Enterprise Information Technology Governance: Insights from India Listed Companies

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Abstract: Enterprise governance of information technology is a reasonably new-fangled concept in literature as a subset of corporate governance and is gaining attention from academicians and practitioner's around the globe. Enterprise governance of IT addresses the definition and implementation of processes, structures and relational mechanism that enable both business and IT people to execute their responsibilities in conformity with protection and creation of value from IT-enabled business investments and activities. In Indian context there has been scarcity of literate discoursing potential role of information technology as a mechanism to develop good corporate governance standards. The main purpose of the study is to explore prominence of IT governance and to analyze effectiveness of the widely used generic frameworks in Indian context and to elucidate major challenges confronting the deployment of IT governance and lastly to provide plausible suggestions which may aid in prosperous and sustainable deployment and development of IT governance in India.

Key words: Information technology, corporate governance, sustainable development, elucidate major challenges, deployment, prosperous

INTRODUCTION

In dynamic worldwide business environment, pulsating corporate sector plays an important role in promoting economic development (Chang, 2011). As corporate structure particularly corporate governance assures growth and protection of corporate stakeholders thus needs to react lively to variations posed by environment at micro as well as macro level. Corporate governance is interest balancing mechanism among different stake holders comprising a set of processes procedures rules, practices and processes through which a company is directed and controlled. Information Technology (hereafter, IT) is the application of computers to store, retrieve, transmit and manipulate data or information, often in the context of a business or other enterprise. To identify, establish and link the mechanisms to oversee the use of information and related technology to create value and manage the risks associated with using information and technology, proper mechanism addressing these issues is prerequisite. Thus, for integrated development of overall enterprise in response to wedding of information technology to enterprise a subset discipline of corporate governance called as IT governance came into being. The basic motive IT governance is to address the gap of governance deficit

due to technological progresses in recording, transmitting and disseminating information. However, introduction of IT in enterprise has to some extent lightened the governance mechanism particularly supervision function of board and enhanced the transparent view of affairs of the enterprise. Thus, IT governance is a structure, an oversight mechanism and set of management processes which safeguard the delivery of the expected benefits of IT in a controlled way to help enhance the long term sustainable success of the enterprise. The Australian standard for corporate governance of Information and Communication Technology (ICT) AS8015-2005 has defined ICT governance as "The system by which the current and future use of ICT is directed and controlled. It involves evaluating and directing the plans for the use of ICT to support the organization and monitoring this use to achieve plans. It includes the strategy and policies for using ICT within an organization". This segment of governance is on drastic motion with variations in technological environment, thus, it got emerged as enterprise governance of IT. Now collectively defined as integral subset of corporate governance and addresses the definition and implementation of processes, structures and relational mechanisms in the organization that enable both business and IT people to execute their responsibilities in support of business/IT alignment and

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the creation of business value from IT-enabled business investments. The basic principles of IT governance are responsibility, strategy, acquisition, performance conformance and human behavior assuring protection of IT resources and value addition out of utilizing these resources in interest of stakeholders of the organization (Anonymous, 2005).

Need of IT governance: IT is becoming omnipresent in today's corporate setting, making impossible in most sectors and industries parting from it. The dependency costs corporates huge vulnerability to wide spectrum of risk like as errors and omissions, abusive use of technology, cybercrime and fraud inherently present in IT environments. IT enhance not only development of vital business strategies but also to shape innovation in strategic management, thus, proves to be not only success factor for existence and growth but also an opportunity to differentiate and to achieve competitive advantage. Information technology usually consume large chunks of capital investments out of scarce resources to be utilized for creation of business value through these investments. Ineffectiveness and lack leadership and control may lead to "productivity paradox" questioning role of management in providing a quantifiable value to the business world. These corporate context paradox has puzzled many practitioners and researchers all around globe thus pointed out that the critical dependency on information technology calls for a specific focus on governance of IT. This is needed to ensure that the investments in IT will generate the required business value and that risks associated with IT are mitigated. Under the shades of agency outcome (Jensen and Meckling, 1976) and asymmetric information, effective means of governance mechanism likely a subset or IT integrated corporate governance becomes imperative and the need manifolds particularly in vague contractual structures, weak legal protection and developing IT infrastructure in Indian context.

