CHAPTER - 1
INTRODUCTION

Accounting is considered to be the language of business. It has evolved and emerged in response to the social and economic needs of the society. As trade, commerce and industry progressed; many new dimensions have been added to the accounting discipline. During the pre-industrial age (before 1850), business firms being mostly proprietary owned, laid greater emphasis on balance-sheet as the owner was more interested in knowing his capital, i.e., assets minus liabilities. The financial statements were prepared primarily to reveal the wealth earned by the proprietor of the firm, as a result the quantum of disclosure was very small. Growth of corporations, separate entity concept, company form of organizations, large-scale production, cutthroat competition during industrial age (1850-1975), led to the development of various new financial control systems such as Return on Capital Employed (ROCE) and Return on Investment (ROI), in order to monitor efficient allocation of financial and physical capital (Kaplan and Norton, 2000). As a result, the focus of accounting shifted from just recording, classifying, summarizing and interpreting the results\(^1\) to identifying, measuring and communicating economic information to permit informed judgments and decisions by users of the information\(^2\). According to SFAC-I (1978), “financial reporting should provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit and similar decisions”. During this age, the ways in which companies created value were based upon the efficient use of physical resources such as raw material and machinery, the only intangible asset recognized in financial statements has been intellectual property rights such as patents and trademarks where a market value has been established by a transaction, and acquired items such as goodwill (OECD, 2006).

\(^1\) Accounting Terminology Bulletin No.1, Review and Resume, AICPA,1953, paragraph 9.
The emergence of information age in the last decade of twentieth century, led business to compete in a challenging market place that is rapidly changing, complex, global, hyper competitive and intensely customer focused. The organizations responded to these pressures of information age in a unique manner. The major responses include strategic approach, customer focus and service orientation, continuous improvement, empowering employees and fostering collaborative work, team-based structure and business alliances, which are more of intangible nature (Turban et al., 2000). Further, the growth of service sector and information technology along with dramatic increase in the number and size of mergers and acquisitions made accounting for goodwill and other intangible assets such as brands, research and development significant (Saudagaran, 2001). Thus no longer can companies gain sustainable competitive advantage by merely monitoring efficient allocation of tangible resources like physical assets and excellent management of financial assets and liabilities. As Goldfinger (1997) suggests that the source of economic value and wealth is no longer the production of material goods but the creation and manipulation of intangible assets.

In the present scenario the information moves so rapidly around the world that industrial secrets, technical advantages and managerial innovations can evaporate with the speed of an electronic mail. This speed of change and dispersion of information gave birth to knowledge-based economy which is driven by increased workforce mobility, growing complexity in business environments, the need to reduce loss of intellectual assets from employee turnover, the need to operate at global level, increasing shift from tactical to strategic approach and steady absorption of internet and wireless technology (Rao, 2003). As a result, the new source of wealth is not material; it is information, knowledge applied to work to create value. It is the human intelligence and intellectual resources which are now any company’s most valuable assets.
The increased role of intangibles can be well assessed from the changing market to book value differences. A study of S&P 500 companies reveals that since the mid-1980s, there has been a large increase in the ratio of market value to book value, albeit with very high volatility. At its peak in March 2000, the ratio of market value to book value was 7.5. At the end of 2005, it was 4.1, and it may still go down. However, even if the ratio fell to 4 or even 3, it would be high enough to confirm that an amount of value equal to between one-half and two-thirds of corporate market values reflects the value of intangible assets (Lev, 2003). Further, Lev (2004; p.109) harps, “intangible assets which include a skilled workforce, patents and know-how, software, strong customer relationships, brands, unique organizational designs and processes, and the like generate most of corporate growth and shareholder value. They account for well over half the market capitalization of public companies. They absorb a trillion dollars of corporate investment funds every year. In fact, these ‘soft’ assets are what give today’s companies their hard competitive edge”.

In the light of increasing importance of intangible assets in today’s economy, the traditional model of accounting, which so beautifully described the operations of companies for a half millennium, is now failing to keep up with the revolution taking place in business. Like the organization chart, printed corporate brochure, and employee handbook, corporate financial documents are increasingly proving themselves too static and hidebound to keep up with the modern organization with its fluid structure, strategic partnering, empowered employees, groupware, multimedia network marketing and vital reservoirs of human intellectual resources (Edvinsson and Malone, 1997). Also in the words of Egol, “Double entry book keeping derived accounting model is transaction based, information captured is, for most part, limited by whether an ‘exchange’ has occurred. Hence, the values created by successful strategic positioning, human capital development and organizational innovation are not reflected in this model” (Sisodia, 2001, p.1). As a consequence, the traditional financial accounting model needs to be
expanded to incorporate the valuation of a company’s intangible assets along with tangible assets, so as to enhance the usefulness of accounting information. Indeed amongst users of financial accounting information, there is a growing demand for extensive corporate disclosures on intellectual capital matters. Taylor and associates (1998), for example, reported disclosure of intellectual capital information ranked in the top ten information needs of users. But financial reporting and accounting systems are not able to deal with intangibles. According to Adrienne Baker, Editor-in-chief of investor relations magazine, over half of the information investors want is not reported on the balance-sheet. Left out are important items such as growth opportunities, infrastructure, intellectual capital, network effects, workforce and in-process research and development. Also, Commissioner of SEC Cynthia A. Glassman mentions that “accounting standards (known as GAAP-Generally accepted accounting principles) are less effective in providing relevant information on intangible assets, such as technology rights, human capital and innovation” (Jarboe, 2005; p.2). Despite these regulatory limitations, increasing number of companies are voluntarily opting to include information on their intangibles in the notes to their annual accounts or as an appendix thereto. Lang and Lundholm (1993) and Tasker (1998) reveal in their studies that companies with high level of intangibles emphasize voluntary disclosure. In yet another study undertaken by Kang (2006) it has been found that emerging market companies engage in voluntary disclosure practices in order to disseminate different varieties of mainly quantitative intangible asset information to their global stakeholders. But this disclosure on intangibles is on an unsystematic basis and with great discrepancies between companies, sectors and countries as evidenced by PriceWaterhouseCoopers (PWC) in its 2005 annual trends report. The reason for this heterogeneity is the absence of conceptual framework within the accounting academics. This is being evidenced from different terms used for intangibles in different studies. There is a widespread tendency to use the terms “intangibles”, “intellectual capital” or “intellectual assets” interchangeably. Some will find differences between these terms, but
they refer to the same reality: a non-physical asset with a potential stream of future benefits (OECD, 2006). Similarly, Oliveras and Kasperskaya (2002) mention that an organisation business knowledge can be called by a variety of names, of which ‘intellectual capital’ and ‘intellectual assets’ are the most common. Further, Lev (2001) uses the terms intangible assets, knowledge assets and intellectual capital interchangeably, arguing that they differ only in their discipline of origin- the accountants intangible assets are knowledge assets for economists and intellectual capital for managers and lawyers. However, in the present study the term ‘intangibles’ has been used.

1.1 REVIEW OF LITERATURE

The topic of accounting and reporting for intangible assets has been discussed in various studies for a long time (Dicksee, 1897; Leake, 1914; Canning, 1929). However, it is only during the last two decades that more attention has been given to intangible assets (Egginton, 1990; Hodgson et al., 1993). Studies relating to intangibles are discussed under the following headings:

- Studies highlighting the importance of intangibles.
- Studies highlighting the decreasing relevance of traditional reporting due to lack of information on intangibles in annual reports.
- Studies highlighting the need for disclosure on intangibles.
- Studies highlighting the disclosure practices on intangibles.
- Studies highlighting the issues on intangibles.

1.1.1 Studies Highlighting the Importance of Intangibles

Many scholars have highlighted the importance of intangible assets in the changing business scenario. Amir and Lev (1996) found that earnings and book value are not associated with value for firms in the intangibles rich wireless communications industry. This indicates that the firms are expensing intangibles and investors recognize the expensed intangible assets and
incorporate this information into firm value. Aboody and Lev (1998) revealed that in software industry annually capitalized development costs are positively associated with stock returns; and the cumulative software assets reported on the balance-sheet are also associated with stock prices. The researchers indicate that capitalization related variables (annual amount capitalized, the value of software asset and its amortization) are significantly associated with capital market variables and future earnings and hence software capitalization summarizes information relevant to investors but it is not generalized for all kinds of intangibles. Luft and Shields (1999) found that individual’s decision-making is affected by mis-classification of assets as expenses. Their experiment reveals that individuals using information on intangibles expenditure to predict profits are significantly less accurate and less consistent. Deng et al. (1999) reviewed the capacity of various indicators based on citation of patents to predict future returns and market-to-book ratios in several research and development (R&D) intensive sectors. Four of these indicators are significantly associated with future returns and market-to-book ratios. These are: the number of patents granted to a company for a given year, the intensity of citations of a company's existing patents in subsequent patents, a measurement of the scientific link, and the intensity of R&D (R&D expenditures/ sales). Lev (2001) pointed to the fact that measures on the management of intellectual capital provide more relevant information than the profit and loss account or the funds flow statement. He established a link between R&D accounts, the closest precursor to intellectual capital, and business results and found that the companies that invest in R&D obtain profits up to four times greater than the companies that make no investment therein. Kohlbeck and Warfield (2002) found that unrecorded intangible assets in the equity valuation model improve the performance of the model because the level of the firm’s intangible assets including banks is positively associated with the firm’s future earnings. Shi (2002) revealed that in software industry, relative to the expensing alternative, the capitalization and subsequent amortization of software development costs increase earnings variability and
analyst - forecast errors are positively correlated with the same, i.e., higher earnings variability resulting from capitalization of software costs contributes to larger analyst forecast errors. Mahony and Vecchi (2002) analyzed the relationship between intangibles and the productivity using the company accounts data for five countries, viz. US, UK, Japan, France and Germany, and provided evidence of higher productivity in R&D intensive industries as compared to capital intensive industries.

1.1.2 Studies Highlighting the Decreasing Relevance of Traditional Reporting Due to Lack of Information on Intangibles in Annual Reports

Further, several studies argue that with the increasing importance of intangibles, the value relevance of financial traditional reporting is decreasing. As Hope and Hope (1998) stated that traditional financial reports no longer provide the information required by companies or investors because of the absence of intangible assets. Lev and Sougiannis (1996, 1999) proposed a new explanation for the association between book-to-market ratio and stock returns. Using a sample of 1200 companies they showed that low book-to-market ratio companies have a large R&D capital, while high book-to-market ratio companies have low R&D investment. They also pointed out that book-to-market ratio is, in fact, an approximation of the value of a company's innovative capital, which does not appear in the balance-sheet. This capital is valued based on the R&D expenditure of the firms in their sample. Collins et al. (1997) revealed that both, the joint and the incremental explanatory power of earnings and book values for stock prices have diminished during the last forty years due to the increasing relevance of intangibles not included in the annual reports. Lev and Zarowin (1999) argued that the increasing rate of change experienced by companies, coupled with the ineffectiveness of the accounting system in reflecting the consequences of change, are the major reasons for the decline in the usefulness of financial information. They further argued that the major initiators of change in developed economies are
innovative activities. Taking the form of investment in intangible assets such as research and development, information technology and human resources, these innovative activities constantly change firm’s products, operations, economic conditions and market values. Still, it is in this area that accounting is least accurate in reflecting enterprise value and performance, primarily due to the mismatching of costs with revenues. Arcy et al. (2003) assessed the relevance of intangible assets in Japanese and German accounts of listed companies and found that the comparability of accounts is impaired because of different accounting practices. Moreover, the study revealed that most of the Japanese companies do not disclose any information on software costs while few companies disclose goodwill amounts in their balance-sheet as compared to the German companies. Lev and Zambon (2003) stated that the rise of intangible assets shows the limits of the traditional external accounting approach that is based on transactions.

1.1.3 Studies Highlighting the Need for Disclosure on Intangibles

As a result, many scholars stress on the increased level of disclosure in financial reports. Narayanan et al. (2000) stated that careful disclosure of information, even of strategically sensitive information concerning R&D intentions is beneficial in terms of market value. Many other studies reveal that the increased level of disclosure (in terms of either quantity or quality or both) reduces information asymmetries (Welker, 1995; Botosan, 1997; Botosan and Frost, 1998; Sengupta, 1998; Healy et al., 1999). Similarly, Barth and Kaznick (1999) stated that information asymmetry induced by the presence of intangibles is positively associated with stock returns during periods of repurchase announcements. Ali et al. (2000) showed that based on abnormal return to change in institutional holding, information asymmetry between institutional investors and other investors is more pronounced for firms with measures of unrecorded intangible assets. Aboody and Lev (2000) demonstrated that information on R&D is a major contributor to information asymmetry and insider gains. Boone and Raman (2001) concluded that higher
bid–ask spreads for R&D intensive firms indicates higher information asymmetry and cost of capital for these firms. Barth et al. (2001) found that after controlling for other firm attributes, firms with significant intangible assets attract more analyst coverage. This finding is consistent with the notion that firms with more intangible assets have more information asymmetry between firm insiders and investors. Barron et al. (2002) revealed that the firms with higher, mainly unreported intangible assets provide analysts with profitable information acquisition and processing opportunities to generate value by moving stock prices closer to their fundamental values. Beatie and Thomson (2005) revealed that deficiencies in disclosure about intangible assets can result in systematic undervaluation by investors.

1.1.4 Studies Highlighting the Disclosure Practices on Intangibles

There are two options available with the companies to increase the level of disclosure. First option is the voluntary disclosure which includes articulation of the long-term strategy, specification of non-financial leading indicators useful in judging the effectiveness of the strategy implementation and the discussion of the relation between the leading indicators and future profit. The second option is signalling with finance policies which include cash payout policies, financing choices and hedging strategies to reinforce the message in the firm’s financial reports (Healy and Palepu, 1993). Grojer and Johanson (1999) opined that during periods of rapid business changes a compulsory standard can produce greater harmful results than a voluntary one. So, an intermediate organisation such as OECD, can issue some guidelines for voluntary disclosure as supplementary information. Similarly, Wyatt (2005) in his paper mentioned that limiting the choice to record intangible assets would tend to reduce, rather than improve, the quality of the balance-sheet and investors’ information set. Further, Lang and Lundholm (1993) and Tasker (1998) revealed in their studies that the companies with high level of intangibles emphasize voluntary disclosure and provide supplementary information and comments on intangible assets together with
traditional financial statements to convey information to investors. Moreover, the pressure on companies to voluntarily disclose relevant and credible information on intangible assets is increasing as its role for determining future potential has increased. Firms that are concerned with their relationship with capital markets should develop strategies for voluntarily disclosing information and their strategies for creating value in a way that it obtains credibility by the actors on capital markets (Rylander et al., 2000). Many companies have preferred voluntary disclosure in their financial reports. Singleton and Globerman (2000) found that average voluntary disclosure of Japanese companies have increased over the time. The study used the disclosure index developed by Botosan (1997) as the measurement categories more closely reflect voluntary behaviour for the sample firms of the study. Moreover, the study indicated that the Japanese disclosure practices are sensitive to economic conditions.

Williams (2001) in his study provided a longitudinal examination of intellectual capital disclosure practices in the annual reports of 31 FTSE 100 listed companies from 1996-2000. Based on the findings, the study concluded that between each consecutive year of the study survey period there is a significant increase in the amount of intellectual capital disclosure in annual reports. The study also investigated the relationship between the intellectual capital performance (measured by the Value Added Intellectual Coefficient (VAIC™) developed by Ante Public in 1998 and the extent of intellectual capital disclosure. These empirical findings did not indicate a systematic relationship between intellectual capital performance and the quantity of disclosure during the survey period. Citron et al. (2005) investigated the extent to which annual reports narrate about firms intellectual capital. It examined, firstly, whether intangible intensive firms make more intellectual capital disclosures than less intangible intensive firms; and secondly, whether intellectual capital disclosures are associated with market values or not. The authors classified the disclosure under three main intellectual capital headings, i.e. Human, Relational and Structural. Results show that relational
capital disclosures provide 60% of all intellectual capital disclosures, structural capital provides 25% and human capital provides 14% of all intellectual capital disclosures. This is because of the fact that relational capital disclosures are significantly positively associated with market value across all firms, whereas structural and human capital disclosures have no significant association with market values. Another study by Bergamini and Zambon (2005), empirically tested the model developed by Italian Association of Financial Analysts (AIAF) to evaluate the trend of disclosure on intangibles in the Italian context. The sample is composed of sixteen major companies which have been continuously listed on the Milan Stock Exchange in the period 1995-2000. The results suggest that the disclosure on intangibles has increased over the last five years. Also, Italian companies provide more voluntary than mandatory information on intangibles. Kang (2006) examined the voluntary disclosure practices of the top 200 emerging market companies regarding the variety, nature and extent of intangible assets. Using a value chain scoreboard as a disclosure index, the author found that about 98.34% of sample companies disclose intangible information in their annual reports. Majority of intangible asset information disclosed is related to discovery and learning phase (63.4% of total disclosure) followed by commercialization (31.20%) and then implementation (5.70%).

1.1.5 Studies Highlighting the Issues on Intangibles

The major issues on reporting of intangibles are discussed in three parts i.e. definition of intangibles, classification of intangibles and reporting of intangibles.

1.1.5.1 Definition of Intangibles

There is no agreement on the definition of intangible assets within the accounting academic community (Canibano et al., 2000; OECD, 2006). According to Stolowy and Jeny (2001), there is no conceptual framework commonly accepted and there is a considerable lack of consistency both inter
and intra-country. Some experts view intangible assets in a narrow perspective considering intangibles as financial in nature, whereas others view it in a broad perspective considering intangibles as non-financial in nature.

The issue is whether the intangibles should be defined as a financial or a non-financial indicator. As intangibles are the source of future economic benefits to the firm, they should be considered as assets and thus, reflected in the annual accounts (Canibano et al., 2000). Many authors favour this concept as Lev and Zarowin (1999) claimed that intangibles should be treated like any other tangible assets. Similarly, Hendriksen and Breda (1992, p.634) argued that, “intangibles are no less assets just because they lack substance. Their recognition should follow, therefore, the same rules as all assets”. Asset in most countries is defined as, “probable future economic benefits controlled by the firm that can be reliably measured” (Zambon, 2003; p.90). As a result most of the definitions of intangibles revolve around the definition of asset except the term 'lack of physical substance', for example, Pyle et al. (1978) viewed intangible assets as “assets which have no physical existence; rather, they represent certain legal rights and economic relationships which are beneficial to the owner”. Further, International Accounting Standard-38 (1998) defined an intangible asset as “an identifiable non-monetary asset without physical substance”. According to Canibano et al. (2000) intangible assets are “sources of probable future economic profits lacking physical substance (other than deferred charges) which are controlled by a firm as a result of previous events and transactions (self-production, purchase or any other type of acquisition) may or may not be sold separately from other corporate assets”. Zambon (2003) defined intangible assets as, “non-physical sources of expected future benefits”. On the whole most definitions seem to agree that intangibles have three core characteristics, viz. they are sources of probable future economic profits; lack of physical substance; and to some extent, they can be retained and traded by a firm. Treating intangibles as assets involves basically three problems: firstly, it is very difficult to ‘reliably measure’ the future benefits of intangibles because of the lack of an efficient external
market; secondly, many intangibles are not 'controlled' by the firm in the same way as tangible assets, for example skilled employees; and thirdly, it is difficult to directly link the cost of an acquired intangible assets say, expenditure on R&D, to a future revenue inflow. As a result, a number of intangibles are not recognized in the financial statements, leading these definitions to be restrictive, concise and simple in nature.

Another emerging approach in the accounting literature considers intangibles as non-financial indicators. As Sveiby (1997) argued that intangibles are essentially non-financial and we therefore need new, non-monetary proxies to measure them. As a result, the scope of intangibles has evolved in recent years from such a narrow focus to a broader concept which includes human resources and capabilities, organizational competencies (data bases, technology, routines and culture) and relational capital including (organizational designs & processes, customer and supplier networks). A formalized definition of intangibles is provided by Itami, who described them as “the result of incorporating information and know-how into an organization’s productive activities, including the tacit and explicit knowledge which generates economic value for the company”. Lev (2001) defined intangibles as, “non-physical resources of value (claims to future benefits) generated by innovation (discovery), unique organizational designs or human resource practices”. This view is supported by management thinkers such as Edvinsson and Malone (1997) who see intangibles as the 'hidden capabilities' of an organisation and consider them as deriving from three key sources – human capital, customer or relational capital and structural or organizational capital. Thus, a list-type approach is emerging whereby a list of non-financial indicators is being provided. As Stolowy and Jeny (1999) mentioned that the countries without a conceptual framework for the intangibles simply follow a list-type approach. A number of models which provide list of non-financial indicators on intangibles are being proposed by many authors and these are being discussed in the third section, i.e. reporting of intangibles.

3 Definition is taken from Oliveras and Kasperskaya (2002).
1.1.5.2 Classification of Intangibles

There is no generally accepted classification on intangibles within the accounting academics. Number of authors and professional bodies have classified intangibles in their own way. Some of these classifications are being discussed as follows. In general, intangible assets may be classified as goodwill to be identified separately or grouped into different categories. Hendriksen and Breda (1992) classified assets into traditional intangibles (such as Goodwill, brand names or patents) and deferred charges (such as advertising and R&D). White et al. (1994) viewed that intangibles are often identified with goodwill and understood as the excess cost of an acquired company over the value of its net tangible assets. Mortensen et al. (1997) propose a five category classification of intangibles, i.e. innovation capital (R&D), structural capital (intellectual capital and knowledge assets, organizational coherence and flexibility and workforce skills and loyalty), executory contracts (operating licenses and franchises, media and other broadcast licenses, agricultural and other production quotas in regulated industries, maintenance, servicing and environmental liabilities, outsourced operations of over a year duration, material employment contracts and risk hedging financial instruments, derivatives etc.), market capital (brands, trademarks and mastheads), and goodwill. Konno (1998) suggested two different classifications of intangibles. Firstly, he divided intangibles into four classes, namely, experienced intangibles (that are created and accumulated in an enterprise through its past experiences in the market), perceptual intangibles (that come to an existence through the perception of customers in a market), formulated intangibles (refer to stipulated technologies, product specifications, manuals and documents), institutional intangibles (that support organisation). Secondly, he suggested three classes of intangibles, i.e. market based (mainly includes the information on customer), organisation based (includes knowledge that belongs to employees and outsiders relationship with the organisation) and product based intangibles (includes patents, licenses, i.e. technological knowledge). Ahonen (1999) divided the intangibles
into two main classes dependent on their distance to profit making. According to him the intangibles which are usually related to excess profits – brands, patents, licenses, monopolies – can be classified as commercial intangibles and the left behind can be called as generative intangibles. Further, generative and commercial intangibles can be divided into individual and structural intangibles. Individual intangibles are qualities linked directly to individuals, e.g. customer loyalty, supplier loyalty etc., whereas structural intangibles are linked to relations between individuals and groups of individuals, e.g. corporate culture. Organisation for Economic Cooperation and Development (OECD, 2006) in its report on, “Intellectual Assets and Value Creation: Implications for Corporate Reporting”, listed the examples of different classifications on intangible assets as follows.

