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A Broadened Approach to Understanding IT Organizational Structure

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ABSTRACT

With the increasingly influential impact of the information systems/technology (IT) organization on most firms, it is important to understand the implications of alternative structures of the IT organization. With limited exceptions, literature in this area has focused on the locus of decision rights in the IT organization. This research uses broader dimensions found in the general organization structure literature to characterize IT organizational structure. Our analysis suggests that IT organizations aimed at promoting innovation emphasize standardization and flexibility while deemphasizing specialization, IT organizations aimed at integration emphasize standardization, and IT organizations aimed at scalability through sourcing emphasize standardization while deemphasizing specialization. IT managers seeking to match their organization to the values of their firm may utilize the IT organization structure survey instrument exhibited here to do so.

Keywords

Organization structure, IT governance, specialization, standardization, flexibility, centralization, formalization, configuration, innovation, integration, and sourcing.

INTRODUCTION

Investments in information technology impact profitability and revenue even more than similar investments in advertising and research and development (Mithas, Tafti, Bardhan and Goh, 2009). Yet not all firms are able to achieve the same level of return on investment in IT. Firms with well-developed IT governance programs earn 20% higher return on investment than their counterparts (Weill 2004). The IT organizational structure impacts the return on investment from IT as a result of the differential costs of various structures and the differential IT capabilities that any given structure enables. For example, a centralized IT organization structure is generally associated with improved cost efficiency over a decentralized IT organization structure (Brown and Magill 1998; Sambamurthy and Zmud 1999). So, the nature of the structure of the IT organization remains an important domain for research and practice alike.

Our research refines the notion of IT structure to account for a broad set of dimensions of organizational structure, namely specialization, standardization, flexibility, centralization, formalization and configuration. These six dimensions are suggested in work on general organization structure (Pugh, Hickson, Hinings and Turner 1968). We use the dimensions specified in the Pugh et al. framework to develop a concept of IT organizational structure. The addition of these IT organization structure dimensions gives practitioners more aspects of their organization to consider managing to improve their performance. We observe that certain dimensions of IT organizational structure are more likely to be highest in certain IT organizational configurations and the structural dimensions are likely to exhibit certain relationships with other structural dimensions.

Our first contribution is to demonstrate a satisfactory survey instrument for measuring the six dimensions proposed here to describe a firm's IT organizational structure. The survey instrument allows future empirical research to include any or all of the dimensions defined in this work. We test the validity of our proposed measures within a new framework that relates these dimensions of IT organization structure.

Our second contribution is to establish the desirability of managing the proposed broader dimensions by exploring the relationships among the six dimensions of IT organizational structure. Our proposed model posits that firms emphasizing one of three configurations will differentially emphasize the structural characteristics of specialization, standardization and

flexibility. The model further suggests that the structural characteristics of specialization, standardization and flexibility are also associated with the governance of IT. We find that a configuration with greater emphasis on integration in the IT organization is associated with higher levels of standardization as we propose in our model. However, we also find that a configuration that emphasizes innovation is not associated with specialization and a configuration that emphasizes sourcing is not associated with flexibility, both unsupportive of our proposed relationships. Instead, we find that firms emphasizing innovation in IT are more strongly associated with the structural dimensions of flexibility and standardization, and firms that focus on sourcing are associated with more standardization in IT. We also find that standardization and centralization are closely linked, as proposed in our model. Later, we discuss the implications of these results.

A FRAMEWORK FOR IT ORGANIZATION STRUCTURE

Our approach in this research is to enhance the management of the IT organization in the firm by broadening the notion of the IT organization structure to consider six dimensions of structure: 1) specialization, 2) standardization, 3) flexibility, 4) centralization, 5) formalization and 6) configuration (Pugh et al., 1968). Further, we seek to explore how these dimensions of structure are related in current IT organizations. Our model (as shown in Figure 1) conceptualizing the relationships among the six dimensions of IT organization structure includes the IT organizing model (configuration), three structural characteristics (specialization, standardization and flexibility) and two dimensions related to IT governance (centralization and formalization).

