CHAPTER - I
INTRODUCTION: THEORETICAL FRAMEWORK

Nowadays, the Information Technology (IT), and its management, is one of the major drivers of the current economic environment. Several studies (i.e. Broadbent and Weill, 1997) confirm an increase of awareness by the management and executives into considering the IT as an important and strategic factor to support organization to be more productive. Every organization engages in the use of information technology. The role and impact of IT on organizations have significantly changed since 1970s. IT has evolved from its traditional “back office” role toward a “strategic” role being able to support current business strategies and also to shape new business strategies (Keen, 1991; Venkatraman, 1991). Nowadays, most of the managers agree on necessity of considering IT as an “organizational strategic player” (Boynton, et al., 1994; Orlikowski and Barley, 2001; Sambamurthy, 2000; Venkatraman and Henderson, 1998). As organization’s strategy changes over time, IT has to change too.

Recently, increasing attention has been given by business management to the topic of IT management, and to the emerging concept of IT governance. Many articles in the IT literature discuss and theorize the concept of IT governance, using different lens of analysis such as business and IT alignment (Armstrong and Sambamurthy, 1999; Bakos and Treacy, 1986; Henderson and Venkatraman, 1992; Lederer and Mendelow, 1987; Lederer and Sethi, 1988; Luftman, et al., 1999; Reich and Benbasat, 1996; Tavakolian, 1989), relationship between Chief Executive Officer and Chief Information Officer (Feeny, et al., 1992), IT management and IT use (Boynton, et al., 1994), IT function (Agarwal and Sambamurthy, 2002), and the role of IT (Sambamurthy, et al., 2003; Kaarst-Brown, 2005).

IT governance reflects the broader corporate governance principles (Weill and Ross, 2004). Thus, understanding of underpinning of corporate governance could help to understand why IT governance is a topic with such increasingly relevance either for academics or for organizations and professionals. Corporate governance concerns
the structures and processes among stakeholders (i.e. shareholders, board of directors, management, employees, and customers) with the objective to assure accountability and improve organizational performance (Cadbury Committee, 1992; Dunlop, 1998; Ho, 2005; OECD, 1999; Shleifer and Vishny, 1997). As corporate governance goal is to align actions and choices of managers with the interests of stakeholders (Hawley and Williams, 1996; Letza, et al., 2004; Shleifer and Vishny, 1997), IT governance goal could be to align actions and choices of IT managers with the interests of stakeholders.

The concept of IT governance emerged in the late 1990s when Brown (1997), and Sambamurthy and Zmud (1999) wrote about the “IT governance arrangement and framework”. They said that IT governance arrangements represent “an organization’s IT-related authority patterns”. IT governance’s objective is to define structures, processes, and mechanisms to define decision making rights and responsibility about main IT issues, to control and monitor the effectiveness of such decisions, and to mitigate IT-related risks in order to achieve organization’s objectives.

Some researches define governance as the set of relationships between the organization’s management and its governing managers, and all stakeholders. Governance should also provide the structure through which it defines:

- the overall organization’s objectives,
- the methods to achieve those objectives,
- the methods to monitor and describe the organization’s performances.

Managers and executives usually have to manage a huge amount of data and often suffer from a lack of information or poor information quality. Information quality refers to the technology components as well as people and process elements. Organization should adopt a strategic approach to information, through specific actions, such as:

- reducing the complexity of application architectures,
- enhancing portals and dashboards to give organization leaders an integrated view of performance,
- automating controls,
- standardizing and rationalizing data,
- defining effective policies, accountability structures, goals, metrics and training for IT processes.

All these elements refer to the general concept of IT governance. The span of responsibility, authority, placement within the organization, and organizational impact varies considerably for each organization. All these elements significantly affect the success of IT governance and decision-making structures (Penrod, 2003).

1.1 INFORMATION TECHNOLOGY

Information technology (IT) plays a vital role in the sustained growth of the business organizations. The term IT is defined in broad sense as “technologies dedicated to information storage, processing and communications” (Ang, et al., 1997). This notion of IT focuses on a combination of hardware, software, telecommunications and office equipment that transform raw data into useful information for speedy retrieval. IT refers to the hardware, software and telecommunications networks used to manage information … information and communications technologies used to capture, process, store and transport information in digital form (Chaffey and Wood, 2005).

IT refers to hardware, software, procedures, personnel, and data employed in the production, dissemination, and utilization of information, both formal and informal, in an organization (Davis and Olson, 1985). While traditionally IT has included only “formal” information systems, such as reporting systems generated by a database, increasingly IT is used to facilitate informal interpersonal communication. The key technologies include computers, computer-controlled devices, and telecommunication networks; also included are electronic mail (e-mail), teleconferencing, voice mail, and facsimile transmission. IT not only consists of tangible pieces of equipment and programs; but also represents the capacity of the organization to produce, disseminate, and digest information. IT has been used in a number of ways including the mechanization of information processing, the augmentation of knowledge work, and the support of coordination in the
organization. Significant IT investment is for basic mechanization of the records of production and distribution of goods and services (e.g., invoices) or for actions like electronic money transfer. Technology is also used for manufacturing (such as CAD/CAM) and Computer-Integrated Manufacturing (CIM). A centralized database enables production and dissemination of information for management control as a by-product of mechanization. IT also supports individual workers, Drucker (1964) identified “knowledge work” as a specifically human activity, distinct from physical labor which could be automated. The notion of augmentation was first defined by Englebart (1963) as “increasing the capability of a man to approach a complex problem situation, gain comprehension to suit his particular needs, and to derive solutions to problems”. Today, personal computers are used widely by individuals to augment knowledge work. IT increases the ease of connection between individuals, organizational units, and even different organizations (Drucker, 1988; Malone, Yates and Benjamin, 1987). Applications such as electronic mail, voice messaging, and facsimile transmission facilitate the communication and coordination of information required for organizational processing. Some terms used for this class of applications are: interpersonal computing (Goldberg, 1987), coordination technology (Holt, 1988; Malone, 1988), groupware (Richman, 1987), computer supported groups (Johansen, 1988) and decision support systems. Decision support systems (DSS) are computer systems designed to help improve the effectiveness and productivity of managers (Keen, 1981). DSS deliver models that can be used systematically to evaluate policies and alternatives (Forgione and Kohli, 1996).

Information technology refers to the study and development of a support-management based, computerized information system. The development is mainly observed in the form of dedicated software applications and a number of hardware programs. The advantages of IT include work place cost effectiveness and essential globalization.

Information Technology or IT mainly deals with computer applications. The common work environment today is totally dependent on computers. This has led to the need to develop and consistently upgrade dedicated computer software like project management software, for a number of related requirements. These include
storage and protection of content, processing and transmitting of dedicated information and the secured retrieval of information, as and when required. IT promotes computing technology, covering everything from installing applications to developing databases.

Information technology is the technology that has helped enterprises to perform more efficiently and to expand the business into new hights right from the first day. IT has become one of the strongest pillars in an enterprise where many functions would not be possible to perform without. During the years IT has got different functions in an enterprise and is today an essential part of the organization. From the role of only being a technology provider IT has now become a strategic partner (Sallé, 2004).

The fact that IT is used more frequently all over the world is not a new discovery. One appealing characteristic with IT is that it can be used offensively to create new business opportunities, at the same time as it can rationalize by simplifying routines and automate the enterprises processes (Fredholm, 2004).

Another fact is changes. Changes have been a constant reality ever since primeval times, although recently changes are accelerating faster than ever before and are leaving its trace and effect on businesses and organizations. Today businesses cannot be conducted the way they were a decade ago, not if they intend to continue being competitive. The changes include how the business interacts with customers, how it manufactures goods, and how the business is organized and managed (Gold-Bernstein and Ruh, 2004).

To reach positive results within the enterprise the IT system and organisational assignments must be harmonised. Fagerström (2003) states lack of organizational support could result in non IT–related problems being allocated as IT-system related issues. This implies that the focus will only be on solving technical problems and not on organizational changes (Fagerström, 2003).

For quite some years a number of organizations have been successful despite weak IT management. According to Weill and Ross (2004) information, and consequently IT is one of the increasing important elements of organizational productivity,
services and foundation of enterprise wide processes (Weill and Ross, 2004).

The dependency of IT has become more necessary, where organizations use technology for managing, developing and communicating elusive assets such as information and knowledge. To be successful in an enterprise information and knowledge which often is provided and maintained by technology, must be secured, accurate and reliable, but also provided to the right person at the right time and at the right place (Grembergen, 2003).

In the modern days CEO’s and CIO’s need to enhance their understanding of the role, information technology has in an enterprise and increase their expertise in this area. Management of IT is no longer just for managers but effective use of any IT solution will be traced to the top of the hierarchy (Schildt, Beaumaster and Bailey, 2006).

For most of the past half-century, modern organizations have been increasing their investments in information technology (e.g. Dewan and Min, 1997; King, 1998 and Shu, 2001) primarily because of the belief that IT has a significant positive impact on organizational performance. Many managers and researchers have been interested in determining the validity of this belief, and various studies have been conducted. Some previous ones have attempted to examine the contribution of IT to output but have failed to show any evidence of IT’s impact on productivity in spite of the increased IT investment (Loveman, 1994), and so the “IT productivity paradox” has been an issue debated by IS researchers for the past decade (Brynjolfsson, 1993; Brynjolfsson and Hitt, 1996; Hitt and Brynjolfsson, 1996; Jurison, 1997; and Rai, et al., 1997). Various explanations have been offered for the productivity paradox including mismeasurement of outputs and inputs, time lags due to learning and adjustment, redistribution of profits, mismanagement of IT and inappropriateness of traditional productivity measures. Some have made the claim that inconsistent findings from IT productivity research are also due to lack of adequate data (Sircar, et al., 1998 and 2000). However, other studies suggest that IT does have a positive impact on organizational productivity (Garretson, 1999; McGee, 2000; and Shao and Lin, 2000 and 2001).
Sethi and King (1994) have summarized five widely recognized benefits of IT investment; they are operational efficiency, operational functionality, improved positions in competitive environments by fending-off threats, preemptiveness, or being the first mover and thus having timing advantage, and synergy. Efficiency and functionality are related to the internal facets of an organization. Fending-off-threats and preemptiveness are related to external facets of the organization. Finally, synergy is related to overall integration, leveraging of resources, and competence building. Firms may utilize specific benefits of IT, as their situations dictate. The external environment will present differing challenges to firms. A dynamic environment, for example, may require firms to pursue preemptiveness and fending-off-threats as benefits of IT. The strategies firms pursue require different resource configurations. A firm with an external orientation, for example, may use preemptiveness and fending-off-threats, but a firm with an internal orientation may concentrate on efficiency and functionality. Finally, how IT is integrated into a firm's operation will have an impact on the synergy benefit that can be generated from the IT investment. A critical indication of IT's integration in an organization is the CEO/CIO relationship. Three different management objectives for IT investment, derived and extended from the categories suggested by Turner and Lucas (1985).

1. **Transactional IT** processes the transactions of the firm and IT investment of this type is usually to cut costs by substituting capital for labor. This is the traditional type of IT investment where the transactions of the firm such as payroll, accounts receivable and order entry are automated. This type of IT investment is quite well understood and a history of successful implementations exists in most sizable firms. Osterman (1986) showed a reduction in clerical and managerial labour from the introduction of this type of IT. This type of investment is usually justified on an efficiency or cost displacement basis. It is expected that this type of IT investment will be associated with improved firm performance as measured by profitability and labor productivity.

2. **Strategic IT** is investment made to gain a competitive advantage and increase market share, via sales growth (Ives and Learmonth, 1984). Strategic IT is quite
different from transactional IT in that the objective is expansion rather than efficiency. IT is used as an enabling technology to meet market demand in a better way. Perhaps IT is used as the channel to the customer (e.g., American Hospital Supply) or used to spawn new businesses (Porter and Millar, 1985) or as an industry platform eventually restructuring an industry (e.g. American Airlines). The strategic IT may be based on traditional tactical systems but it is the integration of the systems into the business strategy that makes the IT strategic (Kim and Michelmen, 1990). Strategic investments in IT are expected to influence the growth aspects of firm performance such as market share or sales growth.

3. **Informational IT** provides the information infrastructure to do other functions (besides cut costs or gain sales). Typically this includes management control, budgeting, production planning, communications, accounting and other management tasks. This type of IT is the backbone of the information management of the firm and includes the IT infrastructure. The information systems used to prepare the financial statements would often be the part of the informational investment. The telephone, facsimile and electronic mail systems are part of the communications infrastructure and thus informational IT investment.

IT professionals are focusing on IT investments for management of sensitive data, exclusive computer networking and systems-engineering. The advancement of the IT sector has resulted in automated systems i.e. administration of entire systems, production and manipulation of sensitive information, cultural development and communication, streamlining of business processes and timely up gradation. The advantages of information technology are many. True globalization has come about only via this automated system. The creation of one interdependent system helps to share information and end linguistic barriers across the continents. The collapse of geographic boundaries has made the world a 'global village'. The technology has not only made communication cheaper, but also possible much quicker and 24x7. The wonders of text messages, e-mail and auto-response, backed by computer security applications, have opened up scope for direct communication.
Computerized, internet business processes have made many businesses turn to the internet for increased productivity, greater profitability, clutter free working conditions and global clientele. It is mainly due to the IT industry that people from diverse cultures are able to personally communicate and exchange valuable ideas. This has greatly reduced prejudice and increased sensitivity. Businesses are now able to operate 24x7, even from remote locations.

Information technology has rippled on in the form of a ‘Communication Revolution’. Specialists in this field like programmers, analyzers and developers are able to further the applications and improve business processes simultaneously. The management infrastructure thus generated defies all boundaries. Among the many advantages of the industry are technical support post-implementation, network and individual desktop management, dedicated business applications and strategic planning for enhanced profitability and effective project management.

IT provides a number of low-cost business options to tap higher productivity with dedicated small business CRM and a special category for the larger operations. Regular upgrades have enabled many businessmen to increase productivity and identify a market niche that would never have been possible without the connectivity. With every subsequent increase in the Return on Investment (ROI), businesses are able to remain buoyant even amidst the economic recession. Not only do people connect faster with the help of information technology, but they are also able to identify like-minded individuals and extend help while strengthening ties. This segment revolves around automated processes that require little or no human intervention at all. This in turn has minimized job stress levels at the work place and eliminated repetition of tasks, loss due to human error, risks involved due to negligence of timely upgrades and extensive paper-intensive business applications that result in the accumulation of unnecessary bulk. The sophistication of the modern work stations and general working conditions is possible only due to the development of information technology. Following is a list of perceivable benefits obtainable from application of information technology.

Speed - Computers calculate a whole lot faster than human beings, which means that more numbers can be crunched in a jiffy. Therefore, more work can be
accomplished within the same number of working hours.

Cost effectiveness - A single employee can perform all the data management chores that were formerly being done by 5 or more employees. Therefore, overhead costs come down. Computer calculations also indicate the resources that are not being optimally utilized so that corrective measures can be taken in time, thereby bringing down production costs.

Accurate results - Crucial decisions based on computer calculations are more likely to be correct than those based on human calculations. This is because the probability of errors in calculations by human beings is greater. Computers also help in taking a decision when faced with two or more alternatives. They do not need another day to rework the data if any variable is altered.

Globalization - Networking is a crucial component of IT. Through networking information can be shared across the world. The language barrier is no longer existent as software that translates information to required languages is also a part of this form of networking.

Trade convenience - Internet is a great place to post an advertisement for selling any product. As it is accessed across the globe, it is possible to receive quotations from other parts of world. Similarly, if one needs to buy any product, there is a large variety to choose from on the internet, or net as it is commonly known. Goods bought can also be paid for through internet. Even monthly utility bills, credit card bills, etc., can be paid through internet.

Increase in standard of living - Cost savings achieved through optimal utilization of resources as suggested by computer calculations, result in lowering the prices of goods. In addition, networking has facilitated access to different markets across the globe, where competitive prices are available for similar goods. This helps buyer to get the best bargains, as similar products across globe have to be priced competitively.

Communication - Information technology has taken communication function into its fold. Consequently, sending that letter through post offices is no longer a necessary evil. Sending an e-mail is much faster, and much easier. In addition, technological advancements like Voice over Internet Protocol or VOIP allow people to hold
conferences across countries. There are instances where operations have been performed by local surgeons with help of instructions from senior surgeon residing in some other country.

Creation of new jobs - It is true that information technology has made mechanical jobs like that of a typist, redundant. But it is also true that new lines like software engineer, hardware engineer, network administrator, data analyst, etc., have emerged because of information technology. These jobs are more intellectually stimulating. Therefore, the staff is likely to experience greater job satisfaction. The pay packet associated with these jobs is also higher.

The list is by no means comprehensive for one could say improvement in computer chips and circuit boards now helps in traffic control thereby preventing delays and accidents. Or improvement in property documents storage method prevents people from attempting frauds. Because information technology covers such wide range of activities, it is difficult to define the advantages from perspective of everybody. However, nobody can deny that their lives have improved for better since the last decade or two, primarily because of computers.

For an organization to improve its business process using technology, IT department is mandatory for management and support of the infrastructure. IT department is required for these areas of technology to provide value to the business, because maintenance tasks must be performed by technically competent staff

- End-user technical support
- Desktop management
- Network management
- Voice and data communications
- Business applications
- Strategic technology planning
- Project management
Besides using technology efficiently, IT department also provides a business with lower costs, higher productivity and higher efficiency in other areas. The IT department does this by:

- Avoids losing revenues
- Lost sales from customers being unable to make purchases
- Decreases costs
- Payroll for employees being idle
- Paying a technician to fix the problem
- Increases productivity because employees will spend less time idle
- Reduces risk of financial, technological and data losses caused by disasters
- Increases ROI and business value realized from technology projects
- Improves equipment efficiency with planned maintenance activities.

In order to attain competitive advantage and to exploit the strategic opportunity that arises because of information technology, nowadays organizations in varied fields are giving due importance to manage the investments in IT and are looking for effective decisions on IT portfolio.

1.1.1 THE UTILIZATION OF “IT”:

A number of companies have seized upon information technology for competitive advantage. Government of India has also initiated in many ways for making IT an integral part of government machinery.

Mahindra & Mahindra Financial Services Ltd: IT Initiative (2012): MMFSL took an IT initiative with the key objective to take entire business capturing application, collection, lead, document management on field right at customer doorstep in their own multilingual languages. IT initiative/Project: “Enterprise Mobility (EMLAP-Bizconnect-eParichay)” initiative by BITS (Business Information Technology Solutions), it’s constant endeavour is to provide best-in-class services to its customer.
Infosys (2011): Infosys which provides business consulting, technology, engineering and outsourcing services delivers measurable business value from 3 focus areas: business transformation, accelerating innovation, and efficient operations. For business transformation aspect, Infosys has developed a world-class business consulting model to ignite technology-led transformation for enterprises. With so many rapidly changing technologies to consider and potentially adopt, Infosys approach is to give its clients the access to many innovations stemming from Infosys labs, to accelerate innovation by injecting the technology prowess to enter new markets and break into new product categories. For efficient operations, Infosys pioneered and perfected the global delivery model, introducing to its customers the ability to move technology work to different locations where talent is readily available and quality is both impeccable and cost competitive.

Tata Consultancy Services (TCS, 2011): TCS’s NREGA framework, an end-to-end IT solution, has successfully automated Andhra Pradesh government’s rural employment guarantee scheme. A web-based data centre aids in the monitoring and review of the scheme on a continuous basis. The solution has brought transparency to the scheme, reduced frauds significantly and improved efficiency in processes.

TCS, 2011: TCS, with its deep expertise and proven track record in providing complex IT solutions for government needs, implemented the VAT Information System (VATIS) solution for digitizing the Gujarat Commissionerate of Commercial Taxes that has propelled the state to a leadership position in the use of automation for eGovernment purposes.

TCS, 2011: TCS implemented the Reusable Case Management System (RCMS), with an integrated case management system for managing the New York City’s Department of Probation’s (NYCDOP) key functions - Pre-Sentence Investigation and Probation Supervision. The integrated data share platform enhanced information sharing between the NYCDOP and its other partners and improved the speed and accuracy of case processing.

Dabur: At Dabur India Limited, knowledge and technology are key resources which have helped the company achieve higher levels of excellence and efficiency. Towards this overall goal of technology-driven performance, Dabur is utilizing
information technology in a big way. Dabur’s major IT initiatives include implementation of a country wide new WAN infrastructure for running centralized ERP system, setting up of new data centre at head office, extension of reach system to distributors for capturing secondary sales data and roll out of IT services to new plants.

Project Akshaya: ‘Akshaya’, an IT dissemination project, was launched on 18th November 2002 as a pilot in Malappuram, a district in Kerala. The project envisaged development of 5000 networked Multi-purpuse Community Technology Centers - Akshaya e Kendras - to provide ICT access to the entire population of the state. The objective of this project, was to make at least one person in each of over 65 Lakh (6,500,000) families in the state e-literate.

MCA21: The Ministry of Corporate Affairs (MCA) is responsible for administration of the Companies Act, 1956, other allied Acts and rules & regulations framed for regulating the functioning of the corporate sector in accordance with law. The programme was implemented in a record time of 78 weeks. This project is India’s 1st mission mode project (the highest priority rating assigned by the Indian government) under the National e-Governance Plan (NeGP). MCA21 has enabled 100% electronic filing, electronic payment mechanisms, use of digital signature certificates for all transactions, delivery of more than 90% of services by MCA offices within charter defined by Ministry, significant increase in rate of compliance, green project resulted in saving of 60 acres of forest land till date.

APOnline: APOnline (www.aponline.gov.in ) is a digital gateway of the Indian state of Andhra Pradesh to provide multiple government services through multiple channels, anytime and anywhere to citizens and businesses through a single window.

E-Choupal: The E-Choupal model, http://www.itcportal.com , is centered on a network of ‘e-Choupals’ which are information centers armed with a computer connected to the internet. The e-Choupals, information centers linked to the internet, represent an approach to seamlessly connect subsistence farmers with global markets. e-Choupal has helped link the largest labour force with the mandis, the international markets as well as the final consumer at much reduced transaction costs.
**Project FRIENDS in Kerala:** FRIENDS (Fast, Reliable, Instant, Efficient Network for the Disbursement of Services) is a single window facility providing citizens the means to pay taxes and other financial dues to the state government.

**Healthcare Industry:** IT allows health care providers to collect, store, retrieve, and transfer information electronically. In general, the various IT applications fall into three categories: administrative and financial systems that facilitate billing, accounting, and other administrative tasks; clinical systems that facilitate or provide input into the care process; and infrastructure that supports both the administrative and clinical applications. There is an enormous range of opportunities for significant cost reductions, service enhancements and behavioural change through what is often broadly referred to as 'ehealth'.

**Payers:** The major impact of ICTs on payers will be the ability to manage the system in order to better account for expenditures, to manage the flow of funds and contain costs. There will be strong motivation to adopt systems which enable payers to track expenditures and exercise control over the processes of referral and prescription – the initiators of health services.

**Providers:** It is clear that the entire healthcare system could reap significant gains from an integrated approach to supply chain management that includes the entire range of hospital and medical supplies and linkages to other players in the healthcare system. Electronic scheduling and patient management systems could improve scheduling of tests and procedures, and thereby reduce the length of hospital stays and reduce the need for multiple visits. Linking insurers, healthcare providers, financial institutions and consumers into claiming and payments systems also has the potential to reduce significantly administrative costs and improve quality of service.

**Practitioners:** From the perspective of individual medical practitioners, knowledge enrichment or education, practice administration, and clinical tools are among the most important ICT applications. Knowledge enrichment and practice administration systems are widely used.

**Patients:** ICTs are altering the relationship and balance of power between patients
and providers, leading to more empowered consumers and enhanced self, home and community care capabilities. Perhaps the greatest change in the patient-provider relationship will be brought about by the use of internet by patients.

**Agricultural Sector:**

The role of information technology to develop agricultural research, education and extension to improve quality of life in rural area is well established. IT is helping an average Indian farmer to get relevant information regarding agro-inputs, crop production technologies, agro processing, market support, agro-finance and management of farm agri-business. The agricultural extension mechanism is becoming dependent on IT to provide appropriate and location specific technologies for the farmers to furnish timely and proficient advice to the farmers.

**Reuters Market Light**: Started in October 2007, Reuters Market Light (RML), a business of Thomson Reuters, is a mobile-SMS that provides personalized information to subscribed farmers, which today number about a million unique subscribers in more than 40,000 villages. The service is delivered through SMS in eight local languages, across 13 states, and over any service provider or mobile phone (RML 2010).

**IFFCO Kisan Sanchar Limited (IKSL)**: Indian Farmers Fertilizer Co-operative Limited (IFFCO) Kisan Sanchar Limited (IKSL) is a partnership between IFFCO and the mobile service provider Bharti Airtel. The initiative started in June 2007 and now covers 18 states in India. Subscribers purchase an IFFCO-Airtel green SIM (subscriber identity module) card, and revenue is generated from the use of talk time by the subscribers. The green SIM card is seen by Airtel as a way to attract customers in rural areas. The main service of IKSL is the provision of five free daily voice messages in the local language to subscribers. Information is provided on weather, crop and animal husbandry advisories, market prices, and miscellanea, such as fertilizer availability, electricity timings, and government schemes.

**Lifelines**: Lifelines, a mobile and internet based ICT project in agriculture, was launched by OneWorld.net, a UK-based nongovernmental organization (NGO), in partnership with British Telecom and Cisco in 2006. Today Lifelines serves more
than 150,000 farmers in over 2,000 villages, and it partners with three NGOs in areas of the states of eastern Uttar Pradesh, Madhya Pradesh, and Haryana (OneWorld, 2010). Lifelines provides answers to farmer queries based on demand. Access to the Lifelines Q&A platform is via an Interactive Voice Response System (IVRS) that routes queries and sends back answers via an intelligent call manager and unified messaging service. The Q&A service is integrated with a web-enabled application, with a database for the audio files and texts and an exchange server for the IVRS (OneWorld, 2010).

**aAqua (Almost All Questions Answered):** aAqua is a free, online, multilingual, multimedia agricultural portal that provides agricultural and weather information and advisories to farmers via the aAqua knowledge bank. Around 65 percent of aAqua users access the portal through personal computers, and the rest access it at office, internet kiosks or cyber cafes.

**Digital Green:** Digital Green is a nonprofit organization that partners with NGOs, and also government agencies like the national rural livelihood mission, to improve the effectiveness of their field extension services by disseminating agricultural practices using video as a medium.

**Retail Sector:**

In the general enterprise market, information technology is being adopted primarily as part of the networking infrastructure, to support standard desktop applications such as e-mail, web-browsing, file server access, and other conventional enterprise applications. In the retail industry, ICT is deployed to support much more specific and innovative applications, with a focus on either improving existing processes or adding new ones. Technological developments in retailing are enhancing business processes and helping the organizations to keep up to date with innovation to become a high-performance business. Some examples of the retail applications for mobility are:

**Mobile Point of Sale System:** Retailers need to invest now in mobile Point of Sale (POS) to keep up, not only with the competition, but also with their customers and the new technologies they are bringing into stores with them.
Inventory Management System: An inventory control system can be used to automate a sales order fulfillment process. Such a system contains a list of order to be filled, and then prompts workers to pick the necessary items, and provides them with packaging and shipping. Real-time inventory control systems may use wireless, mobile terminals to record inventory transactions at the moment they occur. A wireless LAN transmits the transaction information to a central database.

Customer Services: Customer service is the sum of the acts and elements that allow consumers to receive what they need or desire from retail establishments and digitizing the retail segments which have contributed highly in exceeding customer expectations.

Wireless Voice Communication: Many retailers use two-way radios or walkie-talkies for voice communication between store associates. Voice communication can be “broadcast”, where all employees hear the same thing, or “unicast” where a conversation happens between two employees. Group communication, or “multicast”, is also available which can be used to let groups of managers communicate only amongst each other.

Price Auditing: Price auditing can be equally time-consuming. With wireless handheld computers, a store associate can walk aisles scanning shelf labels with a barcode scanner. The handheld computer initiates a price lookup in the store’s UPC database – the same database linked to point-of-sale terminals that determine the price charged to customers.

Radio Frequency Identification (RFID): RFID has received a huge amount of attention in recent years, with many predicting that the technology will revolutionize everything from logistics to inventory processing to the customer experience. RFID is the use of a wireless non-contact system that uses radio-frequency electromagnetic fields to transfer data from a tag attached to an object, for the purposes of automatic identification and tracking. Some tags require no battery and are powered by the electromagnetic fields used to read them.

Guest Internet Access: A large number of retailers now offer guest Internet access, either free or paid, as an enticement to keep customers in the store longer. This is
particularly popular in bookstores with in-store cafes and in other food service establishments.

**Wireless Video:** An emerging application in retail is the use of wireless LANs to connect LCD (Liquid Crystal Display) television monitors to a central server for in-store video programming. The use of wireless LAN technology allows these screens to be placed anywhere it is convenient and will be seen by store patrons.

**Banking Sector:**

Developments in the field of information technology strongly supports the growth and inclusiveness of the banking sector by facilitating inclusive economic growth. IT improves the front end operations with back end and helps in bringing down the transaction costs for the customers.

**Automated Clearing House (ACH):** In clearing house, computers are employed to handle cheques. The nature of work involved in clearing operations in voluminous, repetitive, routine in nature. It is complex to clear, exchange and settle the transactions among several banks. Computers are deployed in clearing house to speed up the process and clearing the operations quickly and efficiently which is voluminous work.

**National Automated Clearing House Association (NACHA):** It helps to debit transfers for Point of Purchase (POP) check conversion. Both government and the commercial sectors use ACH payment. Business are also increasing using ACH to collect payment online from customers, rather than accepting credit or debit cards.

**National Electronic Fund Transfer (NEFT):** National Electronic Fund Transfer is an online system for transferring funds of Indian Financial Institution (especially loans).

**Electronic Funds Transfer (EFT):** Electronic Funds Transfer is the electronic exchange or transfer of money from one account to another. The exchange takes place between a single financial or across multiple institutions, through computer based systems. RBI introduced EFT to help banks offering their customers money transfer service from account to account of any bank branch to any other bank branch.
**Cards Transaction**: Debit card is a plastic card which provides an alternative payment method for cash when making transaction. Using debit card cardholder can see balance available on account. Debit card is mainly used for cash withdraw from ATM, at Point of Sale (POS), also on the internet for online purchase, funds transfer, paying bills, accessing detail account information, charging PIN etc. Bank provides debit card free of cost at the time of opening account.

**BANKNET**: BANKNET is an internet based communication network. It provides speed of financial transaction. BANKNET is set up in 1991 by RBI, this backbone is meant to facilitate transfer of inter-bank (and inter-branch) messages within India by public sector banks who are members of this network.

**Mobile Banking**: Mobile banking (also known as M-Banking, mbanking, SMS Banking etc.) is a term used for performing balance checks, account transactions, payments, credit applications etc. via a mobile device such as a or Personal Digital Assistant (PDA).

**Automated Teller Machine (ATM)**: Even though ATM originally developed for cash dispenses, now it includes many other bank related functions such as- cash withdraw, paying routing bills fees and taxes., printing bank statement., funds transfer., purchasing online products, train tickets reservations, products from shopping mall, donating to charities, claquete processing module, adding pre-paid cell phone/mobile phone credit, advertising channels for own or third party products and services, pay premium.

**Real Time Gross Settlement (RTGS)**: Real time means payment transaction is not subjected to any waiting period. In RTGS the transaction are settled as they are processed. Gross settlement means the transaction is settled on one to one basis without bunching or netting with any other transaction.

**Society for Worldwide Inter-Bank Financial Telecommunication (S.W.I.F.T)**: The S.W.I.F.T provides reliable and expeditious telecommunication facilities for exchange of financial message all over the world.

Davenport and Short (1990) provided the categories of IT capabilities, that have positive impact on organizational functioning. The categories are listed below in Table 1.1.
### Table: 1.1

**IT Capability and Organizational Benefits**

<table>
<thead>
<tr>
<th>IT Capability</th>
<th>Organizational Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactional</td>
<td>IT can transform unstructured processes into routinized transactions</td>
</tr>
<tr>
<td>Geographical</td>
<td>IT can transfer information with rapidity and ease across large distances, making processes independent of geography</td>
</tr>
<tr>
<td>Automational</td>
<td>IT can replace or reduce human labor in a process</td>
</tr>
<tr>
<td>Analytical</td>
<td>IT can bring complex analytical methods to bear on a process</td>
</tr>
<tr>
<td>Informational</td>
<td>IT can bring vast amounts of detailed information into a process</td>
</tr>
<tr>
<td>Sequential</td>
<td>IT can enable changes in the sequence of tasks in a process, often allowing multiple tasks to be worked on simultaneously</td>
</tr>
<tr>
<td>Knowledge Management</td>
<td>IT allows the capture and dissemination of knowledge and expertise to improve the process</td>
</tr>
<tr>
<td>Tracking</td>
<td>IT allows the detailed tracking of task status, inputs and outputs</td>
</tr>
<tr>
<td>Disintermediation</td>
<td>IT can be used to connect two parties within a process that would otherwise communicate through intermediary (internal or external)</td>
</tr>
</tbody>
</table>

*Source: Davenport and Short, 1990*

It is evident from table 1.1 that organizations that emphasize on building their IT capabilities can accrue the benefits that information technology holds for them. Multiple opportunities for strategic use of information technology exist today. More are constantly emerging with the increasing flow of lower cost technologies providing significant new capabilities. And they are increasingly being seized upon as competitive pressures grow. Business organizations should work to create an environment in which information technology is considered an important strategic weapon.
1.2 CORPORATE GOVERNANCE:

1.2.1 Meaning and Concept of Corporate Governance:

Goverance, this word is derived from the word “gubernare”, means to rule or steer. Though originally meant to be a normative framework for exercise of power and acceptance of accountability thereof in the running of kingdoms, reigns and towns, over the years, it has found significant relevance in the corporate world.

The term corporate according to Webster dictionary means a body having the nature of, or acting by means of a corporation. A ‘corporation’ in turn means a legal entity that exists independently of the persons who have been granted the charter creating it and that is invested with many of the rights given to individual. Applying the concept of governance in the corporate world, what we get is the term “corporate governance”. The corporate world comprises of institutions, like companies, firms, proprietorships etc. According to Maw, et al. (1994), “corporate governance is a topic recently conceived as yet ill-defined and consequently blurred at edges”.

Corporate governance is defined as the distribution of rights and responsibilities among different participants in the organization such as the board, managers, shareholders and other stakeholders and spells out rules and procedures for making decisions on corporate affairs.

To conceptualize corporate governance it is important to understand the term governance. The term ‘governance’ is not word of business but is of political science and nowadays being debated under public administration. Governance is a set of minimum framework of rules necessary to tackle problems guaranteed by a set of institutions. The following are the characteristics of governance when applied in the context of a country:

i. It is the exercise of political, economic and administrative authority in the management of resources.

ii. The capacity of governments to design, formulate and implement policies and discharge functions.

iii. It comprises mechanisms, processes and institutions through which citizens
and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences.

iv. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have agreed to or perceive to be in their interests.

Corporate governance is concerned with establishing a system whereby directors are entrusted with responsibilities and duties in relation to the direction of a company’s affair. It is founded on the system of accountability primarily directed towards the shareholders in addition to maximizing shareholders welfare. An effective corporate governance system provides mechanisms for regulating directors’ duties in order to restrain them from abusing their powers and to ensure that they act in the best interest of company in broad sense. Corporate governance is also concerned with wider accountability and responsibility of the directors towards other stakeholders on the corporation. These stakeholders include company employees, consumer suppliers, creditors and the wider community.

Sheridan and Kendall have advocated the definition of the term corporate governance (Sheikh and Chatterjee, 2000). They believe that good corporate governance consists a system of structuring, operating and controlling a company in order to achieve the following objectives:

- To fulfil long term strategic goals of the owners, which, may consist of building shareholder value or establishing a dominant market share or maintaining a market lead in a chosen sphere;
- To consider and care for the interest of employees, past, present and future, including planning future needs, recruitment, training and working environment, severance and retirement procedures through to looking after pensioners;
- To maintain good relations with customers and suppliers, in the matters such as quality of service, considerate ordering and account settlement procedures;
- To take account of needs of environment and the local community, in terms of the physical effects of the company’s operation on the surrounding area and the economic and cultural interaction with the local population.
• To maintain proper compliance with all the applicable legal and regulatory requirements under which the company is carrying out its activities.

In 1992, the Cadbury Committee on the financial aspects of corporate governance considered inter alia the concept of corporate governance. It defined the concept as the system in which companies are directed and controlled. The board of directors is responsible for the governance of the companies. The shareholders role in governance is to appoint the directors and the auditors to satisfy themselves that an appropriate governance structure is in place.

Zingales (1998) expresses the view that “allocation of ownership, capital structure, managerial incentive schemes, takeovers, board of directors, pressure from institutional investors, product market competition, labour market competition, organisational structure, etc., can all be thought of as institutions that affect the process through which quasi-rents are distributed”. He therefore defines “corporate governance” as “the complex set of constraints that shape the ex-post bargaining over the quasi-rents generated by a firm”. Williamson (1985) suggests a similar definition.

Viewing the corporation as a nexus of explicit and implicit contracts, Garvey and Swan (1994) assert that “governance determines how the firm’s top decision makers (executives) actually administer such contracts”. They also observe that governance only matters when such contracts are incomplete, and that a consequence is that executives “no longer resemble the Marshallian entrepreneur”. Shleifer and Vishny (1997) define corporate governance by stating that it “deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment”. A similar concept is suggested by Caramanolis- Côtelli (1995), who regards corporate governance as being determined by the equity allocation among insiders (including executives, CEOs, directors or other individual, corporate or institutional investors who are affiliated with management) and outside investors.

John and Senbet (1998) propose the more comprehensive definition that “corporate governance deals with mechanisms by which stakeholders of a corporation exercise control over corporate insiders and management such that their interests are protected”. They include as stakeholders not just shareholders, but also debt holders
and even non-financial stakeholders such as employees, suppliers, customers, and other interested parties.

Posthumusa and Solms (2005) quote Sir Adrian Cadbury who defines corporate governance as keeping the balance between economical and social goals and the balance between individuals and communal goals. Furthermore he asserts the aim with corporate governance is to support the interests of individuals, corporations and society (Posthumusa and Solms, 2005).

The IT Governance Institute motivates corporate governance or enterprise governance as they wish to name it, as a set of responsibilities and practices by the board and executive management. The goal with these responsibilities and practices is to provide strategic direction to ensure that objectives are achieved, risks are managed in a correct way and make sure that the enterprise’s resources are used accurately (ITGI, 2003).

According to Weill and Ross (2004), OECD defines corporate governance as providing structure for organizational objectives and for monitoring performance to ensure that objectives are attained. Further they mean that there is no single model of good corporate governance. Many countries are interested in a supervisory board which is responsible of protecting the rights of shareholders and stakeholders such as employees, customers etc. (Weill and Ross, 2004).

1.2.2 Emergence and Importance of Corporate Governance:

Corporate governance has caught the imagination of all segments of the corporate world. Governance has assumed even greater limelight with the series of corporate failings, both in public and private sectors following with the markets, the investors and the society at large have begun to lose faith in the infallibility of these large systems. At this point of time the conduct of those who take care of the public money is being questioned. They are being tested on minimum ethical standards. They should be questioned as they are the agents of the stakeholders who have invested their money in such corporations.

The seeds of modern corporate governance were probably sown by the Watergate scandal in the US. As a result of subsequent investigations, US regulatory and legislative bodies were able to highlight control failures that had allowed several
major corporations to make illegal political contributions and to bribe government officials. This led to the development of the Foreign and Corrupt Practices Act, 1977 in USA that contained specific provisions regarding the establishment, maintenance and review of systems of internal control.

This was followed in 1979 by the Securities and Exchange Commission of USA’s proposal for mandatory reporting on internal financial controls. In 1985, following a series of high profile business failures in the USA, the most notable one of which being the savings and loan collapse, the Tread Way Commission report was formed. Its primary role was to identify the main causes of misrepresentation in financial reports and to recommend ways of reducing incidence thereof. The Tread Way Commission Report published in 1987 highlighted the need for a proper control environment, independent audit committees and an objective of internal audit function. It is called for published reports on the effectiveness of internal control. It also requested the sponsoring organizations to develop an integrated set of internal control criteria to enable companies to improve their controls. In England, the seeds of modern corporate governance were sown by the Bank of Credit and Commerce International (BCCI) Scandal. The Barings Bank was another landmark. It heightened people’s awareness and sensitivity on the issue and resolve that something ought to be done to stem the rot of corporate misdeeds. These couple of examples of corporate failures indicated absence of proper structure and objectives of top management. Corporate governance assumed more importance in light of these corporate failures, which was affecting the shareholders and other interested parties. As a result of these corporate failures and lack of regulatory measurers from authorities as an adequate response to check them in future, the Committee of Sponsoring Organizations (COSO) was born.

The report produced by it in 1992 stipulated a control framework, which has been endorsed and refined in the four subsequent UK reports. Cadbury, Rutteman, Hampel and Turnbull. While developments in the United States stimulated debate in the UK, a spate of scandals and collapses in that country in the late 1980’s and early 1990’s led shareholders and banks to worry about their investments. These also led the government in UK to recognize that the existing legislation and self-regulation were not working.
The issue of corporate governance became particularly significant in the context of globalization because one special feature of the late 20th century/21st century is that in addition to the traditional three elements of the economy namely physical capital in terms of plant and machinery, technology and labour, the volatile element of financial capital emerged as most challenging part of globalization. Financial capital invested in the emerging markets and in third countries is an important element of modern globalization and has become particularly powerful. Thanks to the ubiquitous application of information technology, at the touch of a computer mouse, it is possible now to transfer billions of dollars across borders. The significance and the impact of the volatility of the financial capital was realized when in June 1997 the currency of South East Asian Countries started melting down in countries like Thailand, Indonesia, South Korea and Malaysia. It was realized by the World Bank and all investors that it is not enough to have good corporate management but one should have also good corporate governance because the investors want to be sure that the decisions taken are ultimately in the interest of all stakeholders. Honesty is the best policy is a fact that is now being re-discovered.

Corporate governance issues became a dominant business topic in the wake of the spate of corporate scandals of midyear 2002—Enron, Worldcom, and Tyco, to name a few. Interest in corporate governance is not new, but the severity of the financial impacts of these scandals undermined the confidence of both the institutional and the individual investor and heightened concerns about the ability and resolve of private enterprises to protect their stakeholders. The scandals and crises are just manifestations of a number of structural reasons why corporate governance has become more important for economic development and a more important policy issue in many countries. First, the private, market-based investment process—underpinned by good corporate governance—is now much more important for most economies than it used to be. Privatization has raised corporate governance issues in sectors that were previously in the hands of the state. Firms have gone to public markets to seek capital, and mutual societies and partnerships have converted themselves into listed corporations. Second, due to technological progress, liberalization and opening up of financial markets, trade liberalization, and other structural reforms—notably, price deregulation and the removal of restrictions on
products and ownership—the allocation within and across countries of capital among competing purposes has become more complex, as has monitoring of the use of capital. This makes good governance more important, but also more difficult. Third, the mobilization of capital is increasingly one step removed from the principal- owner, given the increasing size of firms and the growing role of financial intermediaries. The role of institutional investors is growing in many countries, with many economies moving away from “pay as you go” retirement systems. This increased delegation of investment has raised the need for good corporate governance arrangements. Fourth, programs of deregulation and reform have reshaped the local and global financial landscape. Long-standing institutional corporate governance arrangements are being replaced with new institutional arrangements, but in the meantime, inconsistencies and gaps have emerged. Fifth, international financial integration has increased, and trade and investment flows are increasing. This has led to many cross-border issues in corporate governance. Cross-border investment has been increasing, for example, resulting in meetings of corporate governance cultures that are at times uneasy.

In practical terms, corporate governance has meant that there should be at the board level non-official directors who are professionals and who have no conflicting interests and who can particularly operate the two key committees, the ethics committee and the finance committee to see that there is greater transparency in the management of the enterprise. Corporate governance ultimately has to come to mean better transparency in the operations without sacrificing business strategy or business secrets which are necessary for success in the market place and absolutely ethical behavior where the conduct of the company will not only be legal but also ethical.

1.2.3 Corporate Governance Initiatives in India:

It is observed that the scale and scope of economic reform and development in India over the past 20 years has been impressive. The country has opened up large parts of its economy and capital markets, and in the process has produced many highly regarded companies in sectors such as information technology, banking, autos, steel and textile manufacturing. These companies are now making their presence felt
outside India through global mergers and acquisitions. There have been several major corporate governance initiatives launched in India since the mid-1990s. The first was by the Confederation of Indian Industry (CII), India’s largest industry and business association, which came up with the first voluntary code of corporate governance in 1998. The second was by the SEBI, now enshrined as Clause 49 of the listing agreement. The third was the Naresh Chandra Committee, which submitted its report in 2002. The fourth was again by SEBI — the Narayana Murthy Committee, which also submitted its report in 2002. Based on some of the recommendation of this committee, SEBI revised Clause 49 of the Listing Agreement in August 2003.

In April 1998 the country produced one of the first substantial codes of best practice in corporate governance in Asia. It was published not by a governmental body, a securities regulator or a stock exchange, but by the Confederation of Indian Industries (CII), the country’s peak industry body. The following year, the government appointed a committee under the leadership of Kumar Mangalam Birla, Chairman, Aditya Birla Group, to draft India’s first national code on corporate governance for listed companies. Many of the committee’s recommendations were mandatory, closely aligned to international best practice at the time and set higher governance standards for listed companies than most other jurisdictions in Asia. The Indian Code of Corporate Governance, approved by SEBI in early 2000, was implemented in stages over the following two years and led to changes in stock exchange listing rules, notably the new Clause 49 in the Listing Agreement. Further reforms have been made over the past decade to modernize both company law and securities regulations. The Companies Act, 1956 has been amended several times, in areas such as postal ballots and audit committees, while committees were appointed in 2002 and 2004 to recommend improvements. The latter committee, chaired by Dr J.J Irani, was charged with undertaking a comprehensive review of the 1956 Act and its recommendations led to a rewrite of the law and a new Companies Bill, 2008. In the area of securities regulation, SEBI has made numerous changes in recent years including: revising and strengthening Clause 49 in relation to independent directors and audit committees; revising Clause 41 of the Listing Agreement on interim and annual financial results; and amending other listing rules to protect the interests of
minority shareholders, for example in mergers and acquisitions. Not surprisingly, the recent Satyam fraud of late 2008 led to renewed reform efforts by Indian authorities and regulators. SEBI brought out new rules in February 2009 requiring greater disclosure by promoters (i.e., controlling shareholders) of their shareholdings and any pledging of shares to third parties.

An effective regulatory and legal framework is indispensable for the proper and sustained growth of the company. In rapidly changing national and global business environment, it has become necessary that regulation of corporate entities is in tune with the emerging economic trends, encourage good corporate governance and enable protection of the interests of the investors and other stakeholders. Further, due to continuous increase in the complexities of business operation, the forms of corporate organizations are constantly changing. As a result, there is a need for the law to take into account the requirements of different kinds of companies that may exist and seek to provide common principles to which all kinds of companies may refer while devising their corporate governance structure.

The important legislations for regulating the entire corporate structure and for dealing with various aspects of governance in companies are Companies Act, 1956 and Companies Bill, 2004. These laws have been introduced and amended, from time to time, to bring more transparency and accountability in the provisions of corporate governance. That is, corporate laws have been simplified so that they are amenable to clear interpretation and provide a framework that would facilitate faster economic growth.

Secondly, the Securities Contracts (Regulation) Act, 1956, Securities and Exchange Board of India Act, 1992 and Depositories Act, 1996 have been introduced by SEBI, with a view to protect the interests of investors in the securities markets as well as to maintain the standards of corporate governance in the country.