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<th>Table 1.1</th>
<th>Examples of Classifications for Intangibles</th>
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| International Federation of Accounts (1998) | • Human capital  
• Relational capital  
• Organizational capital  
• Intellectual property  
• Infrastructure assets |
| The Brookings Institution Task Force on Understanding Intangibles (2001) | • Assets that can be owned and sold.  
• Assets that can be controlled but not separated out and sold.  
• Intangibles that may not be wholly controlled by the firm. |
| Europeon Commission, MERITUM Project (2002) | • Human capital  
• Relational capital  
• Structural capital |
| Japan, Ministry of Economy, Trade and Industry, Interion Report by sub-committee on Management & Intellectual Assets (2005) | • Human resources  
• Organizational assets  
• Related structural assets |

Source: OECD, 2006

The report suggests that classification by MERITUM project is the best and covers most of the upcoming intangibles.
1.1.5.3 Reporting of Intangibles

There is a major debate amongst accounting regulators, corporate managers, users and academicians as to how intangibles should be reported in the financial statements (Canibano et al., 2000; Zambon, 2003). The problem is the inherent nature of intangibles and business reporting. It includes basically three issues, namely, (i) financial vs. non-financial, (ii) recognition vs. disclosure, and (iii) qualitative vs. quantitative. Whether the intangibles should be considered as financial or non-financial indicators, this first issue has already been discussed under definitions of intangibles. The second issue is related to the first issue as all financial assets have to be recognized in the financial statements. Recognition means that the disclosure must be reported in quantitative form on the face of the balance-sheet or profit and loss statement. As a result if intangibles are considered financial indicators then they must be recognized in quantitative terms on the face of the financial statements. But there are very few intangibles which can be valued because of the difficult nature of intangibles as discussed earlier. The other option is disclosing information in the notes to the accounts considering intangibles as non-financial indicators. This disclosure in the notes to the accounts can be in quantitative or qualitative form. This is the third issue, i.e. how the information on intangibles should be disclosed in the notes to the accounts as there are some intangibles which can be discussed only in qualitative terms such as company’s leadership, R&D structure, business strategy etc., whereas some intangibles can be quantified such as customer’s loyalty, customer satisfaction, patents filed etc. The position is that there are many intangibles which can only be reported upon, i.e. the relevant information about these assets is only disclosed without any recognition in the annual reports. Some intangibles can be discussed only in qualitative terms, whereas some of those can be measured quantitatively. A very smaller set of intangibles can be valued and specifically recognized in a company’s financial statements. In spite of these problems, Beattie (2005) mentioned that there has been an increasing interest in ways of reporting on intangibles outside the
audited financial statements and several top journals have carried special issues on the topic in the last few years. This is evident from the increasing number of proposed methods, theories and a countless number of publications on how corporations should manage these resources. Till date, number of models on the reporting framework on intangibles have been proposed. Some of these are discussed in detail as under:

In 1988, a small group of service companies and accountants (KONARD Group) published *The Invisible Balance-sheet* that outlined a theory of “intangible assets” described as customer capital, structural capital, and human capital. FASB (2001) report defined a set of 38 key indicators for a “know-how” company, ranging from familiar financial performance indicators (return on capital employed) to more unusual attempts to capture human factors (individual capital in years).

Kaplan and Norton discussed a well known approach “Balanced Scorecard”, developed in the USA around 1990. Balanced Scorecard (BSC) is not designed specifically to measure and publish intangible assets. But BSC complements financial measures of the past performance too along with measures of the drivers of the future performance. BSC views organisation performance from four perspectives, i.e., Financial, Customer, Internal Business Process, and Learning &Growth. The last three measures are non-financial in nature and are drivers of future performance. Customer perspective enables companies to align their core customer outcome measures – satisfaction, loyalty, market share, customer acquisition, customer retention, customer satisfaction, customer profitability. Internal business process includes three principal business processes, viz. innovation, operations and post-sale services. It reveals three principal categories for the learning and growth perspective. These are employee’s capabilities, information system, motivation, empowerment and alignment.

Skandia, a Sweden based financial services company defined intangible assets as the knowledge, applied experience, organizational
technology, customer relationships and professional skills that provide Skandia with a competitive edge in the market. Skandia published a series of intellectual capital supplements to its 1994-1998 annual reports. It constructed a navigational tool to represent a balanced picture of the financial and intellectual capital. To date, Skandia has been the only company to construct such a tool named as Skandia Navigator. This navigator breaks down the vision and objectives of the company into more concrete factors and then measures these factors at the individual level, group level, business level and corporate level. It mentions five major areas, i.e., Financial, Renewal and Development, Process, Human and Customer. The financial focus report contains details about traditional return based efficiency effectiveness metrics; whereas the renewal and development focus report contains details of business returns and seed of future growth. The process focus report provides details about the efficiency and outputs/savings per employee. The human focus report gives information pertaining to employee loyalty, skills and competencies. The customer focus report lists metrics about customer satisfaction and unit growth.

Sveiby (1999) studied the developments in the international market and focused on the increasing role of intangibles in the emerging new market. The author suggested a possible standard approach to measure and present intangible assets. As per this new approach the invisible part of the balance-sheet can be classified as a family of three, viz. external indicators (consists of relationship with customers and suppliers, brand names, trademarks and reputation or “image”), internal indicators (consists of patents, computer and administrative systems, culture or the spirit of the informal organisation), and individual competence indicators (includes skill, education, experience, values, and social skills).

In 2001 the Italian Association of Financial Analyst focused on several important issues concerning intangibles such as measuring and posting their value, information disclosure in statements, and information auditing. The
framework suggested by AIAF is based on three dimensions, namely: (i) nature of information (the information is identified according to its nature, both forecast and final); (ii) five communication dimensions, i.e., strategy, customers and markets, human resources, processes and innovation, organisation; and (iii) level of depth of communication, i.e., “minimum” information, “purposive” information, “extensive” information. At the minimum level, the company provides information relevant to all five communication dimensions but there is a lack of forecast information. At the second level, i.e. purposive information, reflects the company’s specific intention to amplify its communications concerning intangible assets in the financial statements. At the third level, extensive information the company draws up a statement illustrating its intangible assets. The list of indicators is attached in the annexure.

Lev (2001) suggested a value chain scoreboard which is a matrix of non-financial indicators arranged in three categories according to the corporate cycle of development, viz. Discovery and Learning, Implementation, and Commercialization. Discovery and Learning includes the intangibles related to discovery of new ideas for products, services and processes within the company, e.g., R&D, workforce training and development etc. Implementation includes intangibles related to technological feasibility of the products, services or processes discovered, e.g., patents, trademarks, know-how etc. Commercialization signifies the successful realization of the innovation process where ideas transformed to workable products and services being implemented are brought to the market to generate value, e.g., brand names, patents know-how royalties etc. The detailed framework is attached in the annexure.

The framework suggested by Wyatt and Abernethy (2003) integrates Porter’s notion of a value chain and Young’s system for classifying intangible assets. As per the framework five categories of intangibles are suggested, i.e., information system infrastructure, production and technology, human
resource, organisation and administration, procurement and external distribution. The reporting framework integrates three principles. First requires firms to record intangible assets arising from both primary and secondary input phases of production. Second relates to measurement which proposes historic cost measurement for primary intangible expenditure and a fair value measurement for secondary (internally generated) intangible assets. Third proposes the use of a property rights test to establish whether intangible expenditure is an expense or an asset. The framework with details is given in the annexure.

Thus, it is quite evident from the above discussion that intangibles are becoming important and must be disclosed in the financial statements in order to make them more relevant in the present scenario. Though number of companies have started disclosing information on intangibles voluntarily but in an unsystematic manner because of the unresolved issues on intangibles within the accounting community.

1.2 NEED OF THE STUDY

As discussed earlier, the main contributory factor behind the increasing importance of intangibles is said to be the revolution in services and information technology industries all over the world.

The largest and most technologically powerful U.S. economy is driven by intangibles. Corrodo et al. (2006) found that in the U.S. intangible investment was 1.2 times the level of tangible investment. As regards the disclosure practices, the U.S. is considered to be the best among U.K., Germany, Japan, France, Sweden and Netherlands (Barrett, 1976); and thus, it recognizes the importance of intangibles too as Rodov and Leliaert (2002) stated that moves are underway in both North America and Europe to improve the off-balance-sheet disclosure on intangibles in annual reports.
Japan, the second largest economy of the world is driven by manufacturing, construction, service and communication industries. Till ‘60s only manufacturing has been the basis of Japan’s economy but during ‘70s, the world witnessed a fundamental shift in Japan’s industrial structure as the computer, semi-conductor and the other technology and information intensive industries entered a period of rapid growth. Moreover, it is the technology innovation which has enabled Japan to retain strong market position in the world. Fukao et al. (2007) found that the ratio of intangible investment to tangible investment was 0.3 only. Also, the ratio of intangible investment to GDP in Japan has risen during the past 20 years and now it stands at 7.5%. As a result, intangibles play an important role in Japanese economy too. Given the Japan’s situation, it should have been in the vanguard on the issue of intangible assets, ahead of U.S. but that is not the case. Japanese criteria for recognizing an intangible asset is much more restrictive than the U.S. and as a result majority of intangible assets are not recorded in the balance-sheets (Katsuo, 2003).

The Indian economy has seen drastic changes in its structure after entering into a globalized and liberalized world. The contribution of service sector accounts for more than half, i.e., 55.1% of the gross domestic product in 2006-07 as against 37.6% in 1983. Moreover, Information Technology service industry too is showing drastic growth in the Indian economy. It has grown from mere US $ 150 million in 1991-92 to a staggering US $ 39.6 billion in 2006-07 (NASSCOM Report, 2007). This rise in the service and information technology sectors share marks a structural shift in the Indian economy and takes it closer to the fundamentals of a developed economy. Thus, being a service and information technology based economy; intangibles play an important role in the present scenario of the Indian economy. As per the Global Intangible Tracker 2006, India has the second highest proportion of total value accounted for by intangibles, after Switzerland. But the Indian companies have been slow to recognize the importance of intangible assets though the migration of value to intangibles is dramatic due to the fastest
growing information technology sector of Indian economy (Haigh and Krishnan, 2005).

Thus, it is clear from the above discussion that there are differences in the recognition of the intangible assets in India, the U.S. and Japan. These differences get widened when companies voluntarily adopt high standards of disclosure. As discussed earlier, the number of companies which are voluntarily disclosing information on intangibles in their annual reports is increasing, giving rise to question that how and what type of information is being disclosed. The study attempts to compare disclosure practices on intangibles of the three countries, i.e., India, U.S., and Japan. The reason for comparing the Indian companies with those of U.S. and Japan is that the companies of these two countries are found to be the most dominating in the global market. As many as 189 U.S. companies and 82 Japanese companies form part of Fortune Global 500 World’s Largest Corporations List (Fortune, 2004). Moreover, realizing the increasing importance of intangibles in the new economy, the study attempts to capture the improvements being made in the disclosure on intangibles by the three countries in recent years, i.e., from 2001 to 2005.

The scope of the study is limited to the disclosure in the corporate annual reports only. Knutson (1993) mentioned that annual reports are typically the most important source of information for most analysts. In addition, Lang and Lundholm (1993) found a high, positive correlation between annual report disclosure and disclosure in other sources (such as press releases or regulatory filings).

1.3 OBJECTIVES
1. To understand and compare disclosure practices on intangibles of the top Indian, U.S. and Japanese companies, over a period of time.
2. To study the influence of certain firm attributes – organizational size, profitability, market to book value ratio, leverage and industry type on the disclosure levels of the top Indian, U.S. and Japanese companies.

3. To study the influence of the above mentioned firm attributes on the disclosure levels of the seven groups, viz. Research & Development, Strategy and Competition, Market and Customer, Human Resource, Intellectual Property Rights and Goodwill & other intangible assets, Corporate and Shareholder and Environment and others.

4. To study the influence of two specific industries classification, viz. service and manufacturing companies; and companies with and without R&D expenditure on the disclosure levels of the top Indian, U.S. and Japanese companies.

1.4 RESEARCH METHODOLOGY

This section discusses in detail the research methodology designed to achieve the objectives of the study.

