IT Governance: New Perspective

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ABSTRACT

This paper examines the previous and current research in IT governance to provide a basis for further research. A conceptual framework of IT governance that divides previous research into three parallel streams is proposed. The three streams, when examined together provided the foundation for the popular, contemporary views of IT governance. Using Weill and Ross [2005] as representative of these contemporary views, this paper shows that current IT governance research represents a strong, albeit not completely inclusive, combination of the three streams of literature. The paper concludes that even with the consideration of contemporary structures, academicians and practitioners similarly continue to explore the concept of IT governance in an attempt to find appropriate mechanisms to govern corporate IT decisions.

Keywords: IT governance, IT decision making, IT investment, IT organizational alignment.

1 Introduction

With the passage of the Sarbanes-Oxley Act in the United States in 2002, corporations were forced to reexamine their overall corporate governance structures to ensure proper financial accountability to organizational shareholders and stakeholders. As a result, corporate management teams are now required to adopt a more strict and transparent framework by which to govern their organizations.

The purpose of this paper is to examine the previous and current research in IT governance to provide a basis for further research. In the academic literature, a number of authors investigated some reviews to support their own conceptual or empirical papers [Brown, 1997; Sambamurthy and Zmud, 1999; Sambamurthy and Zmud, 2000]. None of these reviews, however, attempted to provide a comprehensive review of the topic as a whole, in a synthesized, conceptual manner.

This paper proposes a conceptual framework of IT governance that divides previous research into three parallel streams that, when examined together provided the foundation for the popular, contemporary views of IT governance. Using Weill and Ross [2005] as representative of these contemporary views, it is shown that current IT governance research represents a strong, albeit not completely inclusive, combination of the three streams of literature.

The paper begins with a brief overview of IT governance and a consideration of the different terms and definitions employed in this area of research (Section 2). Following a brief description of the methodology used in this study (Section 2), the basis of this paper, called A Conceptual Framework for IT Governance Research, is proposed with each of the three streams described in detail and substantiated by existing literature (Section 3). The underlying streams are then used as a frame of reference for an investigation into the contemporary research of this field (Section 4). The paper concludes in (Section 6) that the Weill and Ross' contemporary framework signals the beginning of a combination of the three streams of previous IT governance research.

2 What is IT Governance?

For the purpose of this paper, Weill's [2004] definition of IT governance is adopted that states,

"*IT governance represents the framework for decision rights and accountabilities to encourage desirable behavior in the use of IT*"

Weill extends this definition by providing a contrast to IT Management: *IT governance is not about what specific decisions are made. That is management. Rather, governance is about systematically determining who makes each type of decision (a decision right), who has input to a decision (an input right) and how these people (or groups) are held accountable for their role. Good IT governance draws on corporate governance principles to manage and use IT to achieve corporate performance goals.*

Weill's definition remains consistent with an earlier explanation by Boynton et al., [1992] who suggest that IT governance is not concerned with the "location and distribution of the IT resources themselves, but rather with the location, distribution and pattern of managerial responsibilities and control that ultimately affect how IT resources are applied and then implemented."

2.1 A Matter of Term

The term "IT governance" was used by Loh and Venkatraman [1992] and Henderson and Venkatraman [1993] to describe the set of mechanisms for ensuring the attainment of necessary IT capabilities [De Haes and Grembergen, 2005], but did not feature prominently in the academic literature until the late 1990's when Brown [1997] and Sambamurthy and Zmud [1999] began to refer to a notion of "IS governance frameworks" and then later to "IT governance frameworks" in their papers. If we adopt Weill's definition of IT governance, the concept of defining IT decision rights and accountabilities is, in fact, well researched long before the 1990's. This work represents substantial progress in studying governance.

2.2 Methodology

The majority of research on governance uses a conceptual examination of various IT governance framework propositions. Few researchers attempted to perform empirical studies on this topic. As a result, the majority of works cited in this paper are conceptual. The paper tried, however, to include a large number of empirical works to provide justification to the existing frameworks.

Principal sources for this review include academic journal articles, the popular press writings, and books. Business Source Premier, an online periodical database, was used as the primary directory of journal articles, and Web of Science was used as the sole citation index. Business Source Premier houses over 3300 journals and business periodicals in all functional areas of business, dating from 1965 to the present. Prominent IS academic and practitioner journals captured in this index include MIS Quarterly, Information Systems Research, Journal of Management Information Systems, Harvard Business Review, and Sloan Management Review.

The approach used in this paper follows the concept-centric methodology of IS literature reviews as outlined in Webster and Watson [2002]. Using this method, literature in the review pool was grouped based on the three historical streams rather than by individual author.

3 A Conceptual Framework for IT Governance Research

Figure 1 represents the fundamental framework presented in this paper for classifying research about corporate IT governance. Building on the precedents outlined in previous research articles

(Brown, 1997; Sambamurthy and Zmud, 1999; Sambamurthy and Zmud, 2000; Schwarz and Hirschheim, 2003), the proposed framework contends that previous research in IT governance can be divided into three distinct streams that, although related in terms of a common overall research objective, represent separate, albeit parallel, research paths. These three streams, the first dealing with IT governance forms, the second dealing with IT governance capabilities, and the last dealing with IT governance pattern analysis, all contribute to provide the foundation of current IT governance research. The three streams are outlined in detail in the following subsections.

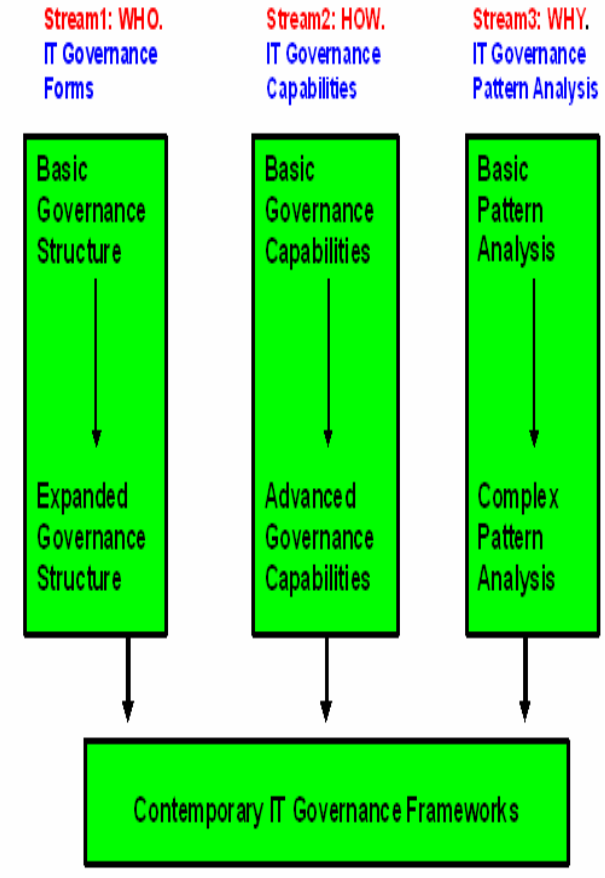

Figure 1. Conceptual Framework for IT Governance Research

3.1 Stream One: IT Governance Forms

The first stream of IT governance research deals with the decision-making structures adopted by IT organizations. Early research in this area dealt with the basic notion of centralized and decentralized loci of IT decision making, with subsequent research concentrating on providing an expanded, more sophisticated understanding of these baseline frameworks. Research from this stream provides a direct association between IT governance and the underlying decision-making structures adopted by individual IT organizations, an association fundamental to later research.

3.1.1 Basic Governance Structure

In studying IT governance forms, research focused on the organizational placement of the decision-making authority and the organizational structuring of IT activities. Early research addressed the notion of who is involved in IT decisions and what structure should be in place to maximize return on investment. Within this context, two basic governance designs were discussed:

- Centralized IT governance and
- Decentralized IT governance [Schwarz and Hirschheim, 2003].

A strict centralized governance design places all decision-making authority in a central IS organizational body, while a strict decentralized governance design places all decision-making authority within the confines of the individual business units or processes [Brown, 1997].

3.1.2 Expanded governance Structures

With a general understanding of the qualities of each of the centralized and decentralized governance forms, research in this stream began to examine a new problem facing IT management: How to deal with the contradiction of bi-polar governance systems within the same organization? Companies wanted the best of both worlds; to provide centralized direction and coordination while simultaneously providing for discretionary input into IT decisions by managers throughout the organization [Boynton and Zmud, 1987]. It is at this stage that research of IT governance forms began to branch in several directions.

Zmud et al. [1986] balanced the benefits of the centralized and decentralized models. This new governance model was termed a "Federal governance framework" with parallels drawn to the way typical federal governments. In a corporate context, the information technology federal governance design represents the notion of leveraging the advantages of both centralized and decentralized organizations by establishing a

centralized IS group to provide core IT services while still allowing business units to control a portion of the overall IS function.

Simultaneous to expanding the idea of centralized and decentralized IT organizational designs, researchers began to find synergies between IT governance forms and the various types of IT decisions. This new research focused on examining the impact of centralization or decentralization across specific types of IT decisions rather than the IS organization as a whole [Sambamurthy and Zmud, 1999].

3.2 Stream Two: IT Governance Capabilities

Structural, process, and relational IT governance capabilities describe a layered system of successively higher levels of horizontal integration capability [Peterson et al., 2004]. Horizontal integration capability consists of a composite of connection, coordination, and collaboration mechanisms. Connection and coordination describe the formal structures and processes used for information exchange and communication, whereas collaboration describes a participative and collaborative element of integration, corresponding to trust and a willingness to work together between business and IT stakeholders.

3.2.1 Structural IT Governance Capability

This capability includes structural (formal) devices and mechanisms for connecting and enabling horizontal, or liaison, contacts between business and IT management (decision-making) functions [Brown, 1999; Peterson et al., 2004].

In general, structural capability takes the shape of formal positions and (integrator) roles, and/or formal groups and (management) team arrangements. Formal positions and liaison roles refer to individuals who are formally appointed to manage the coordination within and between organizational functions. CIO's and DIOs are examples of formal positions that manage the IT function and its coordination with the business at both corporate and divisional levels. With increasing levels of IT outsourcing, many external IT managers/ vendors are now also playing a key role in the coordination between business and IT.

3.2.2 Process IT Governance Capability

This capability is the formalization and institutionalization of strategic IT decision making or IT monitoring procedures [Peterson et al., 2004]. Process capabilities vary with levels of comprehensiveness, that is, the degree to which IT decision-making/-monitoring activities are systematically and exhaustively addressed.
This involves (a) the identification and formulation of the business case and/or business rationale for IT decisions; (b) the prioritization, justification, and authorization of IT investment decisions; and (c) the monitoring and evaluation of IT decision implementation and IT performance [Weill, 2004].

Process capabilities describe the degree to which IT decision-making/-monitoring follows specified rules and standard procedures. These procedures are often embedded in formalized decision-making methodologies and management frameworks, such as balanced scorecard tools, cost-benefit analysis, chargebacks, and service level agreements. An essential activity within process capabilities is the monitoring and tracking of IT performance in terms of service delivery and business benefits realization. These "ex-post" activities complement and complete the IT investment management process.

3.2.3 Relational IT Governance Capability

This capability is the active participation of, and collaborative relationships among, corporate executives, IT management, and business management (Peterson et al., 2000). The key to relational capability is the voluntary and collaborative behavior of different stakeholders to clarify differences and solve problems, in order to find integrative solutions. Relational capability allows an organization to find broader solutions, and unleashes the creativity involved in joint exploration of solutions that transcend functional boundaries.