Thus, IT governance is necessary to ensure that the investments in IT generate value-reward-and mitigate IT-associated risks, avoiding failures vulnerable to IT wedded enterprise. Due to such business transformation offering many rewards but also has the potential for many risks which may disrupt operations and have unintended consequences. The dilemma becomes how to balance risk and rewards when using IT to enable organizational change. Thus, demand governance structure to align IT strategy with business strategy, ensure that companies stay on track to achieve their strategies and goals and implementing good ways to measure IT performance. It makes sure that all stakeholder's interests are taken into account and that processes provide measurable results.

Literature review: Posthumus *et al.* (2010) claimed that companies fail to keep pace and stay competitive without Information Technology (IT). Thus, IT is an indispensable element for success in the contemporary business world. Technological environment dynamicity demand companies need to find the balance between keeping IT costs down while remaining up to date (Calder, 2010). Similarly, IT and communication should at the least be reliable and improve the efficiency of the entity. From the prior literature advocated by Peterson (2003), Weill and Ross (2004), Peterson *et al.* (2002) and Van Grembergen *et al.* (2003a, b) it is evident that IT governance can be positioned using a blend of various structures, processes and relational mechanisms. IT governance structures include "strusctural (formal) devices and mechanisms for connecting and enabling flat or liaison, contacts between business and IT management (decision-making) functions" (Peterson, 2003) (e.g., steering committees). IT governance processes refer to "formalization and institutionalization of strategic IT decision making or IT monitoring procedures" (Peterson, 2003) (e.g., IT balanced scorecard). The relational mechanisms finally are about "the active participation of and collaborative relationship among, corporate executives it management and business management" (Peterson, 2003) (e.g., training). Relational mechanisms are crucial in the IT governance framework and paramount for attaining and sustaining business/IT alignment, even when the appropriate structures and processes are in place (Keil *et al.*, 2002; Weill and Broadbent, 1998a, b; Henderson and Venkatraman, 1993). It is important to recognize that each of the applied processes, structures and relational mechanisms serve specific or multiple goals in the complex alignment challenge. However, dividing the IT governance framework into smaller pieces and solving each problem separately, does not always unravel the complete problem (Peterson, 2003). A holistic approach towards IT governance acknowledges its complex and dynamic nature, consisting of a set of interdependent subsystems (processes, structures and relational mechanisms) that deliver a powerful whole (Sambamurthy and Zmud, 1999; Peterson, 2003; Bart and Turel, 2010) suggested that within a specific IT environment the focus will be either on reliability or innovativeness but governance frameworks should be based on prevailing IT environment to address the issues accordingly. However, Nfuka and Rusu (2010) stressed that effective IT governance is still a long way into the future for developing countries and endorsed that IT governance should be broad enough to include all the aspects of IT life cycles.

MATERIALS AND METHODS

Purpose of the study: India among developing countries have largely focused on IT, thus, IT governance has taken center-stage across boardrooms of corporates in country. But academicians have less focused on the area and there is ample gap in literature available regarding India and sub-continent. Even at global level information content flowing to and fro organization and its governance is lacking to be part prior enterprise IT governance models. Our main objective is to elucidate Indian enterprise IT governance system effectiveness and implementation of processes, structures, transparency and relational mechanism that enable both business and IT people to execute their responsibilities in conformity with protection and creation of value from IT-enabled business investments and activities. Further to explore prominence of IT governance and to analyze effectiveness of the widely used generic frameworks in Indian context and to elucidate major challenges confronting the deployment of IT governance and lastly to provide plausible suggestions which may aid in prosperous and sustainable deployment and development of IT governance in India. An enterprises IT governance model has been developed and further its implementations in Indian context are elaborated.

Enterprise IT governance model and its applications: Enterprise governance of IT in practice, requires a holistic set of governance mechanism through structure of board its characteristics and processes and transparency collectively will determine the successes of IT development in enterprises (Fig. 1).

The model core consists of the relational mechanisms include IT management and business management elaborates active participation of and collaborative relationship among, corporate executives and include announcements, advocates, channels and education efforts. A lot of researchers have stated that relational mechanisms are crucial in the enterprise governance of IT framework and paramount for attaining and sustaining business IT alignment, even when the appropriate structures and processes are in place. IT projects and IT operations comprise activities using technology infrastructure mechanisms, applications, services, storage, networking and connectivity elements within an organization. Activities and projects are carried out on basis of planned policies and directions from top management under supervision of board. But polices and plans accuracy and efficiency depends on information obtained from market place called as inflow of information from market in our model. This inflow is directly or indirectly affected by the board governance mechanism to ensure accuracy, reliability, relevance, materiality and security. Plans and policies are directed by top management and board in consistency with need and objectives of the business. IT proposal are to be evaluated comprehensively through governance mechanism to have optimum utilization of available resources in best interest of stakeholders of the entity. Performance to be in conformity with developed plans and polices it governance mechanism plays an important role in monitoring and evaluating IT investment and returns.

Fig. 1: Enterprise IT governance model

Board structure or composition, blend of directors of different specification, like non-executives independent directors, nominee directors with specified purpose and interest, obligated to delegate, control, supervise and monitors business activities including IT operations and projects as well. Governance also includes professionalized and specialized sub committees like audit, risk, remuneration as well to enhance effectiveness in governance mechanism at gross root levels. However, role of steering committee governance can be fruitful in IT governance mechanism still these subsets can be effective tools governing IT issues as well. Further, the characteristics of board like expertise, CEO duality (Power inclination), diversity (Including gender, profession, etc.) can enhance better governance in specialized areas like IT. The board processes like activities, meetings, negotiations concerning decision making can further boost IT governance as well. Lastly, the outflow of information is guided by transparency principle of governance. As IT paradigm has transformed the notion of disclosure to bits and web pages thus demands enough concern from governance point of view while disseminating information to stakeholders. Thus, IT governance embedded in corporate governance in the form of structure, processes, mechanism and openness can decide attainment of enterprises IT governance objectives as well.

RESULTS AND DISCUSSION

Governance of IT in Indian corporate context: In view of technological environment demand and globalization it is imperative to implement IT governance practices in Indian corporates. Various regulatory necessities have evolved, primarily not only due to regulatory necessities, also due to enterprises specific needs and market demands. To set up an appropriate structure and functioning mechanisms for the Board of Directors and Audit Committees as laid down by the Companies Act, 2013 for all rather than for each enterprise to establish its own specific governance system based on its own specific limitations and occupational culture. Although, Clause 49 mainly focus on corporate governance, there are two key sections Clause 49 IV (C) and Clause 49 V that make it compulsory for listed companies to implement IT governance. Clause 49 IV (C) board disclosures on risk management necessities every listed company to lay down procedures to inform board members about the risk assessment and minimization procedures. These procedures are supposed to intermittently reviewed to make indisputable that executive management reins risk through properly defined agenda through a blend of

traditional and advanced cum worldwide recognized frameworks for risk management. The ideal approach would be to adopt a globally accepted risk management framework such as COSO which provides a framework for enterprise risk management and then integrate the local practices as relevant. The amendments effected in Clause 49 V (C) and (D) clearly bring out the responsibility entrusted to the CEO/CFO is in connection with establishing and maintaining internal controls in the design or operation of such internal controls for reliable IT audit and more transparent financial reporting.

COBIT (Control Objectives for Information and Related Technologies) is practice framework designed by international professional association ISACA (Information Systems Audit and Control Association) for IT management and IT governance. It ensures an effective set of controls over IT and organizes them around a logical framework of IT-related processes and enablers (De Haes and Van Grembergen, 2015). The initial mapping is done through matching the relevant business goal of an enterprise from the point of compliance with the business goals provided in COBIT. Enterprise goals can be connected with two IT goals to react to governance demands in line with board direction and to establish unequivocally business impact of risks to IT objectives and resources. The selection of these IT goals provides the specific IT processes (under the domains of Plan and Organize (PO) and Monitor and Evaluate (ME) of COBIT to be selected to meet compliance requirements (Fig. 2).