1.4.1 Universe and Sample of the Study

The top Indian 500 companies ranked on the basis of revenue in the ‘Compendium of Top 500 Companies in India’ (Capital Market, 2004) constitute the universe of the Indian companies, whereas the top 500 companies ranked on the basis of revenue in the Fortune Global 500 World’s largest corporations constitute the universe of the U.S. and Japanese companies.

First 100 most valuable companies of India in the Compendium of Top 500 Companies in India, 100 U.S. and 60 Japanese companies listed in the Fortune Global 500 World’s largest corporations constitute the sample. Banking, insurance and financial companies have been excluded from the purview of this study because of different disclosure requirements.
1.4.2 Sources of Data Collection

Published annual reports of the companies happen to be the primary source of data. Annual reports of the U.S. and Japanese companies were ordered through the websites of the companies. Annual reports of the Indian as well as some of the U.S. and Japanese companies were obtained after sending e-mail requests and registered letters at their respective addresses. In all, 60 Indian, 65 U.S. and 42 Japanese companies were requested to send their annual reports. However, in response to these requests, 35 companies from India, 50 from U.S. and 30 from Japan made their annual reports available. The remaining annual reports were downloaded from the respective websites of the companies. In all, 192 annual reports were collected for the year 2005 (70 for Indian companies, 66 for U.S companies and 56 for Japanese companies), 177 for the year 2004 (63 for Indian companies, 61 for U.S companies and 53 for Japanese companies), 162 for the year 2003 (52 for Indian companies, 57 for U.S companies and 53 for Japanese companies), 148 for the year 2002 (45 for Indian companies, 53 for U.S companies and 50 for Japanese companies) and 137 for the year 2001 (40 for Indian companies, 49 for U.S. companies and 48 for Japanese companies).

1.4.3 Period of the Study

The corporate annual reports of the Indian, U.S., and Japanese companies have been collected for the period 2001 to 2005. The span of five years period provides a justifiable chance to study and compare the changes in corporate disclosure practices of the Indian as well as the U.S. and Japanese companies. Many new developments took place regarding intangibles during this period in all the three countries under study. Regarding Indian scenario Accounting Standard - 26 (AS-26) on intangible assets was issued in 2003. In the U.S., Statement of Financial Accounting Standard-142 (SFAS-142) on Goodwill and Other Intangibles came into effect from 2001. Moreover, Financial Accounting Standards Board (FASB), and Securities
Exchange Commission (SEC) has also suggested certain changes in reporting system in the year 2004. Similarly, Japanese Ministry of Trade and Industry also issued in 2004 which affected the disclosure practices of the Japanese companies. Many new developments regarding narrative reporting can also be noticed during this period which have been discussed in the next chapter.

1.4.4 Disclosure Index

A disclosure index is used to examine whether corporations engage in disclosure practices of particular information in annual reports (Marston and shrives, 1991). Many researchers have utilized a disclosure index for examining the disclosure practices on intangibles of selected companies (Williams, 2001; Citron et al., 2005; Bergamini and Zambon, 2005; Kang, 2006). The index of disclosure on intangibles used in this study consists of an extensive list of 180 information items, applicable to wide range of users, which appear in an annual report (See Appendix B). The index includes both mandatory as well as voluntary disclosure items. These 180 items have been grouped into broad seven categories called parameters or groups of the Index as given in Table 1.2.

<table>
<thead>
<tr>
<th>Broad Parameter/ Group</th>
<th>No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Research and development</td>
<td>20</td>
</tr>
<tr>
<td>B. Strategy and competition</td>
<td>30</td>
</tr>
<tr>
<td>C. Market and Customer</td>
<td>36</td>
</tr>
<tr>
<td>D. Human Resource</td>
<td>26</td>
</tr>
<tr>
<td>E. Intellectual Property Rights(IPRs), and Goodwill &amp; other Intangibles</td>
<td>25</td>
</tr>
<tr>
<td>F. Corporate and Shareholder</td>
<td>18</td>
</tr>
<tr>
<td>G. Environment and Others</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>180</strong></td>
</tr>
</tbody>
</table>
Disclosure Index can be assigned either weighted or unweighted scores. A lot of controversy exists on this issue. Number of researchers have made use of the weighted disclosure index where items have been assigned weights according to either the importance or the type of disclosure (Bergamini and Zambon, 2005; Kang, 2006). On the other hand, Williams (2001) and Citron et al. (2005) used unweighted index giving equal importance to all the disclosure items. The argument given by them is that annual reports are read by a wide variety of users and each class of user will attach different weights to an item. As a result, weighted index involves the issue of subjectivity. Further, Robbins and Austin (1986) found that using a weighted disclosure index does not materially affect the results of possible determinants of disclosure. This view is also supported by Cooke (1989) and Firth (1980).

This study uses the unweighted index as the use of unweighted dichotomous index reduces subjectivity involved in determining the weights of each item (Williams, 2001; Ahmed and Courtis, 1999; Courtis, 1986). The disclosure item is scored as one (1) if it is disclosed in the annual report or zero (0) if it is not disclosed in the annual report. Thus, the total disclosure score in terms of number of items being disclosed is determined. This total disclosure score has been converted in percentage terms by applying the following formula:

\[
\frac{\text{Total number of items appearing in the annual report}}{\text{Maximum number of items which should appear in annual reports (180)}} \times 100
\]

1.4.5 Dependent and Independent Variables

The study attempts to establish a cause and effect relationship between dependent variable, viz. disclosure score and independent variables, viz. organizational size, profitability, leverage, market to book value and industry type. These variables are discussed as under:
(i) **Dependent Variable:**

As mentioned earlier, disclosure score has been measured on the basis of total per cent disclosure score obtained by the company. Further, disclosure score obtained by the company in each of the seven groups has been regarded as dependent variable.

(ii) **Independent Variables:**

As mentioned earlier, five company attributes have been considered as independent variables. The measurement of these is described as follows:

(a) **Organizational Size:** It has been measured in terms of total sales and total assets.

