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December 2007

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Recommended Citation

Adams, Carl; Larson, Eric; and Xia, Weidong, "A Trend Toward More Centralized Information Technology (IT) Management" (2007). *AMCIS 2007 Proceedings*. 166.
<http://aisel.aisnet.org/amcis2007/166>

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A Trend Toward More Centralized Information Technology (IT) Management

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Acknowledgements: Financial and data collection support for this study was provided by the CIO Collaborative Research Consortium on IS/IT Organization Design and Governance. We thank the following CIOs for their help with our study design, measurement development and data collection: Jeff Balagna, Bob Borlik, Julie Bushman, Dave Drew, Alex Gibbons, Wayne Hoeschen, Lloyd Taylor and Theresa Wise.

Abstract

Prevailing research on IT governance suggests that a large and increasing majority of multi-divisional organizations utilize a federal model of organization. Contingencies that influence a choice of centralized, decentralized or federal model include the organizational structure, business unit scope and the absorptive capacity of the business unit (Sambamurthy & Zmud 1999). Given the attention to flexibility and responsiveness in a sense and respond world, one would expect that flatter organizations, more diverse business unit scope and improved absorptive capacity lead to the predominance of federal and decentralized models of IT governance. Surprisingly, the results of our survey study of large, multi-business unit companies shows a strong majority of CIO respondents describing their structure as centralized and desiring it to become even more so. Given our recent interactions with IT organizations and our empirical findings, we develop a generalized explanation that integration is a dominating force driving a more centralized approach to IT governance.

Keywords: IT Governance, Centralization, Decentralization, Federal Model.

Introduction

IT governance has become increasingly important for contemporary organizations as they struggle to improve their IT management and business returns on IT investments. Weill and Ross (2004) report that effective IT governance, aligning IT activities with the business priorities, leads to a 20% improvement in profits. In this study, a broad concept of IT governance is used to consider both who initiates and who approves IT decisions across 10 decision areas of IT governance. Also, we measured current governance position and asked respondents to describe their desired future position with regard to IT governance in order to anticipate trends.

Despite the increasing interests of both researchers and practitioners, IT governance remains a difficult and important issue for many organizations. For example, one of the CIOs that we have been working with in the last few years described an intriguing and complex case of IT governance. The company is best described as a multi-national conglomerate with about 90 diverse and independent business units. Many of the business units were stand alone corporations prior to their acquisition and therefore look and feel significantly different than their peer businesses in the corporation. Even homegrown business units were fiercely independent for much of the company's history. As a result, IT projects were both initiated and approved by the dispersed business units. Standardization was limited to the most basic infrastructure services. In recent discussions with the CIO, he describes how the company is actively pursuing integration of those business units by discovering common business needs and opportunities. A corporate IT governance board acts as a mechanism to initiate projects that share common objectives across the business units. The company seeks to retain its customer focus that is one of the fundamental reasons for the company's track record of success, but the CIO recognizes the enormous opportunity for IT to add value by leveraging capabilities across business units. Recently, this same CIO sought to understand the position that his company takes with respect to how technology is managed. His goal and the goal of this research is to provide a common, clear vision of how the IT organization addresses the needs of the business units.

As part of a larger research project that investigates IT governance issues, in this paper, we examine the patterns underlying the governance models that contemporary companies use in their IT management. More specifically, we explore the extent to which companies use a centralized or decentralized approach in the various IT decision making areas. While prior studies have studied the locus of IT decision making, few have distinguished specific decision areas and examined how IT governance models differ among the various decision areas. In addition, few researchers have made a distinction between who initiates versus who approves. Prior to the study, our interactions with IT executives in our field studies suggested that companies make clear distinctions in their governance set up regarding the initiation versus approval roles.

This paper is organized as follows. First, we present a brief background of the IT governance literature on centralized, decentralized and federal models and address the research on contingencies influencing the choice of IT governance model. We then discuss the research findings. We conclude the paper with a discussion of the results and suggestions for future research directions.

Background

Models of IT Governance

IT governance may be categorized into three distinct modes depending on the locus of decision-making authority: centralized, decentralized and a hybrid approach, now called federal (Ein-Dor & Segev 1982, Brown and Magill 1994). Centralized IT governance is characterized by corporate level authority in all three key "spheres of IT activities": infrastructure, IT use and project management (Sambamurthy and Zmud 1999). Decentralized governance implies that authority for IT activities rests with the business units, either in divisional IT organizations or with the line management itself. The federal mode of IT governance is a hybrid where one or more of the spheres is predominantly controlled by the corporate authority while one or more of the spheres is controlled by divisional or line management. The typical pattern noted by Sambamurthy and Zmud (1999) is that IT infrastructure is controlled at the corporate level with some combination of control in other spheres. Federal structures vary according to the unique characteristics of the firm. Decentralized corporate governance, smaller firm size, growth by acquisition, participation in diverse markets, and high line management knowledge of IT drive the locus of control for IT governance away from the corporate center and toward the business units (Sambamurthy and Zmud 1999).

Reasons for a Decentralized Model

Responsive organizations have the ability to process external knowledge quickly to accommodate changes in the environment. Such firms know how to respond to the environment that presents itself. Responsiveness occurs when organizations demonstrate “well-developed capabilities in external knowledge acquisition and intra-firm knowledge dissemination” (Liao 2003). Additionally, Cook and Seely Brown (1999) suggest that organizational knowing is “about relation; it is about interaction between the knower(s) and the world.” So, it is the interaction with the environment that leads to knowing and hence responsiveness. A decentralized IT governance approach situates decision making closer to the unique environment of the business and leads to better responsiveness.

Innovation is one of the goals of decentralized IS decision making. IS and line managers that form partnerships drive innovation through sharing risk and integrating dispersed knowledge (Henderson 1990, Nelson & Coopriider 1996). Such partnerships are most likely to prosper when the authority for decision making is dispersed among the business units (Rockart 1988). In their description of how working, learning and innovation are all interrelated, Seely Brown and Duguid (1999) suggest that an organization be “reflexively structured.” They argue that if “internal communities have a reasonable degree of autonomy and independence from the dominant world view, large organizations might actually accelerate innovation.” So, innovation demands attention to the unique environment of the business units and suggests a preference for a decentralized approach.

Some companies are just inherently more diverse than others. While some multi-business unit corporations are relatively homogeneous in their businesses, others are composed of very different business units. They may be so different that sharing knowledge is unimportant and achieving synergies is unlikely. The centrality of IT governance and degree of alignment with the business unit should be a function of the information sharing requirements of the organization (Lee & Leifer 1992). Corporations with heterogeneous business units have much less to gain from sharing knowledge across business units and therefore will favor decentralization for its other benefits.

Reasons for a Centralized Model

One of the longstanding arguments for centralization of the enterprise is economy of scale and scope, or the cost reduction enabled by leveraging common or shared knowledge and assets (Teece 1980). IT organizations achieve economies of scale and scope by utilizing common technology across the enterprise, leveraging resources across business units, and enabling the business units to more effectively develop mechanisms for sharing knowledge.

In fact, when IT enables knowledge management capability, corporate performance improves. Tanriverdi defined “IT relatedness” as the consistency of the IT product, including IT infrastructure, IT strategy, IT human resources and IT vendor management, across the enterprise’s business units. Then, he demonstrated empirically that IT relatedness leads to knowledge management capability and ultimately firm performance (Tanriverdi 2005). This empirical link to firm performance is an impressive endorsement of a centralized approach as it is one of the few studies that links specific IT characteristics to firm performance.

Still in its infancy, the Sarbanes-Oxley Act has changed the role of IT in organizations. Sarbanes-Oxley has accelerated an emerging trend of corporate governance and risk management toward the “centre of corporate focus” (Sutton & Arnold 2005). In the first couple years, companies solved the documentation and internal control challenges presented by the new Act by throwing people at the problem (Worthen 2005). But now, the CIO and the IT function play “a more critical role in facilitating the automation of such documentation and in establishing design and change management procedures that assure integration of adequate internal controls” (Sutton & Arnold 2005). Some argue that CIOs and their IT functions are uniquely positioned to act as leaders in enterprise risk management (Holmes 2005).

Not surprisingly, the cost to attain compliance with Sarbanes-Oxley will impact the flexibility of information systems. Sarbanes-Oxley adds significantly to the cost of internal control documentation (Koch 2004). Even companies that were able to justify the additional cost of configuring or developing unique technical solutions for each of its business units are burdened by the additional cost to document each unique system. Centralization, or standardization of solutions, does not eliminate the need for documentation, but it significantly lowers the overall cost.

Even beyond Sarbanes-Oxley, increased privacy legislation and the burden to protect consumer privacy is expected to be a focal point for the CIO and IT function (Sutton & Arnold 2005). The result is that systems containing such information and

the IT function that manages them will be of critical corporate importance. The IT function will be expected to provide solutions that not only protect consumer privacy, but document and control the protection of privacy across the enterprise. Centralization makes this challenge more manageable.