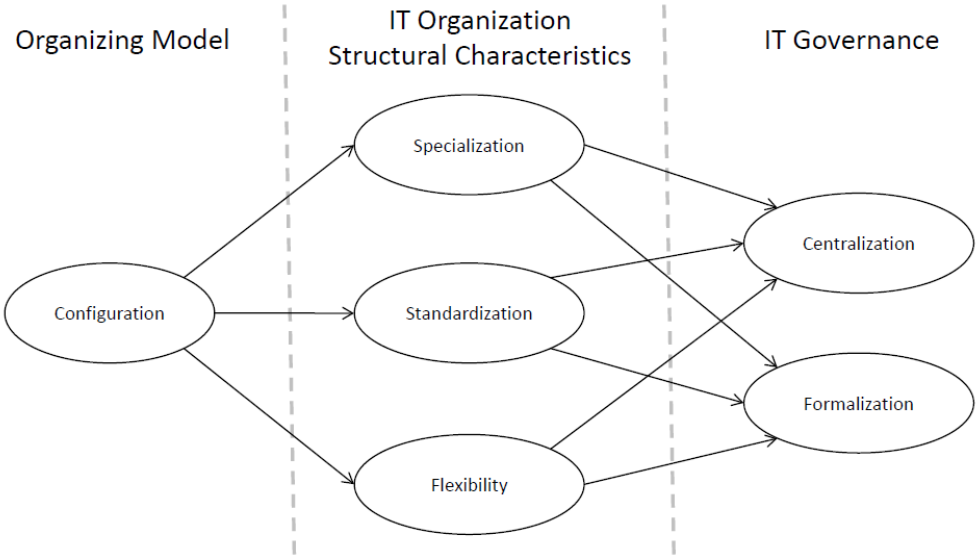

Figure 1. Dimensions of IT Organization Structure

The preponderance of research in the area of IT organizational structure focuses on the locus of decision making, typically described as the level of centralization of IT governance (e.g. Brown and Magill, 1994; Sambamurthy and Zmud, 1999; Weill, 2004; Weill and Ross, 2004; Xue, Ray and Gu, 2011). Other research in the area of IT organizational structure considers a specific feature of the configuration of the organization, for example, whether the CIO reports to the CFO or CEO or the relative rank of the CIO in the organization (e.g., Banker, Hu, Pavlou and Luftman, 2011; Raghunathan and Raghunathan, 1989). A different approach to configuration is taken in the work of Agarwal & Sambamurthy (2002), as three exemplar configurations for the IT organization are suggested to reflect the key relationships and imperatives that define the IT organization in a given firm: Partner (primarily focused on innovation), Platform (primarily focused on integration) and Scalable (primarily focused on sourcing) Models.

Descriptions of organization structure vary markedly in the organization literature. Hall's (1962) dimensions of a bureaucratic structure included hierarchy of authority, specialization, rights and duties of employees, standardized work processes, the nature of relationships among employees and human resource practices. Mintzberg synthesized much of the classic organizational design literature by suggesting five coordinating mechanisms as the basis for organizational structure: direct supervision, mutual adjustment, standardization of work, standardization of inputs and standardization of outputs (Mintzberg 1979). Dalton, Todor, Spendolini, Fielding and Porter, (1980) make a distinction between physical

characteristics of structure (ie. levels in the hierarchy, span of control and unit size) and the structuring policies or activities of the organization (ie. formalization, centralization, and specialization).

With respect to the IT organization, linking mechanisms have been identified as an important aspect of structure, enabling coordination between the business and IT organizations of the firm and the correspondence between tactical project level activities and the strategic imperatives of the corporation (Fonstad and Robertson 2006). As mentioned above, much of the empirical research in the area of IT organizational structure conceptualizes the IT organization structure as the locus of decision making regarding IT (e.g. Brown and Magill, 1994; Sambamurthy and Zmud, 1999; Weill 2004, Weill and Ross 2004; Xue et al., 2011). This work generally characterizes decision making in a specific decision area of IT as either decentralized (ie. residing in the business units), centralized (ie. decisions made at the corporate level) or a hybrid of the two extremes (Brown 1997). Decision making may be further differentiated by the function that possesses decision making authority (Weill and Ross 2004). Other research has emphasized the need for agility, the ability to sense opportunities and reconfigure resources in order to exploit those opportunities, implying a level of "flexibility in the line-up of assets, capabilities, and knowledge that a firm can assemble in order to detect the windows of opportunity in the marketplace and capture positions of advantage" (Sambamurthy, Bharadwaj and Grover, 2003: 241).

Recent work has also considered specific conceptualizations of configuration as a critical aspect of the IT organization. For example, the reporting relationship of the CIO is influenced by the strategic orientation of the firm (Banker et al., 2011). Xue, Liang and Boulton (2008) defined a set of IT governance archetypes based upon the lead actor in each of the decision stages in the IT project process and found that the IT governance archetype is contingent upon the context faced in the project and firm. The appropriate IT organizational structure configuration may also be reflected in the enterprise architecture that is fitted to the globalization approach of the firm (Kettinger, Marchand and Davis 2010).

In another configuration approach by Agarwal and Sambamurthy (2002), a firm's IT organization may be structured so that the organization resembles the Partner Model (emphasizing a close partnership between IT and the business in order to drive innovation), the Platform Model (supporting innovation by enabling the integration of the businesses of the firm) and the Scalable Model (featuring extensive use of sourcing relationships).

In this study, the Partner, Platform and Scalable Models are used to represent the *Configuration* dimension of IT organizational structure. While there are an infinite number of possible alternative configurations that might be useful for describing the organizational structure of IT, we find this conceptualization of configuration to be compelling as the partner, platform and scalable models specify typical configurations of the "boxes and lines" of the IT organizational chart and its position in the corporation and are based on clearly differentiated expectations of the IT organization (emphasis on innovation, integration, or sourcing).

Additional dimensions of IT organizational structure in our model are the IT organization structural characteristics of specialization, standardization and flexibility. *Specialization* is the division of labor in the organization and reflects the extent to which each employee focuses on a narrow range of skills (Becker and Murphy, 1992). It represents the number of different job types in the organization required to perform its tasks (Pugh et al., 1968) or the degree of differentiation in the task structure (Brown and Bostrom 1994). *Standardization* is the "extent to which business units perform the same process the same way" (Ross, Weill and Robertson, 2006). Standardization imparts constraints by pre-specifying the work content (process), results of work (output) or the knowledge and skills (input) (Mintzberg, 1979). *Flexibility* is the ability of the IT organization to respond to varying opportunities not otherwise addressed by other structural aspects (Davis, Eisenhardt and Bingham, 2009). Flexibility means that the IT organization quickly reacts to changes in the environment. It also means that the IT organization is able to "tailor products, services, and business processes to local markets" (Kettinger et al., 2010). Slack capacity is associated with flexibility and responsiveness (Rochlin, La Porte and Roberts, 1987).

Our model differentiates dimensions of IT decision making (ie. IT governance) from the other structural characteristics of the IT organization. The dimensions that fall into the realm of IT governance are centralization and formalization. *Centralization* is the extent to which the locus of decision making authority resides in the corporate center as opposed to the business units of the firm. The locus of decision making regarding IT is either concentrated at the corporate center (centralized), delegated to the business units (decentralized) or some hybrid approach depending on the decision area (Brown and Magill, 1994), the stage of the project (Xue et al., 2008) or contingent on whether the decision is part of project initiation or approval (Adams and Larson 2007). *Formalization*, the extent to which documented policies and principles exist to control IT processes, is the second dimension of IT governance in the model. Whether the policies and principles that influence decisions in IT are documented and preplanned (as opposed to ad-hoc, improvised and specific) significantly impacts the nature of the decision making process. As a result, formalization is considered alongside centralization as an important dimension of IT governance.

Having introduced the six dimensions of IT organizational structure, we consider the relationships among these dimensions in the next section.

RELATING THE DIMENSIONS OF IT ORGANIZATION STRUCTURE

Our proposed relationships among the six dimensions of IT organizational structure are displayed in Figure 2. While our work is admittedly exploratory, we use the term hypotheses in order to reflect the fact that we develop and empirically test the proposed relationships.

