opportunity to construct a value contribution analysis tool for use in on-going brand management. If a brand is valued in the different markets, categories and territories it operates in – the sum of which is the total brand value – the contribution each makes to the overall brand value is easily identified. Taking this a stage further, each of the individual brand values are constructed from parameters such as brand awareness, brand relevance, brand differentiation, brand preference and brand loyalty. Each individual brand value can then be analyzed to find what is driving the value and what needs attention. As well as helping identify an individual brand's strengths and weaknesses, valuing

brands for IFRS is especially useful for analyzing the value contribution of brands in a portfolio. United Biscuits, for example, may find this an effective strategy to incorporate into its mandatory brand valuations for IFRS so it can effectively monitor the value and performance of the Twiglets, Thai Bites and Jacob's Cream Cracker brands it bought in September 2004.

10. Robust benchmark of return on investment (ROI): Impairment testing will reveal how brands and the parameters that drive the valuation are performing. This is useful for analyzing the effectiveness of brand investment, monitoring the performance of the people responsible for them and aiding the strategic allocation of resource.
11. Communicating the results of the brand valuation to stakeholders can be an effective strategy to impact the share price and generate sales. The effect of informing city analysts and journalists of the brand value and strategy will be reflected in the share price. Shareholders and potential investors too, seeing positive results and PR, will assume greater confidence in the company. Also, employees and customers will have a fuller appreciation of the brand value, manifesting itself in increased sales, profits and cash flows.
12. A stronger balance sheet will do no harm to credit ratings while, for those grappling with the hedge accounting provisions of IAS 39, Financial Instruments Recognition and Measurement, recognition of brands may help by creating assets in the currencies which companies seek to hedge.
13. Another benefit to those companies, which are also listed on a US stock exchange, is the opportunity to eliminate some of the differences between UK and US GAAP reporting, where brands have long been recognised. It would be ironic if, despite all the efforts to achieve convergence between US GAAP and international standards, balance sheets were left with reconciling items for years to come.
14. Of course there are also downsides to having brands on the balance sheet. Poor management will be more readily exposed, if brands or goodwill become impaired, but isn't that the point of financial reporting?

The recognized intangibles will be reported on corporate balance sheets, thereby placing intangible assets in a common footing with physical assets. The amortization and write-offs of intangibles will convey valuable information about managers' assessment of the expected benefits of intangibles. **Recognition of intangibles** will

curb early recognition of revenues or exaggerated restructuring charges as intangibles' recognition is clearly and separately disclosed in the financial reports allowing skeptical investors.

Intangibles' asset like IP recognition is a vehicle for managers to share with investors valuable information about the progress and success of innovation-producing activities.

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