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New models of collaboration for delivering e-government services:

A dynamic model drawn from multi-national research

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New models of collaboration for delivering e-government services:

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Abstract
This paper presents a conceptual model of how organizations collaborate to deliver electronic public services. The model is derived from a comparative study of 12 e-government collaborations in Canada, the US, and Europe that involved various combinations of public, private, and nