It Centralization And Enterprise-Wide IT Capabilities And Outcomes: A Public Sector Study

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IT CENTRALIZATION AND ENTERPRISE-WIDE IT
CAPABILITIES AND OUTCOMES: A PUBLIC SECTOR
STUDY

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Abstract

IT capabilities, including IT governance, are widely believed to affect the value organizations derive
from IT. This paper focuses on what may be an important strategy for building enterprise-wide IT
capabilities in large decentralized organizations: undertaking an IT centralizing reorganization to
concentrate authority for IT activities and decisions at the headquarters level of an enterprise. IT
centralizing reorganizations are theorized to change an organization’s IT governance in ways that
promote capability development and enable enterprise-wide IT initiatives such as IT consolidation
and outsourcing. These ideas are explored through a multi-method study of US state governments.

Keywords: IT (re)organization, governance, outsourcing, centralization, consolidation
1 Introduction

Organizations’ information systems and technology capabilities play a key role in the business value that organizations realize from IT investments (Feeny and Willcocks, 1998; Sambamurthy and Zmud, 2000; Willcocks, Feeny and Olson, 2006). Essential IT capabilities include governance, internal relationship building, external vendor development, contract facilitation, and contract monitoring (Willcocks et al., 2006). Thus, in order to implement digital business strategies or achieve significant improvements in IT cost effectiveness, organizations require strong internal IT capabilities regardless of whether they conduct IT activities internally, outsource them, or use some mix of internal and external sourcing.

The general question addressed in this paper is: Where do strong IT capabilities come from? Clearly, good IT leadership and sufficient financial resources are part of the equation for any organization. But, in large organizations with multiple business units whose heads have considerable decision autonomy (i.e., in decentralized organizations), more than leadership and resources may be needed. In highly decentralized organizations, chief executive officers delegate most decision authority to business unit leaders. Therefore, without self-organized cooperation among business units, there is no organizational way (that is, no authority) to build enterprise-wide IT capabilities and accomplish enterprise-wide IT initiatives, such as data center consolidation, software standardization, or outsourcing.

In this paper, we argue that an important strategy for building IT capabilities in large decentralized organizations is to concentrate, at the level of an organization’s headquarters, some or all authority for IT activities and decisions. We call the decisions and actions that bring about this concentration of authority an IT centralizing reorganization. We aim to demonstrate the importance of IT centralizing reorganizations through a multi-method investigation of a population of large decentralized organizations (US state governments). Although we do not examine IT capabilities per se, we believe that our evidence of a link between IT centralizing reorganizations and enterprise-wide IT outcomes supports prior theorizing about IT capabilities. Our results contribute to information management theory by carefully differentiating and relating the concepts of centralization, IT organization structure, and IT governance.

2 Theoretical Background

Here we briefly review prior IS research on IT governance in order to justify our concept definitions and develop our theoretical argument about IT centralizing reorganizations.

2.1 Structure, governance, centralization, and reorganization

Early IT management research (Zmud, 1984) sought to explain the organizational structure of IT activities, i.e., the basis on which IT activities are grouped and where they report in an organizational hierarchy (see Brown and Grant (2005), Markus, Sia and Soh (2012)). Large organizations were found to exhibit three basic IT organizational structure types: centralized—in which all IT personnel in an company report to a single IT manager at headquarters level, decentralized—in which all IT personnel who provide support to business units report to business unit heads (there may also be an IT unit to handle the needs of headquarters departments) and hybrid—in which IT application development is centralized and IT operations are decentralized (or vice versa).