(b) **Profitability:** It has been measured in terms of return on assets and return on equity. Return on Assets (ROA) is calculated as the ratio of net profit to total assets and Return on Equity (ROE) is calculated as the ratio of net profit to net worth or shareholders equity.

(c) **Leverage:** It has been measured as the ratio of long-term debt to shareholders equity.

(d) **Market Value to Book Value:** It has been measured as the ratio of market value to book value of the company.

(e) **Industry Type:** It has been measured in terms of the amount of R&D expenditure disclosed in the annual report. Taking it as controlled dichotomous variable, coded as one (1) if the company is disclosing R&D expenditure in annual report or zero (0), if otherwise.

1.4.6 **Techniques of Data Analysis**

The following statistical techniques have been used to analyse the data relating to disclosure practices on intangibles collected from the Indian as well as U.S. and Japanese companies.
(a) **Descriptive Statistics**

Descriptive statistics includes the various measures of central tendency, i.e., mean, range and standard deviation. Mean is a single value which is considered as the most representative value for a given set of data. But the average alone cannot adequately describe a set of observations, unless all the observations are alike. As a result, it is necessary to describe the variability of observations. Measures of variation help us in studying the important characteristics of a distribution, i.e., the extent to which the observations vary from one another and from some average value. Measures of variation used in the study include range and standard deviation. Range is defined as the difference between value of the smallest observation and value of the largest observations included in the distribution. The most important and widely used measure of studying variation is standard deviation. A small standard deviation means a high degree of uniformity of the observations as well as homogeneity of a series; and a large standard deviation means just the opposite.

(b) **Univariate Statistics**

Statistical techniques which are appropriate for analyzing data when there is a single measurement of each element in the sample or if there are several measurements on each element, each variable is analysed in isolation. Two types of univariate techniques can be used to analyse the data, i.e. parametric tests and non-parametric tests. Both parametric and non-parametric tests have been used to analyze the data. For analyzing the differences in the yearly disclosure scores, a paired t-test (a parametric test) and wilcoxon sign-rank test (a non-parametric test) have been used. Further, for analyzing the differences in the mean disclosure scores of the three countries, kruskal-wallis test (a non-parametric) has been used. Lastly, an independent sample t-test (a parametric test) has been used to analyse the mean differences of the data on the basis of Industry type.
(c) **Multivariate Statistics**

Multivariate statistics is suitable for analysing the data when there are two or more measurements on each element and the variables are analysed simultaneously. These techniques are concerned with the simultaneous relationships among two or more independent variables and a dependent variable.

In this study, eight different regression models were formulated to check the dependence of total (T) disclosure, research and development (R&D) disclosure, strategy and competition (S&C) disclosure, market and customer (M&C) disclosure, human resource (HR) disclosure, IPRs and goodwill and other intangibles (I&G) disclosure, corporate and shareholder (C&S) disclosure and environment and others (E&O) disclosure on the company attributes (independent variables) discussed above. As a result, following eight equations were formulated:

(i) \[ T = a_1 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n \]
(ii) \[ R&D = a_1 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n \]
(iii) \[ S&C = a_1 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n \]
(iv) \[ M&C = a_1 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n \]
(v) \[ HR = a_1 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n \]
(vi) \[ I&G = a_1 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n \]
(vii) \[ C&S = a_1 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n \]
(viii) \[ E&O = a_1 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \ldots + b_n x_n \]

Where,

- \( a_1 \) = constants
- \( b_1, b_n \) = regression coefficients
- \( x_1 \) = Total Sales
- \( x_2 \) = Total Assets
- \( x_3 \) = Return on Assets (ROA)
- \( x_4 \) = Return on Equity (ROE)
- \( x_5 \) = Leverage
- \( x_6 \) = Market Value to Book Value
- \( x_7 \) = Industry Type.
Multicollinearity is a serious problem which must be considered before employing multiple regression analysis. It arises when high level of correlation exists between some of the independent variables. Another formal method of detecting multicollinearity is to check the collinearity tolerance and variance inflation factor (VIF). VIF shows how the variance of an estimator is inflated by the presence of multicollinearity and tolerance is the inverse of VIF. Larger the value of VIF, the more troublesome or collinear the variable, whereas smaller the value of the tolerance, the more collinear the variable (Gujarati, 2004).

To check the problem of multicollinearity every regression model was tested for the VIF values and tolerance values of the variables and the results show that the coefficients of independent variables are quite below the rule of thumb. As a result, multicollinearity was not a serious problem for any of the regression models.

1.5 LIMITATIONS OF THE STUDY

The following are the limitations of this study:

1. Disclosure levels have been studied on the basis of presence of items of disclosure index in the annual reports giving equal importance to all items.

2. The results are based on the sample size of 100 Indian, 100 U.S. and 60 Japanese companies of which 70 Indian, 66 U.S. and 56 Japanese annual reports for the year 2005 could be collected. However, the sample size reduced to only 40 Indian, 49 U.S. and 48 Japanese annual reports for the year 2001. Higher sample size may cause changes in some of the generalizations made in the study.

4. As a rule of thumb, if the VIF of a variable exceeds 10 then it is said to be highly collinear (Gujarati, 2004).
3. In the knowledge based economy, there are number of sources of information like websites, press releases, interim reports etc. but this study focuses only on the disclosure on intangibles in annual reports.

1.6 ORGANISATION OF THE STUDY

This study has been organised into five chapters discussed as under:

**Chapter 1** introduces to the subject; reviews the relevant literature on the subject; and discusses research methodology used for the study.

**Chapter 2** provides an overview of the regulatory framework for the disclosure on intangibles prevailing in India, U.S., and Japan.

**Chapter 3** provides an overview of the disclosure practices on intangibles followed by the Indian, U.S. and Japanese companies over a period. A comparative study of these disclosure practices has also been undertaken in this chapter.

**Chapter 4** studies the influence of company attributes on the disclosure levels of the Indian, U.S. and Japanese companies; and finally, presents the comparative results of the companies under study.

**Chapter 5** presents the summary and conclusions of the study.

In addition to the above chapters, Bibliography and appendices have also been included in the study.