External demands for integration provide a significant impetus for centralization. “To rapidly respond to a changing environment, an enterprise must integrate business functions into a single system efficiently utilizing information technology” (Lee et. al. 2003). The development of a single, integrated system is most likely to occur when driven by a central force rather than diverse interests acting independently. A centralized, standard platform enables knowledge sharing, more tightly coupling the business units.

Reasons for a Federal Model

Meanwhile, the argument for the federal or hybrid approach to IT governance is that it combines the best of both worlds. Infrastructure under the control of the corporate level is standardized and supports knowledge sharing across the enterprise, yet the IT activities are aligned to closely support the specific needs of each business unit.

In 1990, von Simson described a swing in IT governance from strongly centralized “IS bureaucracies” toward decentralization. Then, he correctly predicted a “recentralization” toward a hybrid IT governance including centralized corporate data centers, increased authority of IT staff and corporate level standards and work process flow. The hybrid approach accommodates the need for integrated systems and provides better career opportunities for IS staff (von Simson 1990).

Hodgkinson (1996) described many advantages to the hybrid approach of federal IT governance. The federal approach leverages scale and scope economies, controls standards and ensures a critical mass of IT skills, while simultaneously allowing user control of IT priorities, business unit ownership and responsiveness. His argument is that centralized IT governance is unresponsive and does not meet every business unit’s needs. On the other hand, decentralized governance leads to excessive costs, lack of synergy and poor integration (Hodgkinson 1996). The federal approach leverages centralization for efficiency and standardization and decentralization for improved responsiveness (Brown 1997)

Brown and Magill (1998) noted four trends in the late nineties supporting the federal mode of IT governance: centralization of infrastructure, decentralization of business applications, the allure of the federal governance mode as a result of the combination of centralization and decentralization, and a trend toward customized decentralization in the business units. In other words, companies were not just turning to federal governance, but allowing each business unit extensive freedom to develop their own unique governance approach as required to address competing objectives (Sambamurthy & Zmud 1999).

Although he uses slightly different terminology to describe the “archetypes” of IT governance (federal or duopoly are both hybrid approaches in which IT and the business units share decision rights), Weill found that the most prevalent IT governance framework was a federal approach (Weill 2004). This finding is in-line with the Gartner Group’s finding that 60% of their clients consider their own organizations to be federal (Magee et. al. 1997). Furthermore, all of the top performing IT governance patterns were some form of a hybrid approach (Weill 2004).

The above description of the federal model identifies that a portion of the IT structure acts as coupling between business units. An alternative view of a federal type model is that a significant amount of coupling is combined with the capability to offer business unit customization. This “loose” coupling simultaneously supports the need for standardization and business unit customization.

Interaction of Multiple Contingencies Influencing the Choice of IT Governance Model

Researchers have described a number of contingencies that influence a company’s choice of IT governance model. Early research in the area of IT governance indicated that the structure of the enterprise organization (Ein-Dor 1982, Ahituv et. al. 1989) and the competitive strategy (Tavakolian 1989) are important determinants of the appropriate IT governance model. Later, Brown (1997) added business unit autonomy and industry stability to the growing list of contingencies. Finally, Sambamurthy and Zmud (1999) described the choice of IT governance as comprising multiple, interacting contingencies and added absorptive capacity, the ability of the business unit to learn IT capabilities, to organizational structure and business unit autonomy. The additional interesting consideration that Sambamurthy and Zmud developed was the idea that a contingency

may be conflicting, reinforcing or even dominating. A dominating contingency may drive a particular model of IT governance when contingencies are otherwise conflicting in nature.

Descriptive Results from the IT Governance Survey

The study is a part of a multi-year research project that investigates how companies can improve IT management performance through effective IS organizational design and governance. A number of frameworks and measures, have been developed through a systematic approach that includes sixteen four-hour focus group meetings with IT executives, about 200 interviews with IT and business executives in fifteen large US companies, and four surveys of IS executives.