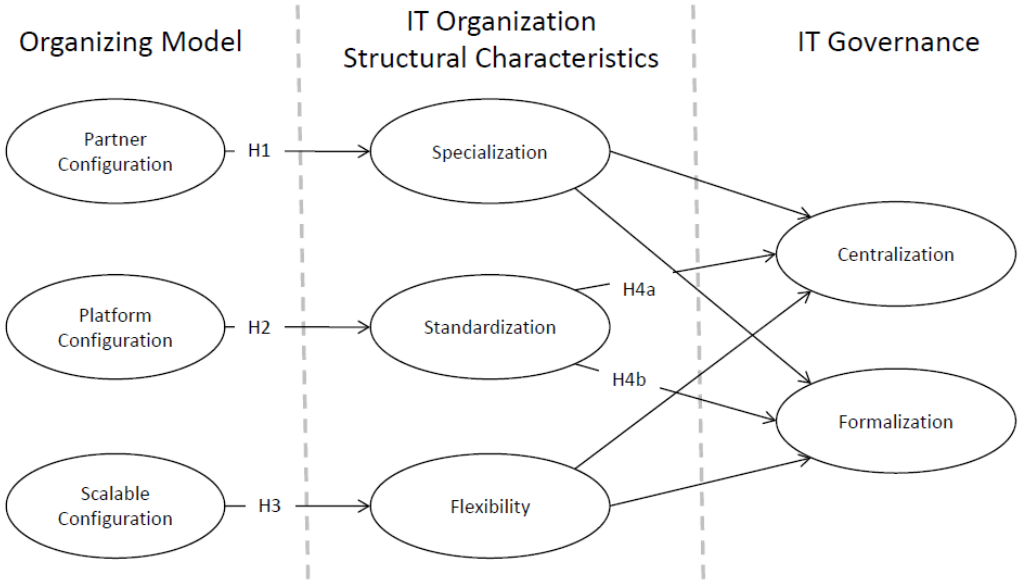

Figure 2. Hypotheses Relating Dimensions of IT Organization Structure

As noted above, we expect that firms that take on each of the configurations in IT (Partner, Platform and Scalable) will exhibit different levels of each of the structural characteristic dimensions as firms attempt to create the most appropriate structure corresponding to their unique organizational emphasis. A firm in which the IT organization most closely resembles the Partner Model emphasizes the partnership between the IT organization and the business units of the firm as a key driver of innovation and seeks a close fit of IT solutions to specific local needs of each of the businesses (Agarwal and Sambamurthy, 2002). This focus on innovativeness and unique IT solutions for each of the businesses in the firm means that the structural characteristic of specialization is expected to be high. IT employees with skills that are geared to a specific purpose rather than employees of stable and general purpose are more important in such a firm. Compatibility with installed resources is less important than creating compatibility with business requirements. As a result, we suggest:

H1: Companies taking a position resembling the Partner Configuration will be associated with higher levels of IT specialization.

Firms whose IT organizations most closely resemble the Platform Configuration place the integration of the businesses of the firm as the primary mission of IT. In the Platform Configuration, enterprise-wide IT solutions that can be consistently replicated and used across the firm are of primary importance to the IT organization (Agarwal and Sambamurthy, 2002). The desire to replicate or integrate the IT solutions across the firm requires standardization of the IT organization in order to achieve integration efficiently. Integration may be achieved through other coordinating mechanisms, but such mechanisms are more expensive than standardization (Mintzberg, 1979). As a result, we suggest:

H2: Companies taking a position resembling the Platform Configuration will be associated with higher levels of IT standardization.

Firms whose IT organizations emphasize scalability in the IT organization utilize the external market heavily in the delivery of IT solutions for the firm (Agarwal and Sambamurthy, 2002). Firms resembling the Scalable Configuration may choose to build rather than buy and will hire human resources from the external market. Such firms are unlikely to build proprietary IT solutions, but instead benefit from open technologies that may be developed and maintained by multiple external companies. This heavy reliance on the marketplace is related to the need for flexibility in the IT organization structure (Agarwal and Sambamurthy, 2002). As a result, we suggest:

H3: Companies taking a position resembling the Scalable Configuration will be associated with higher levels of IT flexibility.

Next, we consider the relationships between the structural characteristics and the IT governance dimensions. In firms in which the standardization of the IT organization is high, we would expect that decision making in IT is more centralized in order to facilitate agreement on common standards across the firm. While other mechanisms such as mutual adjustment may be used to negotiate standardization, centralization is a more efficient means for enacting and enforcing standards across the enterprise. Standardization of work is generally associated with centralization (Hage and Aiken, 1967). Formal rules and written documentation regarding policies and procedures enable standardization by creating a common understanding of corporate standards (Dalton, 1980). Formal rules in IT constrain the business units of the organization, helping to maintain corporate IT standards throughout the firm. Based on the expected link between IT standardization and both IT centralization and IT formalization, we suggest two closely related hypotheses:

H4a: Higher IT standardization will be associated with higher levels of centralization of IT governance.

H4b: Higher IT standardization will be associated with higher levels of formalization of IT governance.

Other potential associations among the structural characteristics of specialization and flexibility and the IT governance dimensions are not as clear cut. As a result we take a purely exploratory approach with regard to quantifying those relationships.

DATA AND MEASUREMENT OF IT ORGANIZATIONAL STRUCTURE

Our sample is comprised of large, multi-business unit firms based in the United States. 692 companies were surveyed, with 72 usable responses received from the firm's highest ranking IT executive, yielding a final response rate of 10.4%. A survey requesting the response of top executives such as the one executed here are expected to yield lower response rates than a similar survey targeted at employees at all levels in the firm (Baruch and Holtom 2008). As shown in Table 1, nearly all of the respondents have job titles of at least Vice-President, respondent organizations represent a variety of industries and firms in the sample average US$8 billion annual revenues.