The organizational structure of IT activities in an organization is important because it is related to IT costs (King, 1983) and to IT decision-making (Markus et al., 2012). But it does not determine how IT decisions are made in an organization. For instance, business unit heads can make all key IT investment decisions in an organization with a single central IT unit or in an organization where each business unit has its own IT group. Who makes the IT decisions is clearly an important factor in how well an organization achieves IT business value, so IS research emphasis shifted away from IT organizational structure to IT governance (Brown and Grant, 2005). (As discussed below, this shift downplays the potential relationship between structure and governance.)
IT governance is usually defined as the distribution of IT decision rights among an organization’s central IT unit, business unit heads, and business unit IT departments (Weill and Ross, 2004). However, other IT governance scholars define the concept to include the organization of IT activities as well as IT decision rights (cf. Van Grembergen (2004)). IT governance arrangements have been described in various ways (cf. Weill and Ross’s archetypes of monarchy, anarchy, federalist, etc.), but some scholars confusingly use the same terms for IT governance types that others use for IT organizational structure types. For instance, Brown (2003) defined centralized IT governance in terms of decision rights residing in a central IT organization, decentralized IT governance in terms of decision rights residing in business units, and a federal or hybrid form in which decision rights are shared.

This confusion of terms conceals a deeper theoretical issue: How do the organizational structure of IT activities and the distribution of IT decision rights relate to each other, and do they both matter for IT capability development and enterprise-wide IT accomplishments? Our position in this paper is that the concepts are distinct and that both concepts matter, although their relationship with each other and with their consequences needs further study. Our argument is similar to that of Argyres and Silverman (2004), who proposed two dimensions of R&D unit centralization: 1) structural centralization and 2) decision centralization. Structural centralization concerns how R&D personnel are grouped and where in the corporate hierarchy they report. In a centralized structure, a single R&D unit reports to headquarters; in a decentralized structure, each business unit has its own R&D unit; in a hybrid structure, there is a corporate unit at headquarters in addition to R&D units in business units. Decision centralization concerns how R&D funding decisions are made. When R&D funding decisions are centralized, an R&D unit at headquarters makes them; R&D decisions can alternatively be decentralized to business units or shared between headquarters and business units.

In short, like Argyres and Silverman (2004), we differentiate between structural and decisional centralization in IT units. In our framework, the organization of IT activities (e.g., projects or operations) can be centralized (performed by a central IT unit at headquarters), decentralized (performed by business units), or shared (performed by both headquarters and business units through a negotiated division of labor). Similarly, IT decision rights can be centralized, decentralized, or shared. However, in our study, we chose to operationalize IT decision centralization more simply as whether a central IT unit has tighter or looser central control over business units’ IT decisions or activities: In situations of tighter central control, the central IT unit has approval authority over business units’ plans; in looser central control, the central IT unit can recommend standards, but does not have the authority to enforce compliance.

These two concepts (organization structure and decision control) describe the type and degree of IT centralization in an organization at a point in time. Changes in IT centralization occur through IT (centralizing or decentralizing) reorganization events, such as the decision to create a central IT unit, headed by a CIO with enterprise-wide authority. Below, we develop our hypothesis that IT centralizing reorganization events are related to IT capability development and enterprise-wide IT outcomes.

2.2 Centralizing reorganizations, IT capabilities, and enterprise-wide outcomes

Why would a decentralized organization undertake an IT centralizing reorganization? As noted by Argyres and Silverman (2004), the structural and decisional dimensions of centralization are “two of the many instruments that firms can use to influence the … decisions of managers and their technical staff” (p. 937). Organizations may want to use IT centralization to influence the decisions of IT managers and technical staff for various reasons, including cost, capabilities, and compliance.

Cost has always been a major rationale for IT centralization (King, 1983). In the 1980s, some authorities argued that IT decentralization was problematic even for decentralized multinationals, in part because of the costs of duplication and non-standardization (Buss, 1982; Markus et al., 2012). Thus, it is not surprising that the CIO position—a headquarters-based role with some enterprise-wide IT responsibilities—emerged around that time. IT centralization grew throughout the 1980s and
1990s, when many large decentralized organizations adopted hybrid or federated IT organizational structures and/or distributions of decision rights (Brown, 1997; Brown and Magill, 1994; Sambamurthy and Zmud, 1999). Naturally, many factors favored IT cost reduction, such as technology (migration from expensive mainframes to less expensive architectures; the rise of the Internet and enterprise systems), recession (1990-91; the dot-com bust in 2000), and the perceived “IT productivity paradox” (Brynjolfsson, Malone, Gurbaxani and Kambil, 1994).