Active stakeholder participation balances the involvement of business and IT communities in decision making and problem structuring/ solving. Mechanisms that facilitate relational integration include direct (informal) contacts, lobbying, (informal) negotiation, joint performance incentives and rewards, colocation of business and

IT managers, and the creation of "virtual meeting points" for business and IT managers.

3.3 Stream three: IT Governance Patterns Analysis

In this stream, research focuses on the "why" of IT governance fit. Rather than investigate basic structural options, researchers attempt to understand which option is best for which organization, through an analysis of factors that affect individual IT governance framework success.

Researchers agreed that a universal best IT governance structure does not exist. Rather the best IT governance solution for a given firm is dependent on a variety of factors [Brown and Magill, 1998; Brown, 1997]. Analysis range from investigations into single and multiple contingencies for a uniform governance framework (which indicates adoption of a single governance design across all business units), to complex situations involving multiple contingencies in a non-uniform governance framework where a single governance design gives way to numerous business unit-specific governance forms.

3.3.1 Basic Pattern analysis

From the studies of non-interacting, single contingencies came a number of substantive conclusions relating contingent factors to IT governance framework adoption. Contingencies for which conclusions were proposed include organizational structure, business strategy, industry, and firm size.

Organizational Structures and Decision-Making Structures

Most researchers generally agreed that a centralized organization led to a centralized IT governance design and a decentralized organization led to the adoption of a decentralized IT governance design [Brown and Magill, 1994]. This conclusion was not fully accepted though, as Olson and Chervany [1982] found evidence that an association did not in fact exist between organization structure and IT governance structure.

Competitive and Business Strategy

Tavokolian [1989] published an empirical study of 52 large organizations, linking information technology structure (governance framework) and organizational competitive strategy. In this study, Tavokolian found that organizations with a "defender" competitive strategy (conservative competitive strategy) were more likely to adopt a centralized IT governance structure than similar organizations with a more aggressive competitive strategy. Henderson and Venkatraman [1993] later developed a strategic alignment model that was used to determine effective IT governance structures across four fundamental domains of strategic choice that supported Tavokolian's earlier conclusions.

Industry

In their highly cited study of 303 organizations in Israel, Ahituv et al. [1989] were unable to find any significant association between a corporation's industry type and the level of decentralization of IT within the organization. Clark's later work [1992] echoed this conclusion.

Firm Size

In a number of studies, the size of a corporation could not be proven as a significant antecedent for the adoption of a particular IT governance design [Olson and Chervany, 1980; Ahituv et al., 1989; Tavalkolian, 1989; Clark, 1992]. Ein-Dor and Segev in their [1982] study were only able to prove an association when firm size was measured in terms of total revenue, but not when firm size was measured in terms of employee headcounts.

3.3.2 Complex Pattern analysis

Brown and Magill were the main drivers for a shift away from single contingency analysis and towards multiple contingency analyses. Their empirical study of 6 companies [1994] attempted to relate patterns of ten primary antecedents to four IT governance forms - highly centralized, highly decentralized, hybrid, and re-centralized governance structures. The ten interacting antecedents included:

1. Corporate Vision
2. Corporate Strategy
3. Overall Firm Structure
4. Culture – Business Unit Autonomy
5. Strategic IT Role
6. Senior Management of IT

7. Satisfaction with Management of Technology
8. Satisfaction with Use of Technology
9. Strategic Grid of Current/Future Applications
10. Locus of Control for System approval/priority.

