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A MODEL FOR DIGITALLY-ENABLED PROCESS INNOVATION: THE CASE OF THE U.S. MINORITY BUSINESS NETWORK

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Abstract

This paper presents a model for investigating digitally-enabled process innovations and their impact on business network performance. The key features of the model are its focus on innovation across business networks and the assumption that benefits of investments in IT are most likely to occur when mediated by innovations in related business process capabilities. The paper presents the model and its underlying rationale. In addition, it details how the model is being applied to a longitudinal examination of a digitally-enabled transformation within NMSDC - a business network for minority-owned suppliers in the U.S. Minority business enterprises (MBEs) face challenges and misconceptions regarding their size, owner ambition and sophistication, and business potential. These significant economic and social challenges continue to limit opportunities for MBE growth. The NMSDC, through its affiliated regional councils, exists to promote and coordinate MBEs supplying corporate members. Previously, these matchmaking opportunities were coordinated in non-standard fashion by the regional councils with little transparency. The ongoing investigation is situated within Open Systems, Inc. and its development of a standardized IT platform (called the National Affiliate Portal – or NAP) sponsored by the NMSDC and implemented in the 39 regional councils across the US. The paper shows how the proposed model is applied to answer the following research questions in the context of NMSDC: a) How are process capabilities of regional councils impacted by information technology (IT) use? b) How do process capabilities impact business network performance in terms of matchmaking opportunities?

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Keywords: digital enablement, process capabilities, IT use, business networks

1   INTRODUCTION

This paper presents a model for investigating digitally-enabled process innovations and their impact on business network performance. It details how the model is being applied to a longitudinal examination of a digitally-enabled transformation within NMSDC - a business network for minority-owned suppliers in the U.S. The motivation for this research project is to identify how differences in IT use and process capabilities impact network performance. The focus of the paper is on the performance of a business network and not on the performance of a machine network. Thus, the research is designed to answer the following questions: *a) How are process capabilities of regional councils impacted by information technology (IT) use? and b) How do process capabilities impact business network matchmaking opportunities?* The paper details anticipated testing of the stated hypotheses using survey instruments and system-generated and automated collection of usage and performance data within a complete business network of 39 regional affiliates of the National Minority Supplier Development Councils (NMSDC).

We expect the study to make four primary contributions: First, we expect our findings to facilitate a better understanding of how differing levels of IT usage affect process capabilities. Second, the study should increase our understanding of how digital enablement in a network matchmaking process has an impact on matchmaking opportunities through its affect on process capabilities. Third, we expect findings from the study to support regional councils in understanding effects of leveraging IT use and process capabilities to further develop network contacts and increase matchmaking opportunities for MBEs and corporate members within the business network. Finally, we expect to identify policy implications for how regional councils within the MBE business networks can leverage IT for decision making, relational management, and transaction management to bridge the gap between MBEs and corporate members.

The remainder of the paper is structured as follows: First, we briefly describe the theory, generic model, and contextualized research model to be tested through the ongoing investigation. Next, we present the empirical context for the research study. Third, we define variables of interest in the study. Finally, we describe our methods of investigation and offer concluding remarks.

2   THE RESEARCH MODEL

2.1   The Generic Model

Technological innovation in conjunction with process innovation provides the best opportunity for an organization achieving "dramatic performance improvements both within the organization" and with partners (Clark & Stoddard, 1996, p. 24). Rai et al. (2006) also found that implementation or use of an IT system, alone, does not generate long-term performance gains. It is the integration of information technology to develop and enhance an organization's process capabilities that enables sustained performance. In our generic model (Figure 1), we extend these concepts to focus on process innovation across business networks based on the assumption that benefits of investments in IT are most likely to occur when mediated by innovations in related business process capabilities.
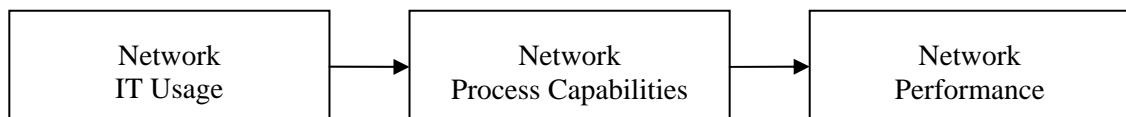