The final suggested would be to select the relevant control objectives under these IT process and use them as a benchmark for adoption/evaluation as required. Further, he companies act companies (Auditors Report) Order, 2003 (CARO) applies to all companies including foreign enterprises. CARO stipulates the need
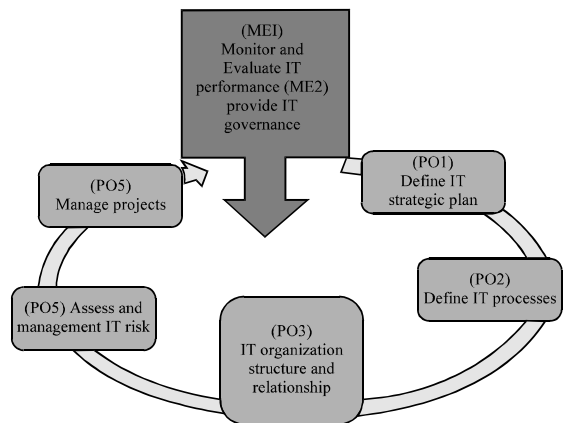

Fig. 2: (PO) (ME) COBIT Model

for companies to have an internal control system in the key areas like IT. However, the Institute of Chartered Accountants of India (ICAI) has started a certification course on information systems audit supplemented by ICAI by entering into a Memorandum of Understanding (MOU) with ISACA to deliver ISACA standards, guidelines and procedures to all its members. This need go a long way in promoting IT governance and IT assurance in India through the chartered accountants. C&AG incorporates numerous types of information systems audit, process approach, specialized audits forensic audit, system development life cycle approach, Value For Money (VFM) approach, financial audit and performance audit. All of these IT audits are based on COBIT as the main audit criteria. C&AG gets outstanding credit of promoting IT governance among all the government entities by using COBIT best practices as a benchmark for all the IT audits it conducts. The Reserve Bank of India (RBI) COBIT frameworks guidelines have also aided in stimulating IT usage in India. It has issued systematic guidelines on IT it security and controls and IT governance and has been steering IT audit as part of the supervisory review of banks IT systems as well. Indian IT companies are at the forefront of adopting global best practices as most of revenue is generated by providing software development it implementation and IT consulting while meeting regulatory requirements of their clients thus meeting global standards of IT governance. Though of keen significance IT governance as a concept in India is unrecognized as it need to be but it is being implemented for sake of regulatory requirements and driven by necessity or of a me-too kind of adoption. It is implemented as division of corporate governance due to the regulatory and assurance requirements of SEBI, C&AG, RBI and the Companies Act. However, its compliance should not for granted and Indian corporate culture should imbed IT governance for protection and performance perspective also to gain real business value from its adoption.

IT governance through board; Structure, processes and characteristics: The board of directors is an empirical manifestation of the principle of corporate control by principals (owners) over agents (executives). Good IT governance, like other assets governance, comprises implementation of processes, procedures and standards necessary to provide the board and other stakeholders with confidence in the information with integrity and robustness of the technology used. Board level it governance is concerned with the framework of systems and processes that support informed decision-making in the usage investment and security of IT assets. IT is essential in performing, collection, processing, accessing, communication, reporting and security of information in any business. Therefore, the oversight of information technology is essential to good corporate governance. Nolan and McFarlan (2005) contended that boards involvement in IT because of the strategic importance of IT and operational reliance on IT for most firms. However, board level involvement in IT governance is an evolving practical concern obsessed by several developments including the operational dependency and strategic importance of IT (Nolan and McFarlan, 2005), corporate IT-related risk exposure and Sarbanes-Oxley compliance requirements (Damianides, 2005) (Fig. 3).