Equally important to cost as a rationale for IT centralization is the desire to develop IT capabilities such as the knowledge, skills, and professionalism of IT staff (Ross, Beath and Goodhue, 1996). Centralized organization of IT activities brings IT professionals together under unified management, allowing for specialization, cross-training, development of career ladders, etc. Centralization of control can also facilitate capability development through better knowledge transfer. Capability development was a factor in Procter & Gamble’s well documented IT centralizing reorganization. A historically decentralized company, Procter & Gamble radically centralized its global IT operations into three regional shared services centers and a few centers of (specialized technical) excellence (Sia, Soh and Weill, 2010).

A third reason to pursue IT centralizing reorganizations is to achieve greater business unit compliance with enterprise-wide IT initiatives (Berkman and Reenock, 2004). When IT personnel are decentralized (report to business units), business unit heads have considerable leeway to circumvent central IT plans and policies. Consider IT consolidation, that is, reduction in the number of data centers or reduction in the variety of software applications for common tasks. Enterprise-wide IT consolidation can result in huge savings, but, in decentralized organizations, it can be blocked by powerful business unit heads who prefer to keep control over their own IT support (Lacity, 2012)(p. 89).

Put differently, when an organization is decentralized, headquarters lacks the customary authority (and sometimes also the legal authority, if business units have independent legal incorporation) needed to consolidate IT resources or contract with external service providers on behalf of the whole organization (Markus and Bui, 2012). Therefore, we hypothesize that decentralized organizations will often undertake an IT centralizing reorganization before consolidating or outsourcing.

Decentralized organizations can increase IT centralization to a greater or lesser extent by using various combinations of IT structural change and IT decision control change (Markus and Jacobson, Forthcoming). For instance, organizations can centralize IT mainly by control change; an example is setting up a small central IT unit that recommends or approves the IT activities that business units perform. In a more decentralized arrangement, a central IT unit can perform some IT activities for business units (e.g., IT operations), but allow business units to make important IT decisions and continue performing other IT activities (e.g., projects). In a highly centralized scenario, a central IT unit can take over all IT activities in support of business units and make most of the key IT decisions with or without business unit input. IT centralizing reorganizations are not easy moves to make; in some cases, they require changes in legal or regulatory governance. However, decentralized organizations may need to make IT centralizing reorganizations in order to build enterprise-wide IT capabilities and undertake enterprise-wide IT initiatives such as consolidation and outsourcing.

In this paper, we bring to bear several kinds of evidence to demonstrate the plausibility of our theory. First, we describe the current type and extent of IT centralization in a population of large, formerly decentralized organizations; we report significant recent movement toward greater IT centralization. Second, we show that IT centralization events (creating the CIO position or setting up a central IT unit) preceded or accompanied enterprise-wide IT consolidation and outsourcing announcements in these organizations, suggesting a link between reorganizations and enterprise-wide outcomes. Third, we trace the sequences of events in four organizations that outsourced IT, providing some evidence for a causal relationship between IT centralizing reorganizations and enterprise-wide IT outcomes.

Among the many limitations of our study, we do not attempt to measure IT capabilities, which we theorize to be the mechanism by which IT centralizing reorganizations promote enterprise-wide IT accomplishments. Nevertheless, our findings generally support our theoretical assertions. Consequently, we believe that our theorizing sorts through terminological confusion in the IT proceedings.
governance literature and creates closer connections between the IT governance and the IT outsourcing literatures.

3 Approach

In this section, we describe the research context, data sources, analysis procedures, and their limitations.

3.1 Context

This research concerns the processes by which large decentralized organizations develop enterprise-wide IT capabilities and undertake enterprise-wide IT initiatives such as consolidation and outsourcing. We investigate these processes in the executive branches (comprising the agencies, such as public safety or health and human services, that report administratively to state governors) of the 50 US state governments. Some scholars have argued (Sethibe, Campbell and McDonald, 2007) that IT governance in the public sector should not be designed along private sector lines, because of substantive differences between public and private sectors. We agree that there are many unique aspects of public sector organizations, but we are not in this research prescribing IT governance designs for governments. Instead, we are attempting to describe and explain how and why organizations structure and govern IT. For this purpose, we believe that our theory of IT centralizing reorganizations applies equally to government and private sector organizations.

In matters related to enterprise-wide IT initiatives, US state governments are quite similar to large private sector enterprises such as Procter & Gamble and Nestlé (before they centralized IT). First, US state governments are large organizations: The US state government with the smallest workforce (Wyoming) has approximately 13,600 full-time employees; the largest State (California) has approximately 410,700 (The book of the states, 2010). Second, US state governments are structurally similar to decentralized, diversified, multi-business unit companies. They are comprised of large agencies (e.g., health, transportation, and public safety) that have different core missions and some sources of funds (e.g., US federal government funds) not under governors’ control. Thus, while reporting to governors, agencies also have a fair degree of decision autonomy—which gives them the ability to push back against statewide IT initiatives. In this, state governments resemble large multinationals in which some business units are joint ventures or have independent legal incorporation.

Although state agencies have a degree of autonomy from governors’ authority, US state governments have engaged to varying degrees in episodic reorganizations, both comprehensive and incremental, just as private sector organizations do (Berkman and Reenock, 2004). States vary in how much legal authority governors have to reorganize state agencies; in some states, reorganizations require legislative change. Thus, state governments can and do act independently of each other on IT matters, although they are as likely to be subject to institutional influences as private sector organizations are. US state governments also have considerable autonomy from the US federal government. For example, in 1996 US federal legislation mandated a CIO position and enterprise architecture planning in federal agencies, but this legislation was not binding on state governments.

Like large multinationals, most, if not all, US state governments have historically organized and governed IT on a decentralized basis. US state governments began using computing at around the same time that large business enterprises did—in the mainframe era, when computer capacity was small, which promoted decentralization. Although we do not have complete historical data on IT organization and governance for all 50 states, the available evidence suggests that IT organization and governance was generally, if not universally, decentralized to the level of agency (or even department) throughout the 1970s and 1980s.

In short, the context of our research has strengths and limitations. On the positive side, we have a medium-sized population (N=50) of organizations that make independent decisions about the organization and control of IT, similar in terms of the activities they perform (hence in their needs for, and uses of, IT), but different enough in size, history, culture, legal authority, and organization design.
to generate considerable variation in IT organizational arrangements (which we do observe, as
discussed below). On the negative side, public sector organizations are known to differ from private
sector organizations in important ways. Thus, some readers may not be convinced by our claims that
US state governments are similar to large decentralized private sector organizations in the processes
by which enterprise-wide IT capabilities and accomplishments unfold. We urge others to replicate our
study in private sector contexts.

3.2 Data types, sources and analysis

In this paper we present findings derived from analyses of archival and some interview data about:

1. How US state governments currently organize and make decisions about IT (N = 50 states)
2. Year when some US state governments took their first major steps toward IT centralization:
   creating a state CIO position or establishing a central IT unit with statewide authority (N =
   29)
3. Date of announcements of statewide IT initiatives such as IT hardware or software
   consolidation or large-scale outsourcing (N = 43)
4. The historical sequences of events leading up to IT outsourcing in four of five states that have
   undertaken statewide IT outsourcing.

First, documents describing historic and current IT activities and their organization and governance in
all 50 US state governments were collected through extensive searches of state websites (including
pages archived on the Wayback Machine) and augmented with other sources such as published
articles, reports, and dissertations. A research team member assigned to a state analyzed and coded
these materials using iteratively refined coding definitions and structured data analysis templates. All
coding was crosschecked by another team member. Differences were resolved by the team as a whole
to ensure coding consistency.

As discussed in the theoretical background session, we coded the organization of IT activities (who
manages the people who perform IT work for the agencies) as centralized (if done by a central IT
unit), decentralized (if done by the agencies), or shared (if done to some extent by both). We coded
decisional centralization as tighter central control (if the central IT unit had approval authority over
agencies’ IT decisions) or looser central control (if the central IT unit could recommend standards and
procedures but did not have approval authority). We coded the organization of IT activities and the
central control of agencies’ IT decisions separately for IT projects and for IT operations (see Markus,
Jacobson, Bui, Mentzer and Lisein (2013)) and then combined the scores as described below.

Second, in the process of coding, we were able to identify the date at which 29 states first created the
CIO position or set up a central IT unit with some enterprise-wide authority. We were also able to
identify five states that initiated enterprise-wide IT outsourcing starting in the early 2000s and
developed event chronologies for four of the five.

Lastly, another data source was a National Governors Association report that contained brief
descriptions of IT consolidation plans announced by 43 US state governments (NGA, 2005). In some
cases these brief descriptions included the year in which consolidation began. For some other states,
we were able to supply dates from our own data.

As with our research context, our data also have limitations. First, we are missing the date of first
centralization event for 21 states. Second, our data on states’ IT consolidation initiatives are
announced plans or ongoing efforts, not achieved outcomes. Finally, we do not know the trajectories
of IT centralization in the states between initial centralization events and the time when we measured
type and degree of IT centralization.

4 Findings

Here we present our findings related to 1) the current organization and governance of IT in US state
governments, suggesting a considerable degree of IT centralization at present, 2) the timing of states’
first moves toward centralization relative to consolidation and outsourcing initiatives, showing a clear
temporal pattern consistent with our theory, and 3) brief vignettes of four states that outsourced, showing how IT centralizing reorganizations contributed to enterprise-wide IT accomplishments.

4.1 Current IT organization and governance in US state governments

As discussed, the available evidence suggests that most, if not all, US states were IT decentralized until the middle 1990s. Today, however, we see a very different picture. Three states (SC, NC, and TX) made a first move toward IT centralization in the 1980s; at least 26 others did so after 1994.

We evaluated the states’ present status on 4 centralization measures: organization of IT project activities, organization of IT service activities, central control over agencies’ IT project decisions or activities, central control over agencies’ IT service decisions or activities. States have generally moved toward greater centralization on all four measures. Two states (HI and SC) remain decentralized on all four measures—that is, agencies perform their own IT projects and operations and the central IT unit does not have approval authority over agencies’ IT project or service activities. The remaining states have centralized in various ways to varying degrees:

- 12 states have centralized IT project activities; in 21 additional states, central IT units share IT project work with state agencies
- 23 states have centralized IT service activities; in 24 additional states, IT services activities are shared by a central IT unit and state agencies
- 39 states have tighter (approval authority) rather than looser central control over agencies’ IT project activities or decisions
- 43 states have tighter central control over agencies’ IT service activities or decisions.

<table>
<thead>
<tr>
<th>Control Category</th>
<th>States</th>
<th>Avgs. Struct. Centralization Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose (Looser control of both IT project and services)</td>
<td>N=5: AL, FL, HI, KY, SC</td>
<td>0.6</td>
</tr>
<tr>
<td>Mixed</td>
<td>N=8: AZ, CA, CT, IA, IL, MA, TX, and WI</td>
<td>0.9</td>
</tr>
<tr>
<td>Tight (Tighter control of both IT project and services)</td>
<td>N=37: AK, AR, CO, DE, GA, ID, IN, KS, LA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, TN, UT, VA, VT, WA, WV, WY</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Table 1. Average structural centralization scores by control category (N=50 states)

Thus, our data show that states have generally moved toward greater centralization on all four measures. Movement toward centralization is greater for IT services than for projects. States have used control or decision centralization more than they have used structural centralization.

4.2 Timing of reorganization and consolidation events

We hypothesized that decentralized organizations often undergo IT centralizing organizations in order to build IT capabilities and undertake enterprise-wide IT initiatives such as consolidation and
outsourcing. To investigate this possibility, we combined our data on first centralization events (formalization of state CIO position or creation of central IT unit with some statewide IT responsibilities) in 29 states with our data on statewide IT outsourcing announcements (N=5) and data on IT consolidation announcements in 43 states (NGA, 2005). Figure 1 depicts the timing of first centralization events relative to the timing of IT consolidation and outsourcing announcements in the 29 states for which we have appropriate data.

From the slopes of the lines connecting first centralization events with IT consolidation and outsourcing announcements, it can be seen that IT consolidation and outsourcing announcements occur either after or at the same time as first centralization events. This finding is consistent with our hypothesis that, without IT centralizing reorganizations, decentralized organizations may lack the concentration of authority needed to build enterprise-wide IT capabilities and initiate enterprise-wide IT projects. While suggestive, these high-level timing data do not provide the kind of persuasive evidence possible from within-case process tracing. Therefore, in the next section, we trace the processes of IT organization structure and governance change in four states that outsourced IT on a statewide basis.

4.3 Relationship between centralization and consolidation

Michigan started its trajectory of consolidation and outsourcing (IT operations only) shortly after the dot-com bust. Virginia and Georgia pursued IT centralization and total outsourcing as ways to cope with the financial pressures of recession, starting in 2003. Utah adopted a big-bang approach to total centralization of State-wide IT activities in 2005 and undertook a major outsourcing initiative in 2012.

**Michigan.** The centralization efforts in Michigan, a State particularly hard hit by financial pressures, started in 2001 when Governor John Engler issued an Executive Order to create a Department of Information Technology (DIT). DIT’s Director, Jacque Passino, was named the first State CIO. The goal of DIT was to re-engineer the State’s IT infrastructure, create a unified strategic IT plan, oversee IT projects, act as State contact for procurement, establish IT standards and policies, develop SLAs, and assist IT budget management.

By 2004, DIT had consolidated the data centers of 36 agencies into 3, saving the State $19 million dollars. A Project Board Charter was created in 2004 to approve projects over $1 Million, to manage DIT’s project portfolio, and promote effective project management practices. DIT maintains a procurement contract list and handles IT procurements over $25,000 for Agencies.
In December 2009, in search of efficiencies in the wake of the mortgage crisis, Governor Jennifer M. Granholm issued an Executive Order merging the Department of Information Technology with the Department of Management and Budget to create the Department of Technology, Management, and Budget (DTMB). This reorganization was completed in March 2010. Today, the new Department provides a full array of services to 17 agencies, with service management governed by SLAs. Currently, the State is exploring public-private partnerships (PPP) (outsourcing arrangements) to replace two of its hosting centers and is pursuing an open-sourcing initiative to generate innovative ideas from the public.

**Michigan Recap:** Michigan began its efficiency-motivated consolidation efforts and outsourcing initiatives by changing the organization of its IT unit. Later it again reorganized IT activities in search of greater efficiencies.

**Virginia.** In 2003, the State of Virginia faced a budget shortfall of $6 billion. A newly elected governor sought efficiencies and cost reductions in IT. A policy commission formed by the governor recommended that IT activities in the State first be centralized. This recommendation met with resistance from the Agencies. It would have involved a major reorganization of IT work, and Agency heads may have had concerns about how well the new unit would support them. In response to the negative reactions, the new central IT unit, VITA (Virginia Information Technology Agency) was established as a coordination unit, whereby Agencies continued to conduct their own IT activities, while VITA coordinated and attempted to streamline them (Hvalshagen, 2004). For example, the Agencies were required to develop strategic IT plans and forward them to VITA for approval. VITA also approved procurements and projects over $100,000. As a coordination unit, VITA may have been able to generate some IT efficiencies, but not to the same extent as if VITA actually performed IT activities. A short time later, the Governor outsourced all IT activities to an external IT service provider. This move accomplished the original goal for VITA—centralizing all IT activities so that they were no longer under the authority of individual Agencies.

Virginia’s $2.3 billion, 10-year outsourcing contract was signed in 2005 and was lauded as a potential model for other States to follow. However, the deal was plagued with problems including missed deadlines, cost overruns, and poor performance. In 2009, the State CIO and other high-ranking IT employees were fired. An audit determined that cancelling the outsourcing contract would cost the state $400 million. The contract was rewritten with tighter SLAs, a three-year extension, and a cost increase.

**Virginia Recap:** Politics prevented the centralization of IT activities that would have enabled a central IT unit to pursue major efficiencies. So, IT was outsourced in hopes of accomplishing the same goal. The case suggests the benefit of consolidating IT before outsourcing, as that would have given the State a far better understanding of its IT costs and needs.

**Georgia.** A failed attempt at outsourcing in 2001 had given the Georgia Technology Authority (GTA) a bad reputation with Agencies. Soon after his election in 2003, Governor Sonny Perdue created the Commission for a New Georgia, comprised of private-sector business executives, to make recommendations on streamlining government and running it like a private-sector business. The Commission identified Georgia Technology Authority (GTA) as a promising outsourcing target. Governor Perdue created the position of State CIO and filled the position with a veteran bank executive. In 2006, an outside assessment concluded that GTA’s service delivery remained inefficient and dysfunctional. Subsequently, the Governor initiated an IT modernization process, which included renewed efforts to consolidate and outsource the State’s IT infrastructure.

Although the plan to outsource IT was announced in 2007, a contract was not signed until 2009. To avoid another failed outsourcing attempt, the State worked with an external consultancy to address the internal and external governance issues raised by the prospect of outsourcing. This preparation included scenario planning, establishment of a service-management organization, and well-defined SLAs. As a result of those preparations, Georgia’s 8-year, $873 million infrastructure and
telecommunications outsourcing arrangement has gone relatively well. The estimated cost savings target of $181 was met by 2012.

**Georgia Recap:** Georgia renewed its efforts to gain IT efficiencies by a change in the status and leadership of its existing central IT unit. When internally led turnaround efforts stalled, outsiders were brought in to fix internal organizational arrangements and to plan external governance mechanisms in advance of outsourcing. These centralizing moves prior to outsourcing appear to have contributed to Georgia’s outsourcing success.

**Utah.** The Utah State legislature created the position of State CIO in 1998 to coordinate IT policies and strategic plans across Agencies. These purely coordinative efforts did not yield the desired efficiencies. A string of CIOs then aimed to streamline IT activities and centralize IT operations, but lacking formal authority to carry out these moves each cut their plans short.

In 2005, Jon M. Huntsman, Jr. was elected Governor on an administrative reform platform. A new CIO was appointed; legislation granted the CIO authority to manage IT activities for all State executive branch Agencies as of March 2006. Twenty-four IT departments were merged into one central IT unit; all IT employees began reporting to the CIO, whose direct reporting employees ballooned from 4 to almost 1,000. At the same time, new oversight committees were created (e.g., a Technology Advisory Board). With political pressure and support, Utah’s IT centralizing reorganization was completed in one year.

A major data breach forced Utah’s reform CIO to resign in 2012, but the reorganization did not halt consolidation efforts. In January 2012, the State announced a plan to migrate its 22,000 employees onto Google Apps.

**Utah Recap:** Utah pursued its efficiency goals through radical, big-bang centralization of all IT activities. This risky move was successful, and the State initiated a major outsourcing deal in 2012.

## 5 Discussion

In this paper, we differentiated three concepts where other scholars have often used only one (IT governance defined variously as IT decision-rights or IT decision-rights plus IT organization structure). We argued that the type and degree of IT centralization in an organization at a point in time should be described by two separate dimensions: 1) structural centralization—location and reporting relationships of internal or external people who perform IT work and 2) control or decision centralization. These two dimensions capture different aspects of centralization, and, while they may be associated (as in our data), they involve different design considerations and may have different effects. We also proposed the concept of IT centralizing (or decentralizing) reorganizations to capture the decisions and actions that inaugurate change in an organization’s type or degree of IT centralization. We believe these concepts help sort through some of the terminological confusion in the IT governance literature (as reviewed by Brown and Grant (2005)) and contribute to the development of theory about IT governance and outsourcing.

More specifically, we theorized a link between IT centralizing reorganizations, the development of enterprise-wide IT capabilities, and the achievement of enterprise-wide IT outcomes such as consolidation and outsourcing in large, decentralized organizations. Although we did not measure IT capabilities per se, we offered evidence that IT centralizing events co-occurred or preceded IT consolidation and outsourcing announcements in a population of organizations, and we traced the role that IT centralizing reorganizations played in enterprise-wide IT outsourcing decisions in a handful of cases. Despite this study’s limitations (which include public sector context and missing data), we believe our findings are consistent with our theory and therefore deserve future replication.

The findings reported in this paper have implications for future research and practice beyond the need for replication in private sector contexts and direct measurement of IT capabilities. We showed that organizations can move toward greater centralization using various combinations of central coordination or control and central performance of IT activities. For instance, in one design, the CIO...
may have a staff of four people chartered to coordinate enterprise IT architecture planning. In another design, the CIO may actively manage all IT personnel, under business unit direction and governed by SLAs. This observation naturally raises questions about which approach to greater centralization is more likely to promote (successful) enterprise-wide IT initiatives like consolidation or outsourcing.

Other questions for future research concern the relationship between IT centralization and consolidation and enterprise-wide IT outsourcing. For instance, Weill, Fonstad and Subramani (2008) described contrasting outsourcing strategies: a “relocation” approach in which IT activities were transitioned to an external service provider without prior consolidation or standardization (allowing business units to retain distinct processes) and a “consolidation” approach with the potential for greater economies. This study raises the possibility that the type and degree of IT centralization might be related to strategy choice (e.g., more centralized organizations would be expected to prefer the consolidation approach) and suggests questions about whether the “consolidation first” strategy increases the likelihood of outsourcing success.

Finally, our finding of a large increase in the IT centralization in US state governments in a comparatively short timeframe (1994-present) raises questions about the causes and consequences of changing patterns of IT organizational design and governance. Authors such as Sambamurthy and Zmud (1999) have noted changes in IT governance arrangements over time, e.g., from decentralized to hybrid. Some observers have speculated that such changes represent a swinging pendulum between the poles of centralization and decentralization (e.g. Evaristo, Desouza and Hollister (2005))—an observation that may imply that these movements are arbitrary and without consequence. In contrast, a few observers have tried to link these major over-time shifts in IT governance arrangements to environmental trends, such as developments in technology, economic cycles, or changes in overall enterprise structural design (Markus, 2014 forthcoming). Our findings suggest the value of trying to link changing patterns of IT governance to enterprise and societal conditions and outcomes, such as the emergence (and eventual disappearance) of the IT productivity paradox.

6 Conclusion

Enterprise-wide IT capabilities are known to be an important factor in the value organizations obtain from IT investments. The findings of this exploratory study suggest that the existence of enterprise-wide IT capabilities should not be taken for granted. Large, decentralized organizations may have to build enterprise-wide IT capabilities from scratch. One way to do so is via an IT centralizing reorganization that enables an organization to amass the authority and resources (money, people, etc.) needed for enterprise-wide IT initiatives such as consolidation and outsourcing.

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References

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ENDNOTES

1 Much earlier, King, J. L. (1983) observed that the term IT centralization had conflicting definitions, referring variously to the organization of IT activities, the authority to make IT decisions, and the geographic concentration of IT resources or activities.

2 Argures and Silverman (2004) found that both centralization dimensions affected R&D outcomes, in a reinforcing manner.

3 The Wayback Machine (http://archive.org/web/web.php) is an Internet archival database that captures and stores caches or snapshots of Internet web sites since 1996.