Figure 1. Generic Model of Network IT Usage, Process Capabilities, and Performance

2.2   The Research Model

Increasing successful matchmaking is ultimate goal of the regional councils in using the NAP. Thus, the research model for our context is presented in Figure 2 and constructs are defined in Table 2. While much is known about digital enablement in organizations and business networks, (e.g. Dhanaraj & Parkhe, 2006; Dyer & Nobeoka, 2000; Straub et al. 2004; Uzzi, 1997), little is known about the effects of digital enablement in MBE networks. Our model posits that the use of an IS system in regional minority business networks affects process capabilities within the regional councils which ultimately affects the matchmaking opportunities available to MBEs and corporate members through the councils. Matchmaking opportunities is one of the primary outcome measures tracked by NMSDC and is indicative of how well regional councils are performing. We expect increasing usage of the National Affiliate Portal (NAP) to affect process capabilities in the regional councils. As the non-partisan regional councils leverage the NAP, process capabilities should be enhanced, and the number of matchmaking opportunities available for corporate members and MBEs to form business relationships should increase.
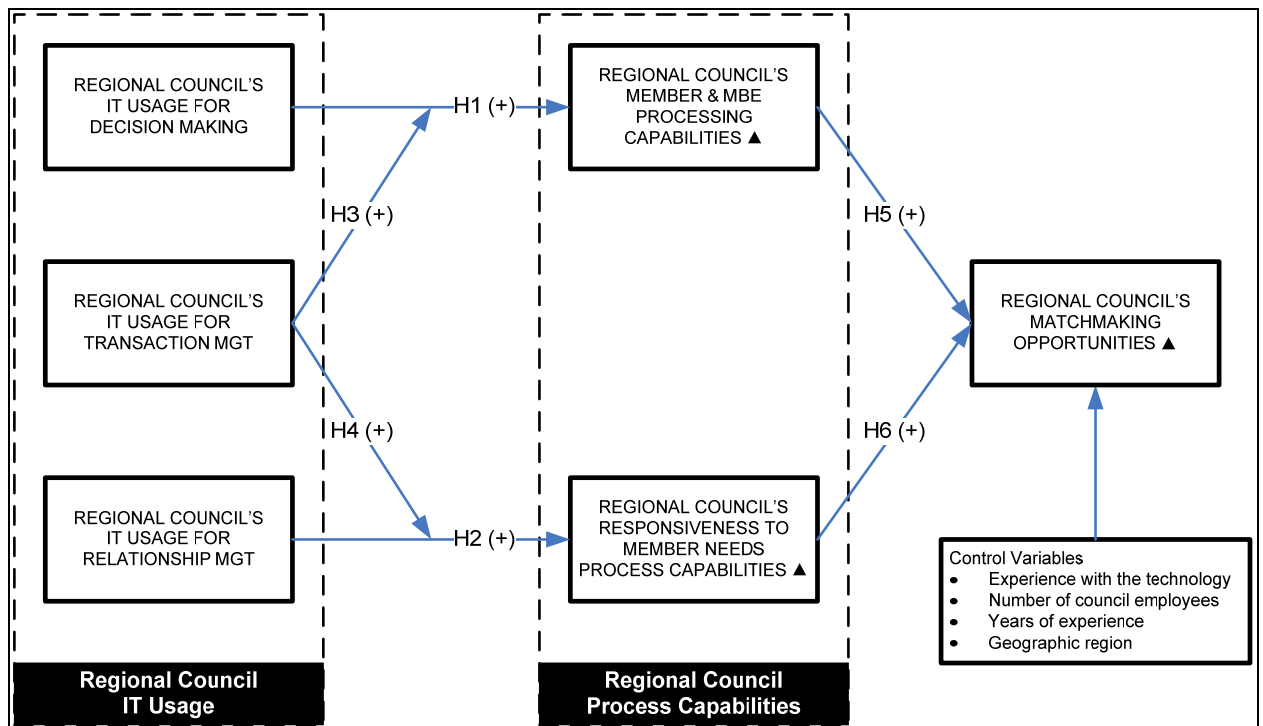