For this particular study on IT governance, we used a rigorous multi-phase research process. In the conceptualization phase, we proposed and refined the concepts of IT governance in terms of who initiates and approves decisions in different key IT decision areas. This was based on extensive literature reviews, focus group meetings and interviews with IS executives from five US companies. In the measurement development phase, we generated an initial pool of measures with regard to who initiates and who approves in a number of key decision areas by adapting relevant measures from the literature and by conducting focus group meetings and interviews with six IS executives. After conducting a series of pre-tests of the measurement items, in the final questionnaire, we included 10 key decision areas based on which we assessed the extent to which decisions in each area are initiated and are approved by the corporate IT, by business units, or mixed. Seven-point scales were used for the measures where one represents business units and seven represents corporate IT. The final measurement instrument is provided in the Appendix.

In the large-scale data collection phase, 72 usable responses were gathered from chief information officers or the highest ranked IS executives of large US companies, representing a final response rate of 10.4%. As shown in Table 1, 93.2% of the respondents had job titles of at least vice president of IS/IT. The respondents' organizations represented a variety of industries, including manufacturing (35.7%), medicine/health (8.6%), banking/insurance (7.1%), and wholesale/retailing (7.1%). On average, companies in the sample have 36,373 full-time employees, annual sales of \$8.1 billion, 13 business units and 204 lines of products. These characteristics suggest that our sample represents large, US multi-unit companies. Therefore, the results of our study should be interpreted accordingly.

Table 1. Sample Characteristics

<i>Respondent Job Title</i>	
SVP&CIO	15.3%
VP&CIO	30.5%
CIO	40.7%
VP OF IS/IT	6.8%
Director of IS/IT	5.1%
Other	1.7%
<i>Industry</i>	
Insurance	2.9%
Real Estate	2.9%
Banking/finance	7.1%
Manufacturing	35.7%
Restaurant/hotel	4.3%
Medicine/health	8.6%
Transportation	5.7%
Computers/software	5.7%
Oil/petroleum	1.4%
Utilities	2.9%
Consulting	4.3%
Wholesale/retail	7.1%
Other	11.4%
<i>Company Characteristics</i>	<i>Sample Average</i>
Number of full-time employees in the company	36,373

Number of full-time IS employees	588
Company Sales (in millions)	8,117
Percent of IS Budget to annual sales	3.16%
Number of company product lines	204
Number of business units in the company	13

Centralization Trend

As described earlier, recent literature supports the federal or hybrid governance of IT, an approach that blends infrastructure centralization, with decentralization of IT governance regarding other areas. The contingencies influencing model choice noted by Sambamurthy and Zmud (1999) would seem to favor adoption of the federal model. While Luftman maintains that the federal model is ideal, his recent survey found that only 16% of respondents have a federal model of IT governance (Stevens News Service/Luftman 2006). Interestingly, we noted a similar result both in the current position and the trend. Our survey found that IT governance is more centralized than prior research indicates. Furthermore, in our results, companies are seeking more centralization of IT decision rights with only a few exceptions.

Respondents were asked to rate their organization’s IT governance structure with respect to initiation (idea generation and project initiation) and approval (authority to execute). We asked CIOs to not only consider their current state of IT governance, but also their desired state. Trends were calculated as the difference between the number of firms in the desired state and the number of firms in the given current state. For example, 83% of CIOs indicated that Managing IS/IT Human Resources currently is centrally governed, but that 96% of CIOs desire this decision area to be managed centrally. We calculate the trend as 96% - 83% = 13%. Results are presented in Table 2. Significance tests were performed to test whether the majority of the companies are centralized for a given category.

Table 2. Measure of Centralization of IT Governance by Decision Area

Decision Areas	<u>Current</u>		<u>Desired</u>		<u>Trend</u>	
	Initiation	Approval	Initiation	Approval	Initiation	Approval
Managing IS/IT Financial Resources	85%**	76%**	88%**	85%**	+3%	+8%
Managing IS/IT Human Resources	90%**	83%**	97%**	96%**	+7%	+13%
Defining/Prioritizing IS/IT Projects	67%**	56%*	67%**	63%**	0%	+7%
Managing IS/IT Projects	83%**	81%**	86%**	85%**	+3%	+4%
Managing Technology Assets/Resources	89%**	88%**	86%**	85%**	-3%	-3%
Making Strategic IS/IT Decisions	90%**	81%**	92%**	83%**	+1%	+3%
Managing IS/IT Operations	92%**	89%**	96%**	94%**	+4%	+6%
Improving/Changing Business Processes	61%*	40%	56%*	49%	-6%	+8%
Managing IS/IT Demand/Use	75%**	67%**	75%**	74%**	0%	+7%
Assessing IS/IT Performance	76%**	76%**	86%**	85%**	+10%	+8%
	81%	74%	83%	80%	2%	6%

Notes: A z-test was used to determine statistically whether at least a majority (> 50%) of the companies were centralized for each category listed in Table 2, by decision area, locus of decision rights (initiation vs. approval) and current vs. desired.