Board of directors assure stakeholders strategic alignment of IT, value generation by IT assets, protection of information as strategic asset, address risk management, human capital management of IT resources and performance evaluation of IT processes. Prior research on resource based view of firm has defined
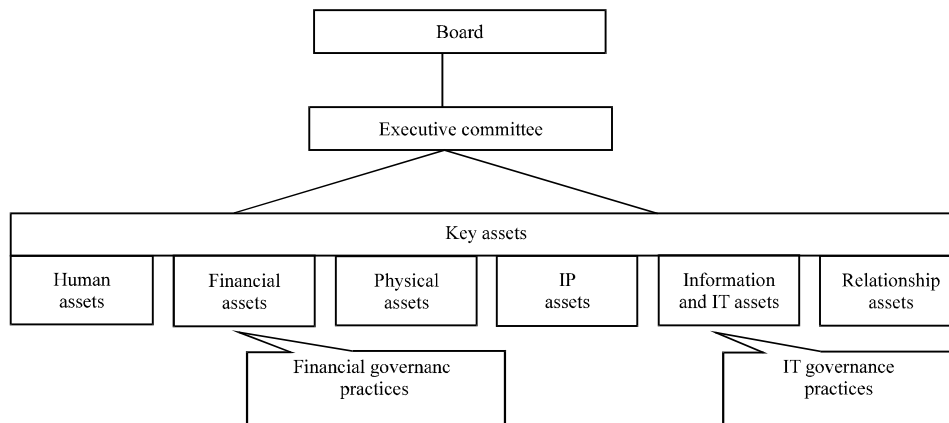

Fig. 3: Key asset governance

different kinds of IT competences (Bharadwaj *et al.*, 1999; Bhatt and Grover, 2005; Feeny and Willcocks, 1998) which is one family of organizational capabilities and skills, reveal improvement in organizational performance (Bharadwaj, 2000; Chakravarty *et al.*, 2013). The performance would manifold with the increment in size of board as it serves as an important internal mechanism in making significant managerial decisions and in limiting managerial inefficiencies (Daily and Dalton, 1994; La Porta *et al.*, 1999; Young *et al.*, 2008). While large corporate board can effectively and directly monitors IT processes and investment when the volume is large (Klein, 2002; Kor, 2006).

Boards with higher independence may be more effective, since, outside directors are more objective and have access to external information that is less available to inside directors (Carpenter *et al.*, 2003; Daily and Dalton, 1994). Outside directors also have the incentive to protect their reputation and avoid litigation (Beasley *et al.*, 2000; Klein, 2002). These studies support the notion of better monitoring and advising by outsider majority boards. In contrast, "boards which are insider dominated may be less effective at meeting their control, resource dependence and counseling/expertise roles" (Dalton *et al.*, 1998). McNulty and Pettigrew (1999) charted three levels of non-executive director participation in strategy formulation, i.e., taking strategic decisions, shaping strategic decisions and shaping content of decisions.

The board also meets regularly with internal and external auditors to review the firm's financial statements, audit process and internal controls which creates an indirect monitoring function for IT activities and investment (Bhaget and Black, 2002). Board members also offer advice for IT practices and investment as elaborated by the resource dependence perspective that boards are significant boundary spanners that provide timely information to top management (Zahra and Pearce II, 1989). Thus board activities and processes at regular intervals will determine the success of IT governance as better informed value oriented IT processes can be supervised and their performance can be evaluated at regular intervals and proactive IT decision can be taken to control the negative variance and adopt new technologies as situation demands.

Altogether boards governance is not equally effective (Conger *et al.*, 1998; Forbes and Milliken, 1999) and among the factors influencing performance are effort norms, knowledge and skills and appropriate cohesiveness (Forbes and Milliken, 1999). The existing papers on board involvement in IT all argue that boards fulfill their task better through being more tangled in IT

governance. Hence, suggests that more effective boards would be more involved in IT issues and importance of knowledge and skills in the board (Forbes and Milliken, 1999) board demographics have significant influence on IT governance strengthened findings of Kambil and Lucas (2002) and Huff *et al.* (2004, 2005). Further, board experience could be assistive in better governance (Vafeas, 2003).