Respondent Job Title	
SVP&CIO	15.30%
VP&CIO	30.50%
CIO	40.70%
VP OF IS/IT	6.80%
Director of IS/IT	5.10%
Other	1.70%
Industry	
Insurance	2.90%
Real Estate	2.90%
Banking/finance	7.10%
Manufacturing	35.70%
Restaurant/hotel	4.30%
Medicine/health	8.60%
Transportation	5.70%
Computers/software	5.70%
Oil/petroleum	1.40%
Utilities	2.90%
Consulting	4.30%
Wholesale/retail	7.10%
Other	11.40%
Company Characteristics	***Sample Average***
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

Table 1. Sample Characteristics

Measuring the Dimensions of IT Organizational Structure

Confirmatory factor analysis and structural equation modeling utilizing SPSS/AMOS 17.0 were used to test the measurement and the structural models. The survey instrument is summarized in the Appendix.

Measurement items representing the key facets of each of the three configurations (Partner, Platform and Scalable) were tested for their validity as indicators of the three models. Principal Component Analysis with Varimax rotation was used to determine the factor structure of the three configurations. The results are shown in Table 2.

	Construct		
Measurement Item	Partner Configuration	Platform Configuration	Scalable Configuration
Partner Model 1	**0.785**	0.317	-0.108
Partner Model 2	**0.831**	0.050	-0.002
Partner Model 3	**0.508**	-0.017	0.223
Partner Model 4	**0.692**	0.108	0.016
Platform Model 1	0.013	**0.876**	0.268
Platform Model 2	0.240	**0.879**	-0.127
Platform Model 3	0.075	**0.904**	0.152
Scalable Model 1	0.132	0.066	**0.661**
Scalable Model 2	-0.136	0.172	**0.749**
Scalable Model 3	0.537	-0.058	**0.561**
Cronbach's α	0.688	0.886	0.495

Table 2. Results of Confirmatory Factor Analysis – Configuration Models

We used confirmatory factor analysis to test the validity of our measures of the remaining five dimensions of IT organizational structure, including both the structural characteristics and IT governance dimensions. Results are shown in Table 3.

Three items merit some level of concern based on the measurement models: Scalable Model 3 (cross-loading, low construct reliability), Flexibility 3 (loading) and Formalization 3 (low construct reliability). The structural model was tested with and without these items. In the relationships noted in Figure 3, only one marginally significant result for Scalable Configuration → Specialization changed to be non-significant, tempering our concern with these issues.

	Construct				
Measurement Item	Specialization	Standardization	Flexibility	Centralization	Formalization
Specialization 1	**0.640**	0.077	0.154	0.048	0.122
Specialization 2	**0.666**	0.040	0.024	0.025	0.413
Specialization 3	**0.519**	0.215	0.048	0.172	0.365
Standardization 1	-0.034	**0.849**	0.204	0.200	0.104
Standardization 2	0.364	**0.787**	0.023	0.249	-0.019
Standardization 3	-0.098	**0.868**	0.000	0.104	0.196
Standardization 4	0.275	**0.708**	0.150	0.321	-0.066
Flexibility 1	-0.267	0.110	**0.703**	0.280	0.115
Flexibility 2	0.298	0.092	**0.710**	0.028	0.150
Flexibility 3	0.275	0.107	**0.496**	-0.250	0.082
Centralization 1	0.224	0.343	0.026	**0.641**	-0.108
Centralization 2	-0.159	0.074	-0.036	**0.809**	0.127
Centralization 3	0.058	0.242	-0.104	**0.727**	0.301
Centralization 4	0.169	0.157	0.183	**0.716**	0.011
Formalization 1	0.251	0.019	0.212	0.028	**0.796**
Formalization 2	0.030	0.171	0.049	0.137	**0.856**
Formalization 3	0.247	0.448	0.312	-0.074	**0.515**
Formalization 4	0.253	-0.069	0.057	0.095	**0.815**
Cronbach's α	0.623	0.871	0.456	0.777	0.833

Table 3. Results of Confirmatory Factor Analysis – Structural Characteristics and IT Governance

RESULTS

The structural model (Figure 2) is designed to test the hypotheses relating the IT organizational configurations of Partner, Platform and Scalable Configurations with the IT organizational structural characteristics of specialization, standardization and flexibility, respectively (H1, H2 and H3). Our analysis suggests that firms resembling the Partner Configuration are associated with lower specialization ($\beta = -1.02$, $p < 0.01$), counter to the relationship proposed in H1. Firms resembling the Platform Configuration are associated with higher standardization ($\beta = 0.59$, $p < 0.01$), supporting the proposed relationship linking the Platform Configuration to standardization in H2. Firms whose IT organizations resemble the Scalable Configuration are not associated with a significantly higher flexibility as proposed in H3.

We concurrently explored other potential relationships among the three configurations and specialization, standardization and flexibility, but stopped short of making any hypotheses regarding these relationships. We find that the Partner Configuration is associated with higher standardization ($\beta = 0.39$, $p < 0.01$) and with greater flexibility ($\beta = 0.37$, $p = 0.020$). We find no relationship between the Platform Configuration and either specialization or flexibility. The Scalable Configuration is marginally associated with higher standardization ($\beta = 0.26$, $p = 0.088$) and significantly associated with less specialization ($\beta = -0.26$, $p = 0.018$).

The relationships between IT organization structural characteristics and IT governance were tested using the same structural model. The proposed relationship between standardization and centralization (H4a) is supported ($\beta = 0.55$, $p < 0.01$), however a relationship between standardization and formalization (H4b) was not found. Among the other relationships between IT organizational structure characteristics and IT governance, only the relationship between specialization and

formalization was found to be significant ($\beta = -0.70$, $p < 0.01$), indicating a negative association between the two dimensions. Other relationships among the dimensions were found to be non-significant.

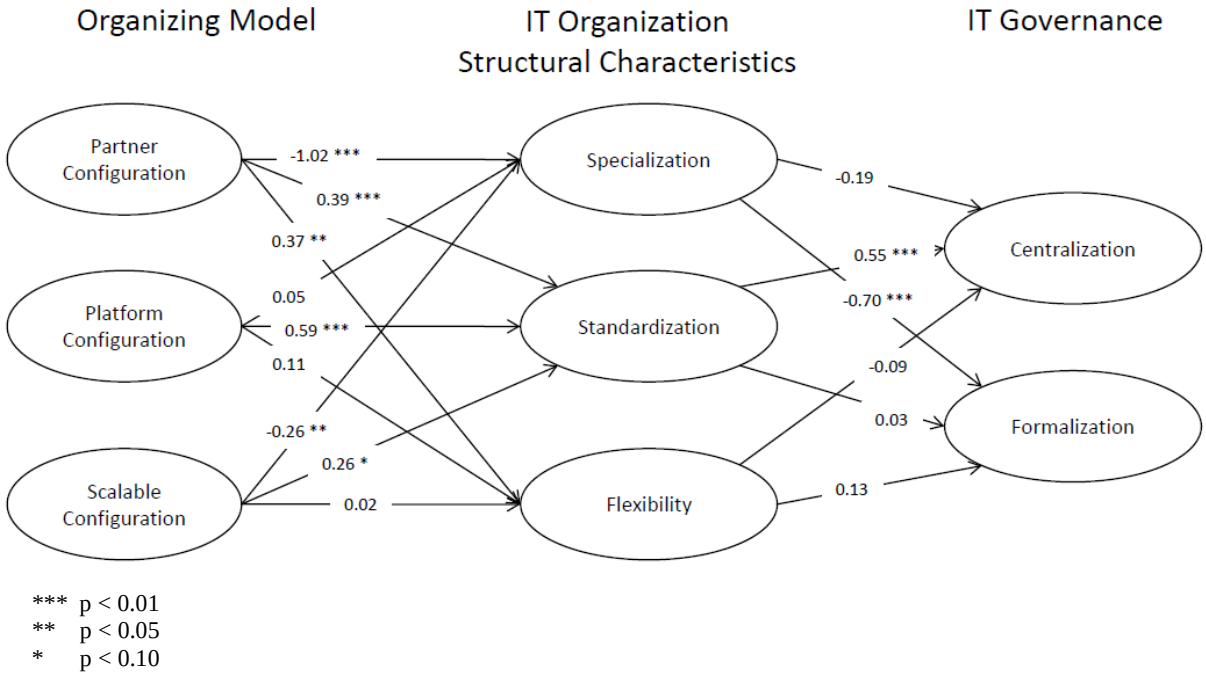

Figure 3. Structural Model Results

DISCUSSION

Overall, the analysis yields informative and occasionally unexpected results. We find support for the notion that the Platform Configuration, focused on integrating the business units of the firm, is associated with more standardization within IT. This is clearly in-line with the expectation that integrating the enterprise is more efficient to accomplish when the structure of the IT organization reflects higher levels of standardization. However, the lack of association between the Scalable Configuration and flexibility is unexpected. Outsourcing IT services is commonly viewed as a mechanism to provide flexibility because it allows the firm to respond to changes in the demand for IT services without having to maintain capabilities internally that may not be required at all times. Upon reflection, the surprising result may be reconciled by two explanations: 1) it may be that an emphasis on outsourcing creates flexibility for the overall organization, but does not increase the flexibility of the internal IT organization structure per se, and 2) our measurement of flexibility may be insufficient to capture the realized flexibility of the IT organization because the items focus on slack capacity, a proxy measure of the flexibility of the IT organization. The negative association between the Partner Configuration and specialization was also counter to our expectations. Our hypothesis was based on the notion that specialization in the IT structure would enable a closer fit to the localized, customized requirements of the business in order to spur innovation. The data indicates that the opposite may be true. It may be the case that specialization in the IT organization means deeper technical skills as opposed to stronger business skills. Deeper technical skills may be detrimental to an organization that is reliant on a partnership between IT and the business units of the firm. Specialization in IT may in fact be the enemy of innovation by reducing the collaborative environment required for novel, creative discovery.

We found that the Partner Configuration is associated with increased flexibility and standardization. Flexibility provides the responsiveness to customer needs and new ideas required for innovativeness. Standardization in IT may be important as a mechanism for the businesses to share relevant knowledge of customers and products with their peer businesses inside the firm, as well as a mechanism to support the efficient implementation of new process innovations across the firm. The analysis also suggests that the Scalable Configuration is associated with lower levels of specialization and higher levels of standardization. Less specialization means that the IT organization is composed of more generalists. General (less specialized) skills may be an attractive attribute when utilized to manage the specialized work performed by vendor firms. Meanwhile greater standardization means that developing the intra-organizational links between the focal firm and its vendors is more efficient than in a non-standard IT environment.

We find support for the hypothesis that standardization is associated with greater centralization in IT governance. It makes perfect sense that agreement on standardized applications, data attributes and business processes is efficiently accomplished when there is a centralized coordinator to orchestrate negotiations and suggest the most appropriate system-wide solutions that provide the best fit across business units rather than the closest fit for each specific business unit. We did not find a relationship between standardization and formalization of IT policies. Our suspicion is that formalization is highly desirable when decisions are delegated, but the corporate center prefers to maintain some level of control or guidance on those decisions. When decision making is already more centralized, it may be unnecessary to be as formal since the corporate center is making decisions according to policies centrally developed. The relationship with formalization clearly requires further investigation to better understand our result.

Among the other relationships between specialization and flexibility and the IT governance dimensions, our exploratory analysis found that only the relationship between specialization and formalization is statistically significant (and negative). Our speculation is that, in environments that emphasize specific purpose resources and closeness of fit to specialized requirements as opposed to compatibility with existing resources, it is more difficult to be formalized because policies and procedures vary significantly by the context. Again, further research would be useful in better understanding the relationships between the dimensions of IT structural characteristics and IT governance.

LIMITATIONS AND OPPORTUNITIES FOR FUTURE RESEARCH

The survey instrument measuring the dimensions of IT organization structure is useful in that it provides organizations the ability to assess their current practices and understand how their current IT organization structure relates to the overall firm strategy and the firm's IT strategy. This research provides a descriptive account of the current practices regarding the IT organization structure, but falls short of providing normative guidance based on the performance implications for the IT manager. Further work may relate the IT organization structure to the performance of the IT organization and ultimately to the firm as a whole.

This research provides potentially useful insights regarding how the various IT organization structure dimensions are related in firms, but it is a snapshot in time and does not probe the issue of causality regarding these relationships. Observational field studies might enable researchers to understand how the structural dimensions lead to modifications in other dimensions. It also might be possible to make causal inference by the addition of an appropriate instrumental variable or through the use of panel data in future experimental designs.

Future research should improve the power of this analysis by enlarging the sample size. While some of the non-significant relationships among the structural dimensions may be truly because of their independence, we suspect that a larger sample would provide the ability to detect low to moderate associations among dimensions. An important next step in utilizing this broadened approach to IT organization structure is to develop additional, high reliability measures for each of these dimensions. Improving the way each of the dimensions is measured would promote research regarding how these dimensions relate to other concepts of interest and improve the confidence of the relationships among the dimensions.

There are an infinite number of ways to characterize the IT organization structure. Our model relating six dimensions of IT organization structure is meant to serve as a platform for future development of structural measures that improve our ability to recognize and characterize structural variation in IT organizations. For example, the relative importance of the standardization dimension in our analysis would suggest that measures that capture the level of standardization of IT solutions in a given firm might be quite useful as measures of IT organizational structure. We also think there are notable opportunities for creative characterizations using the configuration dimension. For example, it may be useful to characterize the IT organization as geographically concentrated or dispersed based on the configuration of IT employees across different office locations.

CONCLUSION

In this work, we proposed a model that relates six dimensions of IT organization structure in order to broaden our understanding of that structure. This multi-dimensional view of IT organization structure provides a more comprehensive view of IT organization structure and is meant to encourage creativity in future research considering these and potentially other dimensions of IT organization structure.

Understanding the relationships among the dimensions of IT organization structure is important to both IT and general managers executing organizational design efforts to address the specific context faced in their companies. The dimensions should be considered simultaneously to ensure that managers develop a coherent organizational design that addresses their objectives with respect to one dimension without creating unintended consequences in other dimensions.

The broadened approach to conceptualizing IT organization structure enables a more comprehensive assessment of the IT organization structure of any given firm. The survey instrument provides a clear and comprehensive means for IT managers and general managers in the firm to characterize their own firm's IT organization along a series of dimensions. This enables managers to consider the fit between the IT organization structure along each of the dimensions and the overall strategy of the firm.

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APPENDIX – IT ORGANIZATION STRUCTURE SURVEY INSTRUMENT

Construct	Item	Instrument Question
Extent to which you take the following policy positions: *(1 = Not at all, 4 = Moderate, 7 = Extensive)*		
Partner Model	PT1	We emphasize long-term stable relationships with our businesses/corporate staff units
Partner Model	PT2	We emphasize long-term stable relationships with our external customers
Partner Model	PT3	IS/IT should take the leadership role of IS/IT-user committees (vs. business leadership)
Partner Model	PT4	We prefer IS/IT personnel with business knowledge (vs. with only IT knowledge)
Platform Model	PL1	Applications should be fully integrated across the company (vs. disjointed)
Platform Model	PL2	Business data should be fully integrated across the company (vs. disjointed)
Platform Model	PL3	Business processes should be fully integrated across the company (vs. disjointed)
Scalable Model	SC1	In general, we prefer to buy (vs. build)
Scalable Model	SC2	IS/IT solutions should focus on using open technology (vs. proprietary)
Scalable Model	SC3	We obtain IS/IT personnel skills from the external market (vs. develop skills internally)
Specialization	SP1	We emphasize general purpose IS/IT personnel (vs. specific purpose) - *reverse-coded
Specialization	SP2	IS/IT personnel should be stable over time (vs. change frequently) - *reverse-coded
Specialization	SP3	Service/staff suppliers must exhibit compatibility with installed resources - *reverse-coded
Standardization	SN1	Applications should be standardized across the company (vs. specific to local need)
Standardization	SN2	Business data should be standardized across the company (vs. specific to local need)
Standardization	SN3	Business processes should be standardized across the company (vs. specific to local need)
Standardization	SN4	Technology used should be standardized across the company (vs. customized to local need)
Flexibility	FL1	Relative to competitors, we should be an early adopter of new technologies (vs. follower)
Flexibility	FL2	IS/IT investment should reflect slack capacity to meet future growth (vs. invest for current need)
Flexibility	FL3	We maintain slack capacity of IS/IT human resources to meet future growth (vs. on the wire)
Rate the current policy status regarding locus of decision making in a given area: *(1 = Mostly business units, 4= Evenly, 7 = Mostly corporate IS/IT)*		
Centralization	CE1	Managing IS/IT projects
Centralization	CE2	Making strategic IS/IT decisions (strategy/plans/policies)
Centralization	CE3	Managing IS/IT operations
Centralization	CE4	Managing IS/IT demand/use
Extent to which formal/documented policies/principles exist governing your key IS/IT processes: *(1 = Not at all, 4 = Moderate, 7 = Extensive)*		
Formalization	FM1	IS/IT operations and services
Formalization	FM2	Management of IS/IT business demand (communicate IS/IT value; sustain mgmt/user support)
Formalization	FM3	IS/IT planning and strategy development (align IS/IT and business strategies/plans)
Formalization	FM4	Management of IS/IT projects throughout their whole lifecycles (plan, execute, audit)