** p < 0.01

* p < 0.05

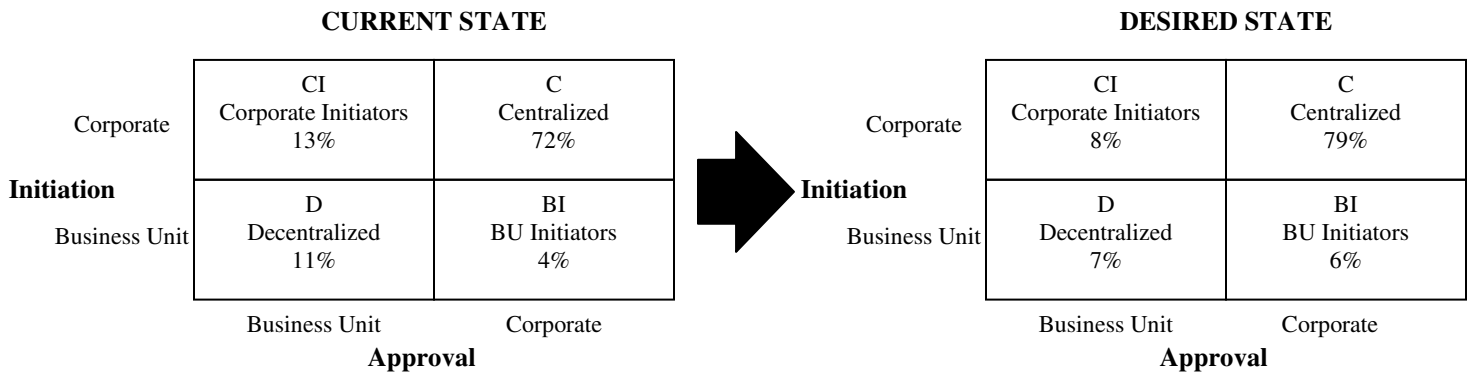
The majority of companies demonstrated centralized IT governance in both initiation and approval for 9 of the 10 decision areas. The only decision area where business units share decision rights approximately equally with the centralized corporate

IT organization is in “Improving/Changing Business Processes.” Considering the inherent proximity of the business processes with the business units, even approximately sharing IT decision rights in this decision area is a surprising result.

We also developed a composite of two-by-two matrices to visually analyze all of the company’s IT governance approaches. We assigned each company from the sample into one of four classifications as to how it governs each of the 10 decision areas. The vertical axis segments companies by who initiates IT activities (corporate vs. business units) while the horizontal axis segments companies by who has approval authority (again corporate vs. business units). This representation provides a sense of the locus of control with regard to both initiation and approval control. It is also a mechanism for anticipating trends in IT governance as it indicates both the current state and the position that companies wish to achieve in the future. An example of the two-by-two matrices is presented as Figure 1. Figure 1 depicts the results for one of the ten decision areas of IT governance, “Managing IS/IT Financial Resources” and is an example of how each of the 10 decision areas was analyzed to identify trends.