Information technology and transparency: IT has brought a drastic change in transparency and disclosure patterns of corporates, compelling corporates disseminations to be clear, concise, precise and governed by the "substance over form" principle. Thus, material issues relating to corporates are supposed to be disseminated in a timely fashion. IT wedded corporate culture has enhanced governance through using different modes of electronic communication, surveillance and evaluation but simultaneously it has also complicated the protection of stakeholder's interest in the organizations. For justification the complexity and globalization of financial markets impact of technology the OECD principles and King II Report emphasized the need for critical financial information to be made available to shareholders simultaneously and supports the idea that traditional channels of communication be complemented by new means of electronic communication. The objective of transparency in financial market's regulation is to facilitate cognizant decision making and simultaneously, to breed confidence in the system and stakeholders. Like the disclosure of cybersecurity risk apparently allows an investor to assess pertinent risk exposures impacting the decision to invest in a company. Content is important but what defines content (i.e., the norms, standards, protocols, practices policies) is equally important. Thus, the disclosure requirements drive decisions regarding what is important to communicate (e.g., data capture, storage, protection, dissemination). For example, transparency-related issues of privacy of information do not specify content but rather dictate privacy policy and system requirements that will achieve the goal of protection of privacy. Thus, disclosures through means of IT assists in leveraging digital and analytical tools to improve stakeholder engagement, reevaluating the role and composition of its investor and public relations teams and enhancing governance and controls over the use of new data and technology. On the other side regulation have focused mostly on the amount of disclosure made by firms (Healy and Palepu, 1993) sideling the other important dimension of disclosure the lexical properties, clarity in the disclosure, full and fair disclosure (Firtel, 1999) and readability of reports according to, requirements

of stakeholders of information, thus, disseminating information reports having restrictive readability levels (Anonymous, 1999, 2002).

CONCLUSION

Need, adoption and Implementation of IT governance in India is intensifying but is it determined by inevitability or is it more of a me-too kind of adoption. However, it governance in India is yet, to be taken seriously. Nevertheless organizations have started adopting IT governance practices but maturity levels are yet to be achieved. IT governance framework having different segments such as availability management, capacity management and service-level management board governance, committee level governance and transparency, thus, need to have holistic and integrated implementation at all facets across the organization which is lacking in Indian organizations. Thus, failing to large extent in leveraging of IT resources in creating value for the stakeholders based on the direction given by COBIT and other similar frameworks.

RECOMMENDATIONS

However, adopting COBIT ITIL, Val IT and other similar standard IT governance frameworks considering complexities in Indian corporate environment and culture would address these IT governance complications. At the same time board governance with appropriate combination and size will help in managing risk and ensuring compliance to essential components of good governance, thus, assist in delivering value and managing performance. Further, technically transparent reporting assisted by IT will reduce information asymmetry and will boost investor and stakeholder's confidence. Thus, demands more clear concise and timely disclosures with IT governance culture and strategies that influences information disclosure policies throughout the firm and particularly through its online presence. With globalization Indian IT assisted corporate disclosure should meet global standards with lexical properties, clarity in the disclosure and comprehensive readability. Further Indian corporates should monitor and react to competitive moves in the transparency space as transparency landscape is continuously shifting, thus, firms should develop processes to monitor competitor's moves at global level. Finally, IT strategy is the building block for any transparency strategy. Any IT process, activity or project like website design and other software development projects should take the existing transparency strategy into account.

More elaborately for better IT governance corporates should develop culture of internal audits on a quarterly basis, third-party external surveillance audits less frequency systemized information systems (Like Wipro having Monthly and at different locations East, West, North, South India). Apart from this a scorecard card for each location or unit having parameters like antivirus management, licensed-unlicensed software, virus management, percentage of repeat calls and management of engineers should be maintained and should be evaluated top management and board as well. Further, IT governance can be improved by reviewing existing competencies and capabilities within the organization and at board level and director competencies can be improved through appointment of new directors or technical enhancement of the existing ones with the appropriate IT skills and expertise. Spreading or making more explicit the responsibilities of existing board committees (e.g., Audit, nomination and risk) or creating a supplementary committee or advisory group with particular focus in this area would better serve the purpose of effective IT governance. Moreover, reviewing audit arrangements formalizing responsibility and accountability for IT management and conducting meetings with steering committee for all important IT assignments would reinforce the optimum utilization of IT investment and resources in value additive activities while at same time ensure protection of shareholders and stakeholders as well.

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