Figure 2. Research Model

2.3   Effect of IT Usage on Process Capabilities

Rai et al. (2006) suggest in research on supply chain management networks, that IT-enabled organizations can leverage technology to improve process capabilities.   The NAP includes functionality for helping regional councils better manage responsibilities. Because most of the regional councils are moving to the NAP from *ad hoc* and "home grown" systems like Microsoft Access, Excel, FoxPro, and manual methods for processing, we expect that by leveraging the NAP technology there is an IT usage effect on regional council process capabilities.

Effect of IT Usage for Decision Making on Member & MBE Processing Capabilities: IT Usage for Decision Making is defined as the facilitation of MBE certifications and corporate membership applications.   Member and MBE processing capability is defined as the capability of processing member applications and MBE certification requests and renewals in a timely

manner. Huber (1990) suggests that the use of IT may help organizations make higher quality decisions and IT reduces the time required to make those decisions. Within the regional councils, primary responsibilities include enacting processes for verifying the fulfillment of MBE certification or renewal requirements and processing corporate member applications. In many councils, this responsibility has been minimally adhered to because of the lack of appropriate and reliable information systems and approval processes. This deficiency contributes to approval and certification cycles not being managed closely and the creation of a situation whereby some potential members and MBEs are not approved or certified in a timely manner. Ultimately these failures lead to an applicant's frustration or abandonment of the application process and a lesser use of the regional council's network for matchmaking opportunities.

Also, consistency to the approval process varies significantly among the 39 councils for enforcing MBE certification standards and corporate member application processing. By using the NAP to standardize and manage the entire decision making process —from online application submission, to information requests and scheduling site visits, through invoicing and fee payment, and then to ultimate acceptance or certification—regional councils now have the opportunity of increasing their corporate member and MBE approval and certification process capabilities. Thus,

H1: There is a positive relationship between a regional council's IT usage for decision making and a regional council's corporate member and MBE processing capabilities.

Construct	Definition	
Regional Council's IT Usage Constructs	**Definition**	**IT Modules**
IT-Usage for Decision-Making	The facilitation of MBE certifications and corporate membership applications.	- Certification Management - Application Management
IT-Usage for Relationship Management	The bridging of MBE suppliers and corporate members through the exchange of information about the network through event, news, content, and contact management.	- Corporate Member Management - Event Management - Contact Management - Content Management - News
IT-Usage for Transaction Management	The facilitation of transaction processes in the council through managing required financial, reporting, and database requirements.	- Invoice Management - Reporting Management - Database Management
Regional Council's Member & MBE Processing Capabilities	The capability of processing member applications and MBE certification requests in a timely manner	
Regional Council's Responsiveness to Member Needs Process Capabilities	The capability to take action in a timely manner on members' needs including member updates, request for proposals, and MBE contact lists.	
Regional Council's Matchmaking Opportunities	The number of deals, events, and other opportunities created and/or managed by the regional council whereby MBEs and corporate members have an opportunity to form a business relationship.	

Table 2. Construct Definitions

Effect of IT Usage for Relationship Management on Responsiveness to Member Needs: IT Usage for Relationship management is defined as the bridging of MBE suppliers and corporate members through the exchange of information about the network through event, news, content, and contact management. Responsiveness to Member Needs is defined as the capability to take action in a timely manner on members' needs including account updates, distributing requests

for proposals to MBEs, notifying MBEs of corporate member events, and producing MBE contact lists. Regional councils can provide *relationship management* through modules in the NAP by managing contacts and members, providing a convenient distribution of news and other content, and creating, tracking, and managing corporate events and council events. Rai et al. (2006) note that an IT system, by itself, cannot and does not create sustainable performance gains. Instead, IT can be integrated into an organization to develop or enhance the process capabilities necessary to create sustainable performance gains. Unlike previously used ad hoc and manual systems, the NAP provides and enhances regional council relationship management capabilities via the NAP central repository of contact lists, pertinent content and news, and event management information. Building on and maintaining member and MBE relationships within the network are a critical function of the regional councils. By having available and using the NAP modules for tasks relating to relationship management, regional councils should experience an enhancement of their process capabilities for responsiveness to member needs. Therefore,

> H2: *There is a positive relationship between a regional council's IT usage for relationship management and a regional council's processing capabilities for responsiveness to member needs.*

2.4 Moderating Effect of IT Usage for Transaction Management

IT Usage for Transaction Management: IT Usage for Transaction Management is defined as the facilitation of transaction processes in the regional council through managing financial, reporting, and database requirements. These requirements involve the routine back-office transactions which are not generally visible to members or MBEs. However, these functions are critical to the sustainability and accountability of the regional councils and are necessary to fulfill requirements of the NMSDC. The NAP modules for transaction management allow the regional councils to process invoices to and payments from corporate members and MBEs, to create financial and performance reports for the NMSDC, and to maintain a current and accurate database of information about corporate members and MBEs. Currently the invoicing method varies across the regional councils, the reporting process is a paper report whereby information required by the NMSDC is manually calculated and reported, and as previously mentioned, the database may consist of local databases, spreadsheets, and paper files –which might be duplicative, inconsistent, inaccurate, or out of date. The NAP allows for a centralized data repository and for reports and invoices to be generated at anytime. The transactions within (and usage of) these modules has an effect on the decision making process for new and renewal applications and on a council's capability to respond effectively to member needs. Thus,

> *H3: IT usage for transaction management positively moderates the relationship between a regional council's IT usage for decision making and a regional council's member and MBE processing capabilities.*

> *H4: IT usage for transaction management positively moderates the relationship between a regional council's IT usage for relationship management and a regional council's responsiveness to member needs processing capabilities.*

2.5 Effect of Process Capabilities on Matchmaking Opportunities

Recently, the IS literature has investigated how capabilities of organizations lead to better financial and operational outcomes (Barua et al. 2004; Rai et al. 2006). In the case of MBE networks, increases in the regional council's process capabilities should positively impact how well the council performs its responsibilities of encouraging corporations to increase procurement-related opportunities for MBE suppliers and encouraging corporations to spend more with MBE suppliers. These opportunities are called *matchmaking opportunities* by the

regional councils and are tracked and reported to the NMSDC, corporate members, and MBEs as a way to gauge how well each council is performing.

Effect of Regional Council's Member & MBE Processing Capabilities on Matchmaking Opportunities: Business processes are the actions, routines, and activities that firms develop to accomplish a business objective (Ray, 2004). The NMSDC regional councils' primary business activities are processing new and renewing corporate members, certifying and recertifying MBEs, responding to member concerns, and timely reporting of results to the NMSDC and members. The objective of the regional councils is to create matchmaking opportunities for business relationships between corporate members and certified MBE's. This does not mean that an actual business deal has to take place but that an opportunity is presented to as many members and MBEs as possible. The NAP portal allows MBEs to prospect for business with corporate members and for corporate members to offer requests for proposals to the MBEs in a relatively non-intrusive fashion. Yet, as noted previously (Rai et al. 2006), IT does not create sustained gains; development and enhancement of process capabilities is necessary to create sustainable performance gains.