Brown [1997] - Using a case research strategy, Brown examined contingencies driving IT governance fit for individual business units. An organization housing multiple IT governance designs across different business units was labeled a hybrid IS governance framework to differentiate it from the hybrid governance design which is defined as a single centralized and decentralized framework adopted enterprise-wide. Of the six proposed context variables, four proved to be significant predictors of business unit IT governance adoption. Decision-making structure, business unit autonomy, competitive strategy, and industry stability all proved to be good predictors while workgroup interdependence and information intensity of products/services were not significant predictors in this study.

4 Contemporary Frameworks - Weill and Ross

After a temporary silence in publishing on IT governance research, Weill and Ross provided interest in the topic with the proposal of a contemporary framework in their book [Weill and Ross, 2004] and associated journal articles [Weill, 2004; Weill and Ross, 2005]. In a study of 250 organizations in 23 countries, Weill and Ross map six mutually exclusive organization structures, or "archetypes" against five key IT decision areas. They also address numerous organization contingencies. By treating the archetypes and decision types as row and column headers, common governance arrangements are presented and discussed as unique patterns spanning the governance arrangement matrix.

4.1 Elements of IT governance Forms

As a baseline assumption to their new framework, Weill and Ross [2004] expand on the notion of the tripartite governance structure. Rather than considering the traditional centralized, decentralized and middle ground designs, Weill and Ross propose that there are in fact six governance classifications available to IT organizations based on the ideal of political archetypes. These archetypes include:

- Business Monarchy – IT decisions are made by CxOs
- IT Monarchy – Corporate IT professionals make the IT decision
- Feudal – Decision by autonomous business units
- Federal – Hybrid decision making
- IT Duopoly – IT executives and one business group
- Anarchy – Each small group makes decisions

A closer examination of these governance structures shows that some of these classifications very closely mirror concepts proposed in earlier governance research. The Business Monarchy and IT Monarchy archetypes represent a strict centralized decision making structure with different interpretations of the centralized unit, while the parallels between the Feudal archetype and a decentralized structure are sufficiently evident in their similar use of business unit owners as the primary decision makers within their realm of control. Furthering this progression, the most prominent similarity can be seen with the Federal archetype, which even maintains the same terminology, representing the middle ground, centralized-decentralized concept by Zmud et al. [1986].

Expanding the discussion on types of organization forms, Weill and Ross consider the governance archetype across five major IT decisions in the form of a Governance Arrangement Matrix. These key decisions include: IT decisions, IT principles, IT architecture, IT infrastructure strategies, business application needs, and IT investment and prioritization. This notion of fitting different organizational structures to different IT decisions formed the basis of the horizontal analysis performed within the governance forms stream by Sambamurthy and Zmud [1999], and Brown and Magill [1994].

4.2 Elements of Patterns Analysis

At an introductory level, five primary factors for determining governance patterns are presented: Strategic and Performance Goals, Organizational Structure, Governance Experience, Size and

Diversity, and Industry and Regional Differences [Weill and Ross, 2004, pp.71-72].

5 Discussion

Although not explicitly stated, Weill and Ross's work on IT governance [2005] represents an extension of the three streams of previous IT governance research. The linking of governance structures to decision-making forms of an organization, the proposition of multiple governance forms for multiple IT decisions, and the use of contingency analysis for determining appropriate governance structures all build on existing literature. As such, the contemporary framework represents a clever combination of these three streams of IT governance research. Weill and Ross [2004] challenge and expanded the underlying fundamental IT governance framework available to organizations while maintaining the link between these structures and organizational IT decisions.

6 Conclusion

This paper provides an in-depth review of the existing literature about IT governance frameworks. By classifying research using the proposed Conceptual Framework For IT Governance Research (section 3), the paper found that historical work in this area can be divided into three separate streams: IT governance forms, IT governance capabilities, and IT governance patterns analysis.

From this framework, the paper concluded that the Weill and Ross' contemporary framework signals the beginning of a combination of the three streams of previous IT governance research. Researchers are now faced with deciding whether to continue with Weill and Ross' aggregated research approach or expanding on individual streams, in an effort to improve the understanding of IT governance.

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