Figure 1. Analyzing Current and Desired IT Governance

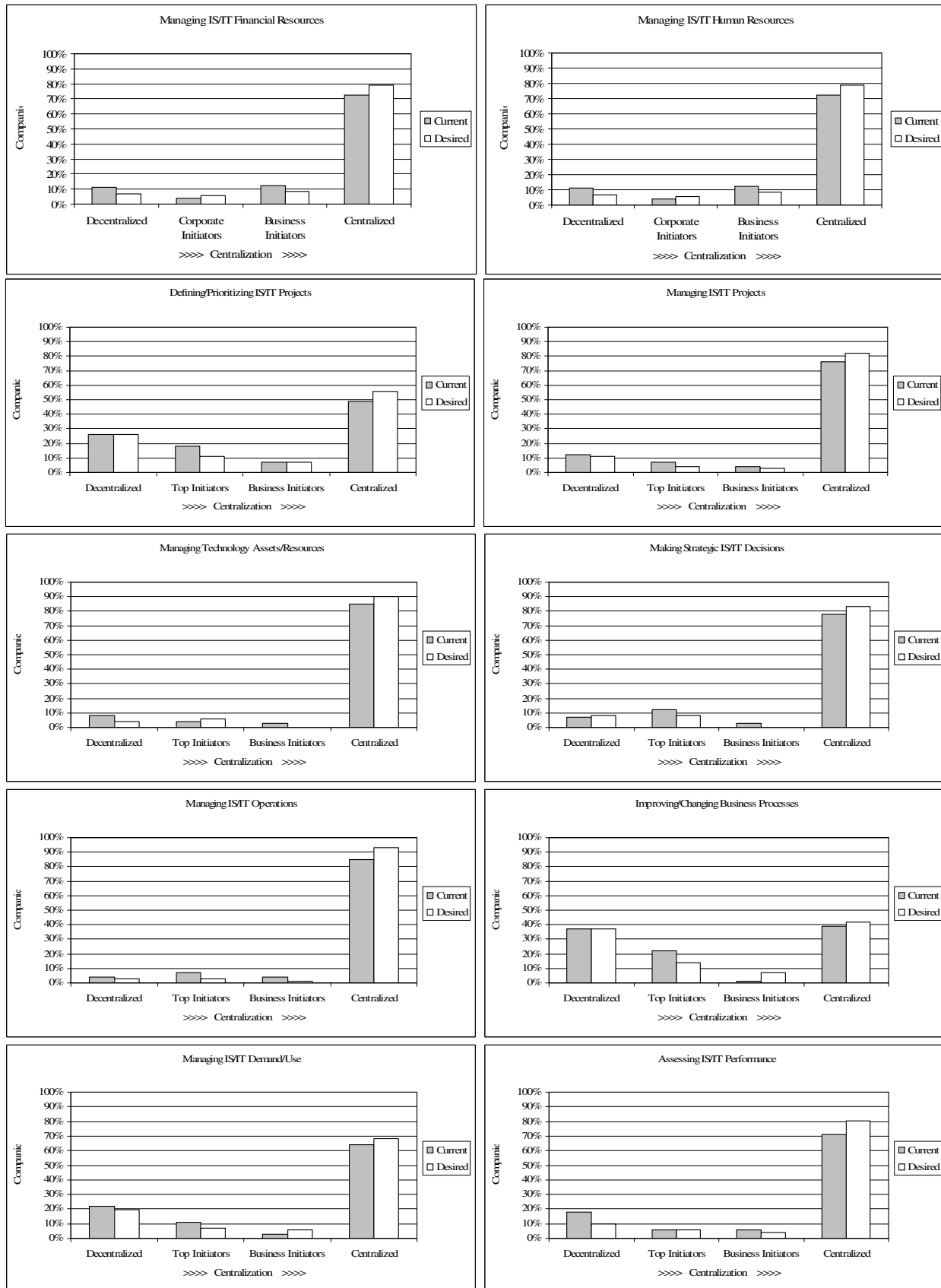
Managing IS/IT Financial Resources



In addition to the overall centralization reported above, this representation showed that most companies co-locate decision rights across decision areas. What we mean by co-locating decision rights is that both the initiation and approval decision rights are either both located centrally or both located in the business units. Most companies do not initiate IT activities at the corporate level and then approve at the business unit level or vice versa across all decision areas. In other words, companies tend to be either purely centralized or purely decentralized for a particular decision area. This is contrary to some of the input from CIOs that we received prior to the study.

Summary graphs are presented for each of the 10 decision areas included in the study. The percentage of companies in our sample that fell into each of the four categories of IT governance is displayed both in the current state and the desired state. Decentralized companies appear to the left in each summary graph, while centralized companies appear to the right. These summary graphs comprise Figure 2.

Figure 2. Summary Analysis of Current and Desired IT Governance



By comparing the current state and desired state distribution of companies in all decision areas, we observed the trend toward centralization described above. This is in spite of the literature that supports a federal model as ideal for IT governance.

The key findings from the empirical data are summarized as follows:

- The study did not support the notion that companies differ in who initiates and who approves with respect to IT governance.
- IT governance is surprisingly centralized.
- The trend in IT governance is toward more centralization.
- A few unique companies remain decentralized.
- The decision area related to Business Processes is roughly balanced between centralization and decentralization.

The Exception: Companies that Favor Decentralization

Although most companies in our survey are centralized or seek to achieve centralization in IT governance, we noted a handful of companies from our sample which appear to favor decentralization. A large majority of these companies were professional services firms, companies that depend on highly trained personnel with deep technical capabilities. These firms employ engineers and scientists with specific skill sets and professional certification.