The NMSDC has a presence through each of the 39 regional affiliate councils, yet each council acts independently in organizing its own network, communication methods with members and MBEs, and even in how it communicates with NMSDC. Additionally, the regional councils' actions, routines, and activities are focused on the common goal of certifying MBEs, encouraging corporate members to do more business with MBEs, and offering matchmaking opportunities to both members and MBEs. These core certification, processing, responsiveness, and reporting processes lend themselves well to the functionality of the NAP portal and should move the NMSDC organization as a whole toward a more coordinated network where process capabilities are enhanced and the regional council has better access to information about corporate members, MBEs, and the needs of each. When the regional councils' process capabilities are leveraged, we expect the regional councils to enhance their abilities to create and offer matchmaking opportunities between members and MBEs. Therefore,

> *H5: There is a positive relationship between a regional council's member and MBE processing capabilities for responsiveness to member needs.*

> *H6: There is a positive relationship between a regional council's responsiveness to member needs process capabilities and matchmaking opportunities.*

3 THE EMPIRICAL CONTEXT

The history of many minorities in the United States is one of tribulation, but also one in which social policies are currently in place which presumably help minorities and minority-owned businesses overcome historical slights. It is in that mindset that we present the contextual particulars of this study. MBEs are defined as "*a for-profit enterprise, regardless of size, physically located in the United States or its trust territories, which is owned, operated and controlled by minority group members. 'Minority group members' are United States citizens who are Asian, Black, Hispanic and Native American*" (NMSDC, 2007). With minorities projected to comprise over 50% of the U.S. population within the next 45 years, growth opportunities for minority-owned businesses (MBEs) should be progressing at a rapid pace. However, a recent study by the U.S. Small Business Administration reports that while minorities represent 31.8% of the U.S. population and 17.1% of the total number of businesses, only 7.5% of business revenue is generated by minority-owned businesses enterprises (Small Business Administration, 2007). Minority owned businesses face significant social and economic challenges in trying to overcome misperceptions regarding capabilities, potential, reliability, and trustworthiness (Bates, 2001; The Asaba Group, 2000). Mehra et al. (1998) find structural marginalization is prevalent in minority groups and that the process of identifying and forming networks may be different for members of minority and majority groups. Other studies show that MBEs are less successful, on average, than other firms (Small Business Administration, 2001; US Census Bureau, 2001). Table 1 compares some characteristics of non-MBEs with those of MBEs.

To help alleviate the misperceptions regarding MBEs, the National Minority Supplier Development Council (NMSDC) was chartered in 1972 with encouraging corporations to increase opportunities for MBE suppliers. Since 1987, the NMSDC - no longer a government-funded entity - has received its funding from the private sector to establish and maintain the business network of certified MBEs and corporate members. Thus, the NMSDC network exists primarily to promote business networking and interactions between a marginalized business community and corporate members.

Characteristic	Non-MBEs	MBEs
Geographic location	Nationwide	57% of all MBEs are located in CA, TX, NY, & FL
Number of firms (1997-2002)	Increased by 6%	Increased by 35%
Revenues	Average of $448,000	Average of $162,000
Revenue per firm (1997-2002)	Remained level	Decreased by 16%
Industries	All industries	Highly concentrated in healthcare, professional services, retail, administrative support, waste management, and remediation services
Self-employment rate	11.1%	Black: 5.2%; Latino: 7.1%; Asian: 10.4%
Employees (1997-2002)	Decreased by 7%	Increased by 5%

Table 1. Comparison of Non-MBEs with MBEs as of 2002. Source: (MBDA, 2002; Small Business Administration, 2005)

Shah and Ram (2005) examine supplier diversity and MBE development and find that "corporations in the USA have differing reasons for supporting and encouraging minority suppliers to do business with them, and these reasons are embedded within the industry they operate in and the nature of their target market" (2005, p. 77). Bridging the digital divide requires cooperation and interactions between policy makers, businesses, educational institutions, and those who are disconnected (Dewan & Riggins, 2005). Corporations know that increasing interactions with MBEs gives the corporations "a pipeline to communities [that] is an asset that some companies lack" (NMSDC, 2005).