The Ministry of Corporate Affairs (MCA) is the main authority for regulating and promoting efficient, transparent and accountable form of corporate governance in the Indian corporate sector. It is constantly working towards improvement in the legislative framework and administrative set up, so as to enable easy incorporation and exit of the companies, as well as convenient compliance of regulations with
transparency and accountability in corporate governance.

1.2.4 Corporate Governance Mechanism:

The three key constituents of corporate governance are the board of directors, the shareholders and the management.

- The pivotal role in any system of corporate governance is performed by the **board of directors**. It is accountable to the stakeholders and directs and controls the management. It stewards the company, sets its strategic aim and financial goals and oversees their implementation, puts in place adequate internal controls and periodically reports the activities and progress of the company in a transparent manner to all the stakeholders.

- The **shareholders'** role in corporate governance is to appoint the directors and the auditors and to hold the board accountable for the proper governance of the company by requiring the board to provide them periodically with the requisite information in a transparent fashion, of the activities and progress of the company.

- The responsibility of the **management** is to undertake the management of the company in terms of the direction provided by the board, to put in place adequate control systems and to ensure their operation and to provide information to the board on a timely basis and in a transparent manner to enable the board to monitor the accountability of management to it.

Corporate governance mechanisms and controls are designed to reduce the inefficiencies that arise from moral hazard and adverse selection. For example, to monitor managers' behavior, an independent third party (the external auditor) attests the accuracy of information provided by management to investors. An ideal control system should regulate both motivation and ability.

**Internal Corporate Governance Controls**

Internal corporate governance controls monitor activities and then take corrective action to accomplish organisational goals. Examples include:

- **Monitoring by the board of directors**: The board of directors, with its legal
authority to hire, fire and compensate top management, safeguards invested capital. Regular board meetings allow potential problems to be identified, discussed and avoided.

- **Internal control procedures and internal auditors**: Internal control procedures are policies implemented by an entity's board of directors, audit committee, management, and other personnel to provide reasonable assurance of the entity achieving its objectives related to reliable financial reporting, operating efficiency, and compliance with laws and regulations. Internal auditors are personnel within an organization who test the design and implementation of the entity's internal control procedures and the reliability of its financial reporting.

- **Balance of power**: The simplest balance of power is very common; require that the President be a different person from the Treasurer. This application of separation of power is further developed in companies where separate divisions check and balance each other's actions.

- **Remuneration**: Performance-based remuneration is designed to relate some proportion of salary to individual performance. It may be in the form of cash or non-cash payments such as shares and share options, superannuation or other benefits.

- **Monitoring by large shareholders and/or monitoring by banks and other large creditors**: Given their large investment in the firm, these stakeholders have the incentives, combined with the right degree of control and power, to monitor the management.

**External Corporate Governance Controls**

External corporate governance controls encompass the controls external stakeholders exercise over the organization. Examples include: competition, debt covenants, demand for and assessment of performance information (especially financial statements), government regulations, managerial labour market, media pressure and takeovers.

**1.2.5 Theories of Corporate Governance:**

Theories of corporate governance undoubtedly assist to understand the role that
directors may play in contributing to the performance of the organizations they govern. Literature on corporate governance evidenced numerous theories. However, the three predominant theories in corporate governance research, namely agency theory, stewardship theory, and resource dependence theory can be considered as major landmarks.

**Agency Theory**

Agency theory is concerned with aligning the interests of owners and managers (Jensen and Meckling, 1976; Stano, 1976; Fama, 1980; Fama and Jensen, 1983) and is based on the premise that there is an inherent conflict between the interests of a firm’s owners and its management (Fama and Jensen, 1983). Agency theory is directed at the ubiquitous agency relationship, in which one party (the principal) delegates work to another (the agent), who performs that work. Agency theory is concerned with resolving two problems that can occur in agency relationships. The first is the agency problem that arises when (a) the desires or goals of the principal and agent conflict and (b) it is difficult or expensive for the principle to verify what the agent is actually doing. The problem here is that the principal cannot verify that the agent has behaved appropriately. The second is the problem of risk sharing that arises when the principal and agent have different attitudes towards risk. The problem here is that the principle and the agent may prefer different actions because of the different risk preferences. In agency theory terms, the owners are principals and the managers are agents and there is an agency loss which is the extent to which returns to the residual claimants, the owners, fall below what they would be if the principals, the owners, exercised direct control of the corporation (Jensen and Meckling 1976). Agency theory specifies mechanisms which reduce agency loss (Eisenhardt 1989). These include incentive schemes for managers which reward them financially for maximising shareholder interests.

**Stewardship Theory**

In contrast to agency theory, stewardship theory posits that managers are essentially trustworthy individuals and so are good stewards of the resources entrusted to them (Donaldson, 1990; Donaldson and Davis, 1991; 1994). The theoretical considerations argue a view of managerial motivation alternative to agency theory and which
may be termed stewardship theory (Donaldson 1990a, 1990b; Barney 1990). Since inside (or executive) directors spend their working lives in the company they govern, they understand the businesses better than outside directors and so can make superior decisions (Donaldson, 1990; Donaldson and Davis, 1991; 1994). As a result, proponents of stewardship theory contend that superior corporate performance will be linked to a majority of inside directors as they naturally work to maximize profit for shareholders. In the well-known language of motivation (McGregor, 1960), stewardship theory plays a “Theory Y” view of managers to agency’s “Theory X” perspective, arguing that an overemphasis on monitoring is unnecessary for the board to impact on corporate performance.

Stewardship theory is based on two premises; namely, that managers are naturally trustworthy (Donaldson, 1990; Donaldson and Preston, 1995) and/or that agency costs will be minimized as a matter of course, as senior executives are unlikely to disadvantage shareholders for fear of jeopardizing their reputations (Donaldson and Davis, 1994). Further, even if agency costs are a significant concern to a company and monitoring is necessary, stewardship theorists also hypothesise that outside or independent directors will lack the knowledge, time and resources to monitor management effectively (Donaldson and Davis, 1994). Stewardship theory holds that performance variations arise from whether the structural situation in which the executive is located facilitates effective action by the executive. The issue becomes whether or not the organization structure helps the executive to formulate and implement plans for high corporate performance (Donaldson 1985). Structures will be facilitative of this goal to the extent that they provide clear, consistent role expectations and authorize and empower senior management.

**Resource Dependence Theory**

The third major theory of corporate governance is that of resource dependence, which maintains that the board is an essential link between the firm and the essential resources that it needs to maximise performance (Pfeffer, 1973; Pfeffer and Salancik, 1978). Since resource dependence theory draws from both the sociology and management disciplines (Pettigrew, 1992), there is no universally accepted definition of what is an important resource. Sociologists have tended to concentrate
on three distinct types of links, namely the links that a board provides to a nation’s business elite (Useem, 1984), access to capital (Mizruchi and Stearns, 1988; Stearns and Mizruchi, 1993), or links to competitors (Mizruchi, 1992 and 1996). In each instance, the researchers make credible arguments that the resource in question is a key determinant of success. Management scholars have tended to take a more generic approach, following the resource based view (RBV) of the firm (Barney, 1991; Wernerfelt, 1984). Researchers such as Hillman, Canella, and Paetzold, (2000) and Palmer and Barber (2001) view the board as a potentially important resource for the corporation, especially in its links with the external environment. In major reviews of the board-performance literature, the ability of the board to link into significant resources is seen as one of its key roles (Zahra and Pearce, 1989; Korac-Kakabadse, Kakabadse and Kourim, 2001).

1.2.6 Prerequisites’ and Constituents’ of Good Corporate Governance:

Today adoption of good corporate governance practices has emerged as an integral element for doing business. It is not only a pre-requisite for facing intense competition for sustainable growth in the emerging global market scenario but is also an embodiment of the parameters of fairness, accountability, disclosures and transparency to maximize value for the stakeholders. Corporate governance is beyond the realm of law. It cannot be regulated by legislation alone. Legislation can only lay down a common framework – the “form” to ensure standards. The “substance” will ultimately determine the credibility and integrity of the process. Substance is inexorably linked to the mindset and ethical standards of management. Studies of corporate governance practices across several countries conducted by the Asian Development Bank, International Monetary Fund, Organization for Economic Cooperation and Development and the World Bank reveal that there is no single model of good corporate governance.

The OECD Code also recognizes that different legal systems, institutional frameworks and traditions across countries have led to the development of a range of different approaches to corporate governance. However, a high degree of priority has been placed on the interests of shareholders, who place their trust in corporations to use their investment funds wisely and effectively is common to all good corporate
governance regimes.

Also, irrespective of the model, there are three different forms of corporate responsibilities which all models do respect:

- **Political responsibilities**: the basic political obligations are abiding by legitimate law; respect for the system of rights and the principles of constitutional state.

- **Social responsibilities**: the corporate ethical responsibilities, which the company understands and promotes either as a community with shared values or as a part of larger community with shared values.

- **Economic responsibilities**: acting in accordance with the logic of competitive markets to earn profits on the basis of innovation and respect for the rights/democracy of the shareholders which can be expressed in terms of managements' obligation as 'maximizing shareholders value'.

In addition, business ethics and corporate awareness of the environmental and societal interest of the communities, within which they operate, can have an impact on the reputation and long-term performance of corporations. The main constituents of good corporate governance are:

- **Role and powers of board**: The foremost requirement of good corporate governance is the clear identification of powers, roles, responsibilities and accountability of the board, CEO and the chairman of the board.

- **Code of conduct**: It is essential that an organization's explicitly prescribed code of conduct is communicated to all stakeholders and is clearly understood by them. There should be some system in place to periodically measure and evaluate the adherence to such code of conduct by each member of the organization.

- **Board independence**: An independent board is essential for sound corporate governance. It means that the board is capable of assessing the performance of managers with an objective perspective. Hence, the majority of board members should be independent of both the management team and any
commercial dealings with the company. Such independence ensures the effectiveness of the board in supervising the activities of management as well as make sure that there are no actual or perceived conflicts of interests.

- **Board skills:** In order to be able to undertake its functions effectively, the board must possess the necessary blend of qualities, skills, knowledge and experience so as to make quality contribution. It includes operational or technical expertise, financial skills, legal skills as well as knowledge of government and regulatory requirements.

- **Management environment:** It includes setting up of clear objectives and appropriate ethical framework, establishing due processes, providing for transparency and clear enunciation of responsibility and accountability, implementing sound business planning, encouraging business risk assessment, having right people and right skill for jobs, establishing clear boundaries for acceptable behaviour, establishing performance evaluation measures and evaluating performance and sufficiently recognizing individual and group contribution.

- **Board appointments:** To ensure that the most competent people are appointed in the board, the board positions must be filled through the process of extensive search. A well defined and open procedure must be in place for reappointments as well as for appointment of new directors.

- **Board induction and training:** It is essential to ensure that directors remain abreast of all development, which are or may impact corporate governance and other related issues.

- **Board meetings:** Board meetings are the forums for board decision making. These meetings enable directors to discharge their responsibilities. The effectiveness of board meetings is dependent on carefully planned agendas and providing relevant papers and materials to directors sufficiently prior to board meetings.

- **Strategy setting:** The objective of the company must be clearly documented in a long term corporate strategy including an annual business plan together
with achievable and measurable performance targets and milestones.

- **Business and community obligations:** Though the basic activity of a business entity is inherently commercial yet it must also take care of community's obligations. The stakeholders must be informed about the approval by the proposed and ongoing initiatives taken to meet the community obligations.

- **Financial and operational reporting:** The board requires comprehensive, regular, reliable, timely, correct and relevant information in a form and of a quality that is appropriate to discharge its function of monitoring corporate performance.

- **Monitoring the board performance:** The board must monitor and evaluate its combined performance and also that of individual directors at periodic intervals, using key performance indicators besides peer review.

- **Audit committee:** It is inter alia responsible for liaison with management, internal and statutory auditors, reviewing the adequacy of internal control and compliance with significant policies and procedures, reporting to the board on the key issues.

- **Risk management:** Risk is an important element of corporate functioning and governance. There should be a clearly established process of identifying, analysing and treating risks, which could prevent the company from effectively achieving its objectives. The board has the ultimate responsibility for identifying major risks to the organization, setting acceptable levels of risks and ensuring that senior management takes steps to detect, monitor and control these risks.