We postulate that there are a number of reasons for the current and desired positions favored by this type of firm. The relatively small number of such firms in our sample makes it difficult to assert any dramatic generalizations, but there are compelling reasons to believe that professional services firms are different and purposefully choose IT governance that deviates from other firms:

- 1) Variation in Software Needs – In addition to the standard desktop products, engineers and scientists require niche software that is highly customized to their needs. Simulation, design and computer-aided drafting tools are frequently used by this type of employee. Furthermore, these employees spend years training and learning their field and develop strong preferences about the choices of software in areas where they have such deep expertise.
- 2) Local Knowledge Transfer – The knowledge required by each individual is specific to his/her focused area of expertise. Organizations are sometimes built around these areas of expertise so knowledge transfer is strongest within the business unit. Then, professional service firms deploy their employees to project teams in the field. Again, the need for knowledge transfer is highest within the project team, not between business units.
- 3) Client Facing Employees – The way professional service firms earn revenue is by placing their employees on assignments in client organizations. So, a successful professional services firm has a very large percentage of its employees that interact directly with the client every day. It is this constant and prevalent proximity with the customer that is so important to the firm. In this case, decentralization provides the responsiveness and innovation that is demanded of employees so closely affiliated with the customer all the time.

General Explanation of Centralization Trend

Dominant Force Driving Centralization

Sambamurthy and Zmud (1999) illuminate the need for consideration of “multiple contingencies” in choosing the appropriate IT governance model. Additionally, they suggest that there are three types of contingencies: reinforcing, conflicting and dominating. Many of the arguments for a federal model of IT governance bring up conflicting contingencies. For example, companies may choose to centralize IT infrastructure decisions for standardization and cost savings, but choose to decentralize IT project decisions for responsiveness and innovation.

The current path of forces favoring decentralization (business unit variation, absorptive capacity and business strategy) would seem to favor increased use of the federal or decentralized structure. These various conflicting contingencies suggest that a federal model should endure, but we speculate that there is a dominating contingency that is causing the drive toward centralization. This dominating contingency is a demand for integration. There are multiple and intense forces in the current environment that are pushing companies to increase the integration of their IT offering. From an underlying theoretical perspective, forces for integration include the efficiency of integration, value creation and externally imposed requirements of integration.

Efficiency of Integration – Increased coupling of the various enterprise components is critical to achieving optimal efficiency across business units. The economy of integration may be internal or external and is based on eliminating costly handoffs, transparency across the enterprise for superior forecasts and sharing relevant and timely knowledge across the firm. One clear example of efficiency created by integration is apparent with the supply-chain. The efficiency of integration drives centralization of IT governance by providing economies of scale and scope and standard platforms to enable knowledge sharing as enumerated earlier.

Value Creation from Integration – Integration enables opportunities for cross-selling and even bundling of products and services from multiple business units. Integration may directly impact top line revenue. Top executives understand that accurate and timely data views across the enterprise allow better decision making. Integration enables a more complete and accurate picture of the corporation. Coupling of autonomous business units creates value through knowledge sharing and subsequent action to take advantage of that knowledge.

Externally Imposed Requirements of Integration – Some of the strongest forces for integration are requirements of doing business in today's environment. Integration may be externally imposed when large and powerful customers expect one point of contact that represents the whole organization or by regulatory requirements. Powerful customers prefer or even insist on doing business with the firm as a whole rather than all of its diverse business units. Meanwhile, new regulatory forces like Sarbanes-Oxley push corporations to integrate on a standard enterprise platform to efficiently control and document all financial processes.

For all of these reasons, we suspect that the dominating new force that is driving centralization is an intense demand for integration. It is this intense demand for integration that leads us to propose the following:

Integration is a dominating contingency that is driving companies toward centralized IT governance.

We have described a number of arguments for integration as a dominant force driving centralization and suggest further empirical work to validate the proposition.

Limitations and Future Research

One of the characteristics of the firms in our sample is that they are large, multi-business unit firms. So, making generalizations regarding our findings to the broader scope of all firms is not recommended. This is especially true in this study as the centralization and decentralization arguments might be quite different for small firms and may even evaporate completely for single business unit firms. Further research should delineate IT governance structures across firms of different size and other firm characteristics such as industry, number of business units, diversification, and competitive environment.

While we present empirical data that motivates our proposition, further examination of the proposition is merited as described earlier. Specifically, we envision developing an appropriate construct, measures and metrics for integration. In addition, the development of a study based on Zmud and Sambamurthy's (1999) work on multiple contingencies would be used to confirm the proposed dominance of integration as an influential contingency.