More than 175 federal assistance programs for small businesses have been identified (Lopez, 1999). Surprisingly, an examination by Bates and Williams (1996) of the impact of preferential procurement programs found that MBEs relying upon government-sponsored programs are more likely to fail than those selling primarily to non-government organizations. Another example of MBEs lack of access is that one percent of MBEs received a total of 25 percent of the Small Business Association's set-aside program contracts in 1995 and that only nineteen percent of all set-aside contracts were competitively awarded (England-Joseph, 1996). These findings suggest that it behooves MBEs to broaden their customer base and expand their network of opportunities beyond government contracts and toward connecting with other businesses. To bridge the gap between MBEs and corporations, the NMSDC has regional affiliate councils that certify MBEs as minority owned. The regional councils are responsible for creating and managing matchmaking opportunities for MBEs and corporations.

Recognizing that implementing a new technology within a minority business network may be different from implementing technology in other networks, this research setting requires an ongoing, longitudinal, and multi-method investigation of the complete staged rollout of the NAP technology within all 39 NMSDC affiliated councils in the United States and Puerto Rico. The technology being implemented provides a standardized and digitally-enabled hub for each council's network of MBEs and corporate members. The NMSDC is requiring that all affiliated councils adopt and use the NAP for managing MBE certifications, corporate memberships, and matchmaking opportunities. One of the stated goals of the NAP project is to ultimately increase the number of matchmaking opportunities presented to MBEs by corporate members.

4 VARIABLES OF INTEREST

4.1 Dependent Variable

Matchmaking Opportunities is measured by three formative items indicative of the number of opportunities created in the regional council. Individual survey items measure the number of deals, events, and other opportunities offered to members and MBEs. Pre-implementation baseline data is captured in the survey instrument. Post-implementation system-generated data measures matchmaking opportunities created and/or managed by the council.

4.2 Independent Variables

Member and MBE Process Capabilities consists of four formative items measuring the extent to which the regional council has established capabilities relating to specific charter requirements of member processing and certifying MBEs. The pre-implementation baseline data will be collected in the survey instrument and future measures will be collected through post-implementation system-generated cycle time and actual usage data measuring the length of time required by the council to complete each task and how frequently each of the process capabilities relating to member and MBE processing is used.

Responsiveness to Member Needs Process Capabilities consists of four formative items measuring the extent to which the regional council has established capabilities to respond to the needs of members and MBEs. The pre-implementation baseline data will be collected in the survey instrument and future measures will be collected through post-implementation system-generated cycle time and usage data measuring the length of time required by the council to complete each task and how frequently each of the process capabilities related to member needs is used.

IT Usage is measured by three constructs pertaining to the council's intent to use each of three specified IT sub-domains defined in Table 2: decision-making, relationship management, and transaction management. In the pre-implementation baseline data, the intent to use IT modules in each of these three domains is captured in the survey instrument. In future data collections, IT usage is measured by post-implementation system-generated data indicating the actual extent of use of specific modules in the three sub-domains.

> *IT Usage for Decision Management* consists of two formative items measuring the council's use of modules related to decision making regarding the status of MBEs and corporate members. The items measured in this variable are the actual usage metrics of the NAP modules for Certification Management and Application Management.

> *IT Usage for Relationship Management* consists of five formative items measuring the council's use of modules which help the council manage events and information exchange in its relationships with MBEs and corporate Members. The items measured in this variable are actual usage metrics for the NAP modules of News, Content Management, Corporate Member Management, Event Management, and Contact Management modules

> *IT Usage for Transaction Management* consists of three formative items measuring the council's use of modules vital to the basic responsibilities of collecting fees, reporting, and database management. The items measured in this variable are actual usage metrics for NAP modules of Invoice Management, Reporting Management, and Database Management.

4.3 Control Variables

We control for four variables to rule out rival explanations. First, *Experience with the Technology* is measured by the number of months that the new technology has been in use in the council. Second, the *Number of Council Employees* is a pre-implementation measure of the number of employees in the council. The *Years of Experience* is a pre-implementation measure of total years of experience in a

NMSDC regional council for those using the technology. Finally, *Geographic Location* is coded for each regional council based on its geographic location in the United States.

Constructs and Measures		Pre-Impl.	Months After Implementation			
			1	2	3	…12
CONSTRUCT	**MEASURE**	T_0 [1]	T_1	T_2	T_3	$…T_{12}$
IT USAGE FOR DECISION MAKING	Intent to Use	Survey [2]	-	-	-	-
	Certification Mgt Module Usage	-	System [3]	System	System	System
	Application Mgt Module Usage	-	System	System	System	System
IT USAGE FOR RELATIONSHIP MANAGEMENT	Intent to Use	Survey	-	-	-	-
	News Module Usage	-	System [3]	System	System	System
	Content Mgt Module Usage	-	System	System	System	System
	Event Mgt Module Usage	-	System	System	System	System
	Contact Mgt Module Usage	-	System	System	System	System
IT USAGE FOR TRANSACTION MANAGEMENT	Intent to Use	Survey	-	-	-	-
	Invoice Mgt Module Usage	-	System [3]	System	System	System
	Report Mgt Module Usage	-	System	System	System	System
	Database Mgt Module Usage	-	System	System	System	System
REGIONAL COUNCIL'S MEMBER & MBE PROCESS CAPABILITIES	New Member Processing Capabilities	Survey	System	System	System	System
	Renewing Member Processing Capabilities	Survey	System	System	System	System
	MBE Certification Processing Capabilities	Survey	System	System	System	System
	MBE Recertification Processing Capabilities	Survey	System	System	System	System
REGIONAL COUNCIL'S RESPONSIVENESS TO MEMBER NEEDS PROCESS CAPABILITIES	Member Update Capabilities	Survey	System	System	System	System
	Request for proposals Processing Capabilities	Survey	System	System	System	System
	MBE Contact List Process Capabilities	Survey	System	System	System	System
	Timely reporting of results to MBEs and Members Process Capabilities	Survey	System	System	System	System
MATCHMAKING OPPORTUNITIES	Matchmaking Deals	Survey	System	System	System	System
	Matchmaking Events	Survey	System	System	System	System
	Other Matchmaking Opportunities	Survey	System	System	System	System
KEY: [1]T_0=Pre Implementation and immediately following training [2]Survey = Data collected in survey [3]System = Data collected automatically by the system						

Figure 3. Multi-Method Longitudinal Data Collection Schedule for Each Regional Council

5 METHODS OF INVESTIGATION

5.1 Field Study Setting

The authors of this ongoing study gained access to Open Systems, Inc. (OSI) in January 2007. Open Systems, Inc. (OSI) is a Georgia-based certified MBE and the CEO and president of OSI was the "Entrepreneur of the Year" in 2002 as awarded by Catalyst Magazine. In 2006, OSI bid on and received a contract from The Georgia Minority Supplier Development Council (GMSDC) to update and integrate the council's disparate database and reporting platforms. OSI, in partnership with two regional councils, then developed the IT platform which NMSDC has accepted as the digitally-enabled standard for all 39 regional councils. The NMSDC is the sponsor and the San Diego, CA regional council is now the lead council in the NAP portal project. The presidents of the Georgia and San Diego regional councils are influential actors during the portal's development and subsequent implmentation.

The project involves a staged rollout of the NAP to all 39 councils. OSI estimates that each council will require approximately one week of training and implementation time. The first six councils are expected online by mid-2008. Before using the portal, each council provides configuration details to OSI who then customizes the portal for the particular council and imports existing database records to establish a baseline of data.

While differences exist in how each council plans to use the portal, the platform eliminates many of the "home-grown" systems and enforces some standards by which all 39 councils must adhere. With these differences in how the portals are sure to be used, the case provides a rich problem set from which to use multiple methods to investigate the following research goals: improvement in matchmaking opportunities and process performance with the intent of capturing IT usage, process capabilities, network structures, and business network performance in pre- and post-implementation environments.

5.2 Data Generation and Collection

This study uses multiple data collection methods. The researchers and analysts and executives at OSI have met or teleconferenced on approximately a monthly basis to evaluate available information, data measures, and data collection methods. Data collection will begin in October 2007 and will occur over a period of at least 12 months. Figure 3 shows the multi-method, longitudinal data collection schedule for survey and system generated data.

Collection of data from interviews, workshops, archival data, and system generated data will occur frequently throughout the collection period. With this very rich data we will be able to test, with high statistical power, the relationships posed in the research model. Each data collection method is described below:

Survey Instrument: OSI is administering a survey instrument to each council and each user prior to implementing the NAP portal. The instrument uses Likert scales for subjective survey questions and also includes objective demographic and network structure questions. Areas of interest include network outcomes, system usage intentions, regional council process capabilities, and network structure measures. Trained users within each of the 39 councils will answer the survey. Approximately 3 to 5 users at each council will complete the user survey for a sample size of 125 to 175 users. Additionally, the lead user at each council will complete council-focused survey questions.

System-Generated Data: System-generated data will be automatically collected on a monthly basis as councils began using the portal. This will provide a very rich dataset as it will include montioring logs for all use-related activities of the modules. The use-related activities of the portal include viewing, creating, updating, and deleting data. Illustratively, a sample of one week's worth of time-stamped logs from one council produced over 1400 usage-related activities.

Interviews and workshops: Workshops and interviews are planned with key actors and decision makers within OSI, the regional minority business councils, and NMSDC, and MBEs and corporations. Multiple workshops are planned where researchers will work with key participants to understand how the changes introduced with the new technology affect the network and OSI.

Archival Data: Each MBE must provide to the council specific information which is then used for certification and re-certification efforts. Corporate Members must also provide business information prior to their membership and at specified periods during the year. During the study, we will examine a sub-sample of the archived data to assist us in our understanding of the NMSDC network structure.

5.3   Proposed Analysis

We plan on using PLS for data analysis. Given that PLS has the ability to model formative constructs, it is well suited for this study's purposes (Gefen et al. 2000). We follow the analysis criteria suggested by Petter et al. (2007). The first step is identifying the formative constructs prior to data collection. Next, we will asses content validity by ensuring our measures can be categorized as theorized (Straub et al. 2004). After data collection, we will use principal components analysis (PCA) to examine item weightings for each measure. To evaluate reliability, data will be analyzed for signs of multicolinearity. Assuming that multicolinearity is not present (or can be eliminated), we will assess the model using components-based SEM (i.e. PLS), examine model weights and loadings, and assess R-square values for endogenous variables.

6   CONCLUDING REMARKS

This paper reports from an ongoing, longitudinal, multi-method study of a model for digitally-enabled process innovation. The study is situated within a complete network of 39 regional regional councils of the NMSDC focusing on the staged rollout of a network portal within all 39 councils. The first contribution of the study is to increase our understanding of how IT usage differences affect process capabilities. Second, we expect to better understand how a business network's usage of IT and enhancement of process capabilities impacts network performance. Third, we expect that the findings will encourage network members, including the regional councils, MBEs and corporate members, to more fully use the NAP portal to develop network and matchmaking opportunities. Finally, we expect the findings to help the NMSDC develop policies for encouraging councils to leverage IT for decision making, relational management, and transaction management to bridge MBEs and corporate members.

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