A good corporate governance recognizes the diverse interests of shareholders, lenders, employees, government, etc. The new concept of governance to bring about quality corporate governance is not only a necessity to serve the divergent corporate interests, but also is a key requirement in the best interest of the corporate themselves and the economy.
1.2.7 Other Key Issues in Corporate Governance:

1. **Philosophy**: Globalization has increased the competition in which the corporate world operates, therefore, it has become increasingly important for the management to make corporate business more transparent and institutionally sound. Companies are adopting set of practices for achieving their objectives through legal, regulatory and institutional environment. Further, the companies intend to make business practices more and more transparent and accountable for shareholders. For delivering the moral obligations toward society business organizations are emphasizing their governance philosophy.

2. **Efficiency**: Efficiency of any management is judged by the returns generated by it on the shareholder’s investment. In developed economies, the capital markets are very organized and small investors invest indirectly, through tax and retirement funds. But in India, institutional as well as individual investors invest in corporations directly. Efficiency issues are pertinent issues as there is no monitoring or control mechanism for the shareholders individually or institutionally through which they can force the management to change their ways to enhance their efficiency levels.

3. **Accountability**: Management act as the interface between corporation and stakeholders. As the interests of various parties as investors, lenders, employees, customers, government and society is at stake, the accountability issues emerge out of their need for more disclosure and transparency in their conduct of business.

4. **Ethical compliance**: Maintaining high ethical standards give considerable advantage to companies as these standards produce “reputation effects” leading to loyalty of clients and customers. Corporate governance and ethical behaviour, together calls for integrity, which is of three types: financial integrity, moral integrity and intellectual integrity.

Corporate governance and ethical behaviour have a number of advantages. Firstly, they help to build good brand image for the company. Once, there is a brand image for the company, there is greater loyalty, once there is greater loyalty, there is greater commitment to the employees and when there is a commitment of
employees, the employees will become more creative. In the current competitive environment, creativity is vital to get a competitive edge.

Ethics has got a major role to play in realizing value for the efforts the business organizations put in. Not going anywhere looking from the age old Indian philosophical tradition certain values can be derived, which are also consistent with the value system of other civilizations. They are:

**Dharma (righteousness):** The right path, which will uphold the family, organizational and the social fabric,

**Loka Sangraha (public good):** Work not just for private gain but also for public good. Practice of Swartha Pratha (self plus others) seeking one’s own gains and also catering to welfare of others,

**Kausalam (efficacy):** Optimum utilization of resources efficiently and productively.Judicious use of resources and preserving the resources for future generations,

**Vividhita (innovation):** Beyond survival, business has to be the engine of innovation, constantly seeking more effective solutions to meet economic and social expectations. Such innovation is required in processes, products, materials, machines, organization, strategies, systems and people,

**Jigyasa (learning):** Change and continuity will co-exist. So the corporate have to keep learning from feedback loop from society and through internal processes of question, challenges, debates and training.

5. **Legal compliance:** A clear and unambiguous legislative and regulatory framework is fundamental to effective corporate governance. The difficulty with legal compliance mechanisms is that many abuses that have enraged the public are entirely legal, for example, companies can file misleading accounting statements that are in complete compliance with Generally Accepted Accounting Principles (GAAP).

In Indian scriptures, Dharma, the most difficult to define, has been explained to be that which helps the upliftment of living beings. Therefore, that which ensures welfare is surely dharma. Its origin can be traced as solution to eternal problems confronting the human race, originating from natural human instincts.
In the words of Manu:

“Akasmay Kriya Kaschdrishayate Neh Kahinchit,
Yadvati Kurute Kinchhit Tattkamasse Chestitam”

It means that there is no act of man which is free from desire, whatever man does is the result of desire. The force behind every action of human being is his desire, which is Kama. There is natural desire to have enjoyment and wealth i.e. material pleasure, which is Artha. But artha and kama are however subject to dharma. The profounder of dharma did appreciate that fulfilment of desires of human being was essential aspect of life but were of the opinion that unless desires were regulated by law, it is bound to give undesirable results.

As per Gita in 16-24:

“Tsmachastrnm Pranam Te Karyakarvayasthitao,
Gyatva Shastravidhanoktam Karn Kurtumihairsi”

It means, let the shastras be authority in deciding what one should do and what one should desist from doing. In this case the shastras are nothing else but codes of best practice developed by various institutions; however, what is needed is uniformity in these codes. When it is stated that one should observe dharma then it is necessary to cite Manu where he explains the necessity of scrupulous practice of dharma.

Manu further says:

“Dharma Aev Hato Hanta Dharmo Raksati Rakshita,
Tasmadharmo Na Hantavyo Ma Na Dharmo Hatovidhit”

Meaning thereby that dharma protects those who protect it. Those who destroy dharma get destroyed. Therefore, dharma should not be destroyed so that one may not be destroyed as a consequence thereof. The concept of dharma sankata is well known in Hindu religion. Narova kunjarova (human or elephant) was the situation where Yudhistra in Mahabharta lied. For the sake of getting short-term benefit, resorting to lies or straying from the straight and narrow path ultimately leads to a long-term failure. It means that even at the cost of sacrificing short-term benefits, it is better for an enterprise to adopt healthy practices.
1.3 IT GOVERNANCE

In many organizations, IT is fundamental to support, sustain and grow the business. While many organizations recognize the potential benefits that technology can yield, the successful ones also understand and manage the risks associated with implementing new technologies (W1). The IT governance is an integral part of enterprise governance that consists of the leadership, organizational structures, processes that ensure the organization's IT sustains, and extends the organization's strategies and objectives (W1). The IT governance drives strategic alignment between IT and the business and must judiciously measure performance (Brown and Magill 1994). So, is an integral part of enterprise governance which operates model for how organization will make decisions about use of IT, involves external relationships for obtaining IT relationships, involves authority, control, accountability, roles, and responsibilities, involves processes and methods for making decisions and involves judgments about how well use of IT enables strategic direction (Brown and Magill, 1994).

Today businesses rely on IT as an integral part of their overall enterprise strategy. A new field of thought called IT governance has been under development for several years. Just as business management is governed by generally accepted good practices, IT should be governed by practices that help to ensure an enterprise’s IT resources are used responsibly, its risks are managed appropriately and its information and related technology support business objectives (Schwarz and Hirschheim, 2003). In other words, IT governance is the process by which decisions are made around IT investments. How these decisions are made, who makes the decisions, which is held accountable, and how the results of the decisions are measured and monitored are all parts of IT governance (Luftman, 2000). While there is no 'standard' definition, in general, IT governance involves specifying the decision rights, the accountability and authority framework for important IT decisions, with the objective of encouraging 'desirable behavior' in the use of IT (ITGI, 2004).

IT governance has come to play an important role in organizations where technologies are implemented in larger scales than ever before and supports numerous business operations (Posthumusa and Solms, 2005). Organizations today
work in a new era of competition that is not only faster but also more turbulent, more global and more digital, requiring inexorable cost-efficiencies as well as flexibility and creativity to find new ways to innovate and create value (Grembergen, 2003). Enterprises can use IT governance for directing and controlling the technological aspects of their organization (Posthumusa and Solms, 2005). It ensures that investments in IT will generate the values the business requires and that risks associated with IT are alleviated (Grembergen, 2003). The IT Governance Institute believes IT governance to be an integral part of the overall enterprise governance. They compare the need of IT governance integration with the overall governance to the need of IT to be an integral part of the enterprise rather than be something that is practised outside the enterprise framework (ITGI, 2003). According to the IT Governance Institute, IT governance is the responsibility of the board of directors and the executive management, and is an integral part of enterprise governance. It elevates information as a key organizational asset and treats governance of information at par with governance of other assets like human, financial, intellectual, and relationship assets (Schwarz and Hirschheim, 2003).

**Researchers IT governance definition:**

**Brown and Magill (1994):** “IT governance describes the locus of responsibility for IT functions.”

**Luftman (1996):** “IT governance is the degree to which the authority for making IT decisions is defined and shared among management, and the processes managers in both IT and business organizations apply in setting IT priorities and the allocation of IT resources.”

**Sambamurthy and Zmud (1999):** “IT governance refers to the patterns of authority for key IT activities.”

**Van Grembergen (2002):** “IT governance is the organizational capacity by the board, executive management and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT.”

**Weill and Vitale (2002):** “IT governance describes a firm’s overall process for sharing decision rights about IT and monitoring the performance of IT investments.”
Schwarz and Hirschheim (2003): “IT governance consists of IT-related structures or architectures (and associated authority patterns), implemented to successfully accomplish (IT-imperative) activities in response to an enterprise’s environment and strategic imperatives.”

IT Governance Institute (2003): “IT governance is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization’s IT sustains and extends the organization’s strategies and objectives.”

Weill and Ross (2004): “IT governance is specifying the decision rights and accountability framework to encourage desirable behaviour in using IT.”

Posthumusa and Solms (2005): Posthumusa and Solms (2005) motivate IT governance to be about policies and procedures. Policies and procedures that determines how technology resources in an organization can be controlled and directed so the recourses successfully simplifies the reality of reaching the business goals.

IT Governance as Structure
The largest body of literature on IT governance is concerned with the locus of the IT decision-making authority within an organisation (Brown, 1997; Sambamurthy and Zmud; 1999). In this view, IT governance is concerned with three issues (Weill and Broadbent, 1998; Sambamurthy and Zmud, 1999)

- IT infrastructure management, which refers to decisions relating to the types of hardware and software platforms, network and data architectures used within the organisation and the corporate standards for procurement and deployment of its IT assets,
- IT use management, which refers to decisions relating to IT planning and priorities and to the routine provision of IT services, and
- IT project management, which requires both infrastructure and system skills to be used to develop and implement new systems.
The literature identifies three modes of IT governance (Sambamurthy and Zmud, 1999; Brown and McGill, 1994; Davenport, et al., 1992). These are:

- Centralised, where corporate management have the cross-organisational IT decision-making authority.
- Decentralised, where divisional management have IT decision-making authority for their systems, and
- Hybrid or Federal, where corporate management have IT infrastructure decision-making authority for the entire organisation, and divisional management has authority for their applications and system development.

The literature suggests that the hybrid mode is dominant (Hodgkinson, 1996; Sambamurthy and Zmud, 1999; Weill and Broadbent, 2003).

This view of IT governance is strikingly similar to the earlier debates on the organisational structure of the IT function (see for example Olsen and Chervany, 1980; King, 1983; Tavakolian, 1989; and Brown and Magill, 1994). Part of this debate concerns whether the IT function should be centralised, controlling organisation-wide IT services from a single unit, or decentralised, with each business unit having its own IT function (Dearden, 1987). Neither choice is applicable in every case (Boynton, et al., 1992).

This view has the unfortunate effect of decoupling IT governance from corporate governance. The emphasis on leadership from the top and the accountability of the board for risk is here diminished by what appears to be a lower level focus on operational issues.

**IT Governance as Process**

This view sees IT governance as corporate governance applied to information technology. As Hogg (2002) noted, “It is poor corporate governance to push Information and Communication Technologies (ICT) governance down to the ICT manager level. ICT is an integral part of their business and ICT governance is an integral part of corporate governance.” This view, perhaps surprisingly, is largely taken only by the practitioner literature.
IT governance can be seen as a process, implemented as part of the corporate governance of an organisation. This view is pressed in the literature by a number of auditing bodies, most notably by two US-based organisations, ISACA, (Information Systems Audit and Control Association) and the ITGI, (IT Governance Institute), who jointly developed a proprietary approach for implementing and evaluating controls in the IT environment. This approach is called CobiT (Control Objectives for Information and Related Technology) (ITGI, 2002). The basis of the approach is that accountability of the IT systems is achieved by the use of a set of audit control processes.

The link between the managers responsible for managing an IT function and the board of their organisation, according to the literature, is two-fold. Firstly, the actions of IT management are guided by a stable, formal, agreed business strategy (Hirschheim, et al., 1995; Lederer and Sethi, 1996) and corporate objectives (O’Connor, 1993). The development of business strategy and the oversight of its implementation, as earlier noted, are board responsibilities.

Secondly, IT carries risks. Given the centrality of IT to the operation of most companies and the companies’ heavy capital investments in IT, the risk of, for example, failure, underperformance or overspend on IT needs to be understood and managed at board level. The 2003 Chaos report of IT project failure (Standish, 2003) shows that, based on data from 13,522 cases, only 34% of IT projects were considered successful. 15% of projects were complete failures and the balance of 51% was what is referred to as challenged. Challenged means a project overran on time and/or cost (Standish, 2003). Data from the projects surveyed showed that 52% of the specified features and functions of an IT project appear in the final released version (Standish, 2003).

1.3.1 The IT Governance model proposed by IT Governance Institute

The purpose of IT governance, as defined by ITGI, is to direct IT endeavors to ensure that IT’s performance meets the following objectives:

- alignment of IT with the enterprise and realization of the promised benefits,
- use of IT to enable the organization in exploiting opportunities and maximizing benefits,
- responsible use of IT resources,
- appropriate management of IT-related risks.

The IT governance process begins with setting objectives for the enterprise's IT, providing the initial direction. From then on, a continuous loop is established: performance is measured and compared to objectives, resulting in redirection of activities where necessary and change of objectives where appropriate. While objectives are primarily the responsibility of the board and performance measures that of management, it is evident they should be developed in concert so that the objectives are achievable and the measures represent the objectives correctly.

![Figure 1.1 IT Governance Process Proposed by ITGI](image)

Source: ITGI, 2003

In response to the direction received, the IT function needs to focus on realizing benefits by increasing automation and making the enterprise more effective, and by decreasing cost and making the whole enterprise more efficient; and on managing risks (security, reliability and compliance). The IT governance framework then can be completed as indicated below:
According to the ITGI, IT governance focuses its attention, at a highest level of analysis, on two main macro-activities:

- IT’s delivery of value to the business, which is driven by strategic alignment of IT with the business;
- Mitigation of IT risks, which is driven by embedding accountability into the organization.

Both activities need to be supported by adequate resources and measured to ensure that results are obtained. At a second level of analysis, it’s possible to identify five main focus area for IT governance, all driven by stakeholder value (see figure 1.3).

Three areas are drivers:
- strategic alignment,
- resource management,
- performance management.
Two areas are outcomes:

- value delivery,
- risk management.

Considering some studies, the top issues for IT management have moved from a technology perspective to a managerial one. These issues have their effects onto the IT governance areas:

- Strategic alignment, with focus on aligning with the business and collaborative solutions,
- Value delivery, concentrating on optimizing expenses and proving the value of IT
- Risk management, addressing the safeguarding of IT assets, disaster recovery and continuity of operations,
- Resource management, optimizing knowledge and IT infrastructure,
- Performance measurement, tracking project delivery and monitoring IT services.

*Source: ITGI, 2003*
“An IT governance framework helps boards and management to understand the issues and strategic importance of IT, and assists in ensuring that the enterprise can sustain its operations and implement the strategies required to extend its activities into the future. It provides assurance that expectations for IT are met and IT risks are addressed. IT governance fits in the broader governance arrangements that cover relationships between the entity’s management and its governing body, its owners and its other stakeholders. It provides the structure through which the entity’s overall objectives are set, the method of attaining those objectives is outlined and the manner in which performance will be monitored is described. IT governance ensures that IT goals are met and IT risks are mitigated such that IT delivers value to sustain and grow the enterprise. IT governance drives strategic alignment between IT and the business and must judiciously measure performance. IT is an integral part of the business. IT governance is an integral part of enterprise governance” (ITGI, 2003).

A brief description of five key domains of IT governance is given below:

1.3.2 Strategic alignment has an extensive academic and practitioner literature. The literature argues that strategic alignment is essential for the maximisation of organisational effectiveness (Henderson and Venkatraman, 1992; Reich and Benbasat, 1996) and superior organisational performance (Chan, et al., 1997). Literature evidenced it as a major factor in enabling organisations to achieve the maximum benefit from their IT investments (Henderson and Venkatraman, 1993; Prairie, 1996) and also enables organisations to employ IT for competitive advantage (Luftman, Lewis and Oldach, 1993).

According to literature, the basis for strategic alignment is a formal, stable, agreed business strategy (Hirschheim, Klein and Lyytinen, 1995; Lederer and Sethi, 1996). Both strategy development and oversight of its implementation are part of the board’s corporate governance responsibilities (Tricker, 1997). The strategic process starts with the top management vision for the organization (Robbins and Duncan, 1988). Development of the business strategy is managed by a formal process and policy, controlled and implemented by the top management team (Ansoff, 1965; Fredrickson, 1986; Porter, 1980). Part of the top management vision is their view of the role that IT is to play in the organisation (Robbins and Duncan, 1988).
Subsequently, the IT strategy is created by joint action of the business and IT management, using the business strategy and objectives as the key reference (Lederer and Sethi, 1996; Ward and Griffiths, 1996; Peppard, 2001). A number of writers have stressed the need for top management to be closely involved in the IT strategy process (e.g. Henderson and Sifonis, 1988; Henderson and Venkatraman, 1993; Earl and Feeny, 1994; Peppard and Ward, 1999), so that the IT strategy, when implemented, results in IT systems that support the business strategy (Premkumar and King, 1994; Lederer and Sethi, 1992, 1996). Peppard and Ward (2004) note that defining the business and IT strategies are “macro competencies” necessary for success with IT. Further, Gregor, et al. (2004) shows that there is a relationship between strategic planning practices and the value derived from IT.

The strategic alignment literature assumes that the IT strategy is managed by IT professionals, organised into an IT department. Thus the existence, within an organisation, of an IT department is central to the fulfilment of strategic alignment, but there has been little research to establish whether organisations do, in fact, have IT departments. Typically, an IT strategy will detail a set of prioritized IT projects that have roles in the implementation of the business strategy (Luftman, Papp and Brier, 1999). Thus, for senior management, one of the most significant IT governance challenges is the risk that projects that are strategically necessary (or even critical) may fail, under perform or over-run their cost and time budgets. This risk is illustrated by several well-founded surveys, such as the US-based Chaos Report (Standish, 2003), a UK survey (Sauer and Cuthbertson, 2003), and a survey of companies in Australia and New Zealand (EQuest, 2004). The risks related to IT projects are considerable (Markus, 2000). The ICAEW survey of medium-sized businesses in the UK (ICAEW, 2005) found that such risks were the key concern of decision-makers appraising proposals for new IT projects. Three tools are, according to the literature, used to manage IT risk by top management. Firstly, the known or foreseeable risks should be identified to top management (Willcocks and Griffiths, 1994; Wiegers, 1998), as part of the business case for a new IT project; this business case should also set out the specification, benefits and costs of the project (Ballantine and Stray, 1998). Using this business case, a board can evaluate the proposal and compare its costs and benefits to other IT proposals competing for
company funds. Secondly, top management control of IT projects during implementation is greatly facilitated by the use of project management disciplines (Lyytinen and Hirschheim, 1987; Parr, Shanks and Darke, 1999) which aims to ensure that cost and time budgets are adhered to, and unforeseen risks dealt with as they arise.

1.3.3 Resource management: Resource management allows organizations to analyze, monitor and anticipate the utilization and performance of the IT infrastructure by providing an enterprisewide view of IT services and resources. The solution ensures delivery of IT services and resources in an efficient, cost-effective manner while demonstrating measurable value to business incentives. IT resource management delivers the utilization, availability and performance information required to know and forecast IT resource needs. These facts enable efficient IT procurement processes, deployment planning and operational activities that are needed to deliver IT services to the business units. A key to successful IT performance is the optimal investment, use and allocation of IT resources (people, applications, technology, facilities, data) in servicing the needs of the enterprise. Most enterprises fail to maximize the efficiency of their IT assets and optimise the costs relating to these assets. In addition, the biggest challenge in recent years has been to know where and how to outsource and then to know how to manage the outsourced services in a way that delivers the values promised at an acceptable price. Boards need to address appropriate investments in infrastructure and capabilities by ensuring that:

• The responsibilities with respect to IT systems and services procurement are understood and applied.

• Appropriate methods and adequate skills exist to manage and support IT projects and systems.

• Improved workforce planning and investment exist to ensure recruitment and, more important, retention of skilled IT staff.

• IT education, training and development needs are fully identified and addressed for all staff.
• Appropriate facilities are provided and time is available for staff to develop the skills.

• Appropriate methods and adequate skills exist in the organization to manage IT projects.

• The benefits accruing from any service procurement are real and achievable.

In most enterprises, the biggest portion of the IT budget relates to ongoing operations. Effective governance of IT operational spending requires effective control of the cost base: the IT assets and their focus where they are needed most. Enterprises should align and prioritize the existing IT services that are required to support business operations based on clear service definitions.

1.3.4 Performance management: It generally refers to the monitoring and measurement of relevant performance metrics to assess the performance of IT resources. IT performance management is often an aspect of achieving organizational and strategic goals and also a critical aspect of organizational controls (Kang and Bradley, 2002). However IT investments frequently result in unexpected, uncertain and undesired results (Van Grembergen and Van Bruggen, 1997; Turban, et al., 2001; Tuten, 2009). Therefore appropriate measures are required in order to identify and create metrics for measuring the contribution of IT to the organization’s value chain (Lomerson and Tuten, 2005).

According to Seddon, et al. (2002) the amounts spend on IT indicate that organizations are capable of identifying which forms of IT expenditure and management are most effective. De Boer (2002) adds to this notion that the management and control of IT is also critical as organizational incomes are under pressure. Evaluating IT investments enables a natural learning process for the organization (Remenyi, et al., 2000). Measuring IT results for organizations is complicated as some of the benefits that a firm accrues from IT are intangible in nature. However, the return on investment is more relevant than before (Dekkers, 2004). The difficulty with measuring IT performance has lead to an increase in the evaluation and assessment of IT investments (Remenyi, et al., 2000).

It can be used in both a business or IT management context, and an IT operations
context, though strategy has taken on a new urgency as enterprises mobilise intangible and hidden assets to compete in an information-based global economy. The means of value creation has shifted from tangible to intangible assets, and intangible assets generally are not measurable through traditional financial means. IT performance management may include following types:

- **Network Performance Management**: A set of functions that evaluate and report the effectiveness of the network or network element, and the behavior of telecommunications equipment.

- **System Performance Management**: It includes monitoring and management of utilization of operating systems resources, including CPU, memory, I/O, and disk usage. This includes both physical and virtual systems.

- **Application Performance Management (APM)**: The discipline within systems management that focuses on monitoring and managing the performance and availability of software applications.

- **Self-learning Performance Management**: The use of technology to help automate the performance management of information technology systems. This is done through the use of software that employs applied mathematics (such as statistics, time series analysis, and forecasting), automated baselining, neural networks, pattern recognition, and other similar technologies.

- **Business Transaction Management (BTM)**: The discipline within systems management that monitors business transactions across the data center in order to manage IT performance.

Effective IT performance management can deliver financial gains to the organizations by helping them to focus on projects that grow sales and reduce costs. It also facilitates the elimination of IT projects that are not delivering on expected benefits.

**1.3.5 Risk management**: The universal need to demonstrate good enterprise governance to shareholders and customers is the driver for increased risk management activities in large organisations. The CISA Review Manual 2006 provides the definition of risk management as: “Risk management is the process of
identifying vulnerabilities and threats to the information resources used by an organization in achieving business objectives, and deciding what countermeasures, if any, to take in reducing risk to an acceptable level, based on the value of the information resource to the organization. Enterprise risk comes in many varieties, not only financial risk. Regulators are specifically concerned about operational and systemic risk, within which technology risk and information security issues are prominent.” Therefore, the board should manage enterprise risk by:

- Ascertaining that there is transparency about the significant risks to the enterprise and clarifying the risk-taking or risk-avoidance policies of the enterprise (i.e. determining the enterprise’s appetite for risk).

- Being aware that the final responsibility for risk management rests with the board. So, when delegating to executive management, making sure the constraints of that delegation are communicated and clearly understood.

- Being conscious that the system of internal control put in place to manage risks often has the capacity to generate cost-efficiency.

- Considering that a transparent and proactive risk management approach can create competitive advantage that can be exploited.

- Insisting that risk management be embedded in the operation of the enterprise, respond quickly to changing risks and report immediately to appropriate levels of management, supported by agreed principles of escalation (what to report, when, where and how).

Effective risk management begins with a clear understanding of the enterprise’s appetite for risk and a brainstorming session on the high-level risk exposures of the enterprise. This focuses all risk management effort and, in an IT context, impacts future investments in technology, the extent to which IT assets are protected and the level of assurance required. The four objectives categories of IT risk addressed, according to COSO are:

- Strategy - high-level goals, aligned with and supporting the organization's mission,
• Operations - effective and efficient use of resources,
• Financial reporting - reliability of operational and financial reporting, and
• Compliance - compliance with applicable laws and regulations.

According to risk IT framework by ISACA, IT risk is transversal to all four categories. The IT risk should be managed in the framework of enterprise risk management: risk appetite and risk sensitivity of the whole enterprise should guide the IT risk management process. ERM should provide the context and business objectives to IT risk management. Dependent on the type of risk and its significance to the business, management and the board may choose to:

• Mitigate—implement controls (e.g. acquire and deploy security technology to protect the IT infrastructure),
• Transfer—share risk with partners or transfer to insurance coverage,
• Accept—formally acknowledge that the risk exists and monitor it.

As a minimum, risk should at least be analyzed, because even if no immediate action is taken, the awareness of risk will influence strategic decisions for the better. Often, the most damaging IT risks are those that are not well understood.

1.3.6 Value delivery: Val IT allows business managers to get business value from IT investments, by providing a governance framework that consists of a set of guiding principles, and a number of processes conforming to those principles that are further defined as a set of key management practices. The basic principles of IT value are the on-time and within-budget delivery of appropriate quality, which achieves the benefits that were promised. In business terms, this is often translated into: competitive advantage, elapsed time for order/service fulfillment, customer satisfaction, customer wait time, employee productivity and profitability. Several of these elements are either subjective or difficult to measure, something all stakeholders need to understand. Often, top management and boards fear to start major IT investments because of the size of investment and the uncertainty of the outcome. For effective IT value delivery to be achieved, both the actual costs and the return on investment need to be managed. The value that IT adds to the business
is a function of the degree to which the IT organization is aligned with the business and meets the expectations of the business.

IT-enabled business investments, when managed well within an effective governance framework, provide organizations with significant opportunities to create value. Many successful organizations have created value by selecting the right investments and successfully managing them from concept through implementation to realizing the expected value. Without effective governance and good management, IT enabled business investments provide an equally significant opportunity to destroy value.

1.3.7 IT Governance: A Need

IT governance requires a major amount of time, work and attention. Weill and Ross (2004) believe that it is all worth it since good IT governance harmonizes management decisions and use of IT. When a carefully designed and implemented governance structure is missing there is no harmony and the enterprise is left to chance (Weill and Ross, 2004).

Weill and Ross (2004) mention number of argument why IT governance is necessary and why decision making should not be left to chance. Good IT governance pays off, according to a study, firms with above-average IT governance have 20 percent higher Return on Assets (ROA) compared to firms with the same strategy but with poorer governance. IT governance is not the only factor but good governance often comes with effective management, which also should be taken under consideration (Weill and Ross, 2004).

Another argument why IT governance should be considered is that IT is expensive. The average investment on IT is rising to 50 percent of the total annual investment of many enterprises. Since IT is becoming more important and radical the control and management of IT to ensure that value is created has turned into a challenge. IT management solves this issue by focusing IT spending and on strategic priorities (Weill and Ross, 2004).

IT is pervasive; today IT investments are being made within the whole organization and not centrally as it used to. With IT governance hidden spending on IT can be
prevented where IT decision making will be distributed to those responsible for the outcome (Weill & Ross, 2004).

The ultimate argument why IT governance is necessary is that expectations and reality often do not match. Usually management is expected to present the right IT solution, increasing the efficiency of IT while managing IT risks. The most likely reason why many enterprises experience negative IT is ineffective IT governance (ITGI, 2003).

1.4 RESEARCH PURPOSE

Corporate governance has taken centre-stage across boardrooms around the world. The term applies to all aspects of a business. Effective corporate governance is no longer just desirable, it is being mandated, and has become an unquestioned business practice. A vital component of any move towards better governance is an integrated IT infrastructure that supports an organization’s internal requirements for greater transparency and control, as well as compliance with market and industry regulations. High-profile accounting scandals have made corporate governance a topic of intense public interest, and rightly so. As a result, many senior executives now designate corporate governance among their top business priorities. Many commentators accurately identified honest and timely financial disclosure as part of achieving good corporate governance but this is just the tip of the iceberg. Good governance is not simply a matter of complying with industry regulations and financial reporting frameworks; it has just as much to do with what happens from day to day inside the company. The principles of good governance dictate that a company must be fair, honest and open with all of its stakeholders, and that includes employees as well as external parties. In other words, a company's internal business objectives need to be compatible with the demands of the external regulatory environment. The primary goal of today's senior executives, therefore, should be to create an organization that is transparent and compliant both inside and out. Furthermore, everyone in the organization needs to be aware of both sets of requirements, and management needs to keep very close tabs on how the company is performing against each one, so that no unwanted “surprises” occur. These considerations are pervasive across the organization, affecting the supply side, the
internal financial and administrative functions, and the customer-facing side of the business. As the backbone of modern business, IT systems have an extremely important role to play in the creation and maintenance of the well-governed company. Organizations seek to mirror their corporate governance arrangements in the activities of their key subunits – as IT function – in order to lower their organizational coordination costs (Blau and Schoenherr, 1971; Galbraith, 1967; Lawrence and Lorsch, 1969). Given the fact that technology is expected to play a key role in helping organisations achieve their business objectives, it is imperative to discuss the role of information technology in corporate governance. With the emergence and widespread use of IT for varied aspects of corporate governance; a subset discipline of corporate governance has come into picture i.e. IT governance. As corporate governance goal is to align actions and choices of managers with the interests of stakeholders (Hawley and Williams, 1996; Letza, et al., 2004; Shleifer and Vishny, 1997), IT governance goal could be to align actions and choices of IT managers with the interests of stakeholder. IT governance is the decision rights and accountability framework for encouraging desirable behaviors in the use of IT. IT governance reflects broader corporate governance principles while focusing on the management and use of IT for achieving corporate performance goals (Weill and Ross, 2004). IT governance is not a nice “to have” it is a “must have”. It is impossible to have strong corporate governance without strong IT corporate leaders who need to ensure their technology executives are focused on social networking issues and are able to understand, articulate and advise the corporation about strategies for governance. With today's technology environment and availability, organizational threats (and opportunities) can come from inside the walls of the business or outside. The IT organization is required to secure the business through the use of procedures, policies and technical safe guards. This governance should ultimately secure the business while at the same time allow it take advantage of knowledge capital and innovation available internally and externally.

IT governance concerns can be framed by two larger overarching goals: (i) the ability of IT to deliver value to the business, which is driven by the strategic alignment of IT with business, and (ii) the mitigation of IT risks, which is driven by embedding accountability into the enterprise (ITGI, 2003). Within these two larger
goals, five domains (focus areas) of IT governance are identified, three of which are drivers and two are outcomes (ITGI, 2003). Drivers include IT strategic alignment, IT resource management, and IT performance management. Outcomes include IT risk management and IT value delivery (ITGI, 2003). These two are the outcomes every organization focuses upon so as to have sustainability in business operations and to have edge over competitors. Risk management is a critical component of corporate governance. Risk management helps organizations recognize the wide spectrum of risks that they are exposed to. It aims to help them prioritize risks based on their potential impact, put mitigation plans in place, and monitor them so that they don’t become hurdles in achieving corporate objectives. Information technology is a key support function in any business, and regulation requires the board and the management to report key risks, and their assessment of how these risks are being managed. The Chief Information Officer (CIO) needs to play a significant role in supporting boards, audit committees and the management, in first understanding, and then implementing, good governance over IT. Security and disaster recovery used to be major risk factors, but today, IT risk management covers a range of factors such as runaway projects, global sourcing, regulatory compliance, privacy, trans-border data flow, export control, financial disclosure, certifications, business continuity, fraud detection, protection of intellectual property and shortage of skilled resources. The list is endless, and promises to keep growing.

The growing importance of IT for successful execution of business goals calls for an effective risk management programme. Nowadays, in companies there is an acknowledgement that IT underpins everything a company does and that not properly governing IT imposes dire risk. That risk could include both short and long-term survival of the business. Today, IT is more important to the survival of business than ever before and will matter more tomorrow than it do today. Besides risk management value delivery is also the foremost purpose of the corporate governance. IT needs to be aligned to deliver value so that it supports the enterprise as is by delivering on time, with appropriate functionality and achievement of the intended benefits. Alignment of IT also provides value by delivering infrastructures that enable the enterprise to grow by breaking into new markets, increasing overall revenue, improving customer satisfaction, assuring customer retention and driving
competitive strategies (ITGI, 2003). IT-enabled business investments, when managed well within an effective governance framework, provide organizations with significant opportunities to create value. Many successful organizations have created value by selecting the right investments and successfully managing them from concept through implementation to realizing the expected value. Without effective governance and good management, IT enabled business investments provide an equally significant opportunity to destroy value. The role of IT in corporate governance has emerged as a significant obligation, challenge and opportunity. And when IT governance as an integral part of corporate governance is accepted by organization, then the company can find itself on a path to accept and use the technology of the present to develop tomorrow's innovations!

This research work endeavors to analyze the role of IT in corporate governance. The role has been examined by focusing on three aspects’. First, is determining the relationship between IT and firms’ financial performance. There exists substantial evidence that companies are outperforming with expansion in their IT investments. Despite evidence of a positive relationship between information technology investments and Firm performance, results still vary across firms and performance measures. Second, is determining the relationship between corporate governance and firms’ financial performance. As far as transparency and disclosure based corporate governance disclosure index score and its association with financial performance indicators is concerned, studies are providing fairly mixed results. Third, the most important aspect of the study is depicting the relationship between IT and corporate governance.

In order to estimate the three above mentioned aspects, two techniques have been applied in the present study. Firstly, meta-analysis has been undertaken for three aspects respectively on selected studies and results have been drawn. Analysis of the quantitative studies selected for the purpose has been directed to suggest the conclusion of the studies regarding IT and its impact on Firm performance, CG and its impact on Firm performance, and the level of understanding and awareness of IT governance importance for organizations as an important element to attain edge over
competitors. Secondly, content analysis of web sites of respective sample companies meant to calculate IT disclosure index score as well as corporate governance disclosure index score has been carried out. Conclusions and results drawn in the study are based on two proposed indices; one for IT and the other for corporate governance, namely, IT Disclosure Index (based on NASSCOM Evaluation Criterion for IT Users) and CG Disclosure Index (based on S&P Research Methodology). Further, by incorporating the variables that describe firms’ financial performance, this research attempts to provide quantitative estimates of the impact of IT on firms’ performance and vice-versa, and impact of CG on firms’ performance and vice-versa.

The first part of the research work has been devoted to the question of does IT and CG respectively impact the performance of firms’ and vice-versa, and whether IT and CG are correlated to one another; while the last part discusses the analysis results and draw conclusions, defining the scope for future researchers in the field. The research has been structured as: the first chapter highlights the significance of the research topic in present scenario by discussing theoretical framework. The second chapter describes the relevant literature from which this research has been drawn. Research methodology used in this study has been presented in third chapter. In chapter four, meta-analysis has been carried out under three categories of quantitative literature (i.e. IT, CG and ITG). Chapter five proposes models for multiple regression analysis and Multivariate-ANOVA for determining impact of IT and CG respectively on the performance of firms’ of the sample companies and also the extent of IT and CG correlation has been examined by analyzing the specific contents of website of each of the sample companies. In the fifth chapter, web-disclosure patterns of IT orientation and CG practices of the sample companies have also been presented through frequency distribution tables. Chapter six presents the conclusion and complete study has been discussed. This chapter also states the study’s contribution to knowledge and also guides the future thinking and research in the field.
1.5 CHAPTER SCHEME

The present thesis constitutes following chapters:

Chapter I    Introduction: Theoretical Framework
Chapter II   Review of Literature
Chapter III  Research Methodology
Chapter IV   Empiricism on Prior Studies: Meta Analysis Approach
Chapter V    Empiricism on Web Disclosure: Content Analysis Approach
Chapter VI   Findings and Suggestions