Zmud and Sambamurthy (2000) proposed moving the choice of governance model to more complex structures that are reflective of contemporary practice. The platform logic that they suggest is emerging seems to allow great flexibility in responding to environmental conditions and thus would reflect a federal type structure. However, requirements to achieve the standardization needed to support the platform structure and the need for strong relational structure(s) may actually involve a higher degree of centralization. This is an interesting item for future consideration and research.

Summary and Conclusions

Our survey of CIOs of large, multi-business unit enterprises indicates a surprising prevalence of centralized IT governance where much of the literature purports that a federal IT governance model is ideal. Evidence was presented detailing a trend toward even more centrality of IT governance. In addition, the analysis provides segmentation of initiation and approval decision rights for a view of how companies differ along those lines of IT governance. The anticipated level of separation is not shown in the data. There is further evidence that one unique type of firm, the professional services firm, gravitates

toward decentralization, the opposite direction of the majority of the companies. Finally, we argue that a new and especially strong demand for integration is driving the centralization of IT governance.

In addition to stimulating consideration of this trend toward centralization of IT governance, we propose a research design considering integration as an additional variable in the spirit of Zmud and Sambamurthy's (1999) multiple contingency study to confirm the role of integration as a factor influencing the choice of IT governance model.

About the Authors

Carl Adams is a professor in the Carlson School of Management at the University of Minnesota. He received his doctorate in management sciences from the Krannert School at Purdue University. His research focuses on IS/IT strategy, organizational design and governance; IS/IT organizational capabilities and business alignment; and IS/IT structure and performance. His writings have been published in a number of academic journals and international conference proceedings including: *MIS Quarterly*, *Decision Sciences*, *Journal of Decision Support Systems*; *Journal of Health and Human Resources*; *Journal of Consumer Marketing*; and *Information and Management*. He served as the Department chair of the Management Sciences and Information and Decision Sciences at the Carlson School for 17 years. Currently he is the Director of the Management Information Systems Research Center and is Co-director of the CIO Research Consortium on IS/IT Organizational Design and Governance at the Carlson School.

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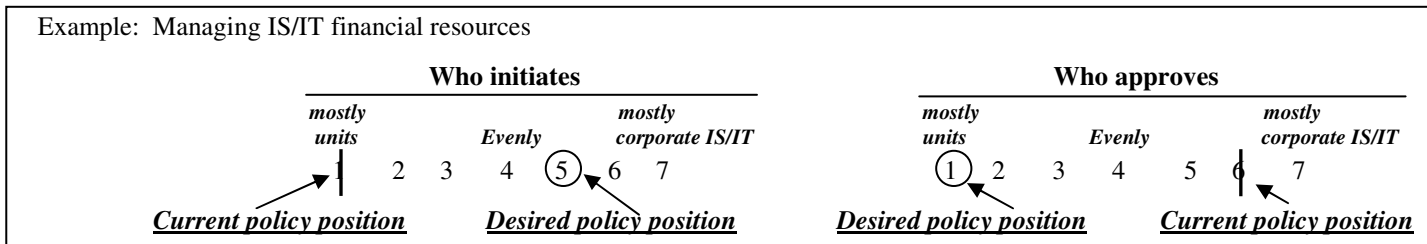
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Appendix – Measurement Instrument

Policies/principles governing IS/IT organizational design and structure

For each of the IS/IT responsibility areas listed below, rate the current (a bar “|”) and desired (a circle “○”) **policy status** in 3 years regarding **who initiates** and **who approves** between **business/corporate staff units** and the **corporate IS/IT function**. A unit may both initiate and approve actions in a given area.



Responsibility areas:

	<u>Who initiates</u>							<u>Who approves</u>						
	<i>mostly units</i>			<i>Evenly</i>		<i>mostly corp IS/IT</i>		<i>mostly units</i>			<i>Evenly</i>		<i>mostly corp IS/IT</i>	
Managing IS/IT financial resources	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Managing IS/IT human resources	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Defining/prioritizing IS/IT projects	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Managing IS/IT projects	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Managing technology assets/resources	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Making strategic IS/IT decisions (strategy/plans/policies)	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Managing IS/IT operations	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Improving/changing business processes	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Managing IS/IT demand/use	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Assessing IS/IT performance	1	2	3	4	5	6	7	1	2	3	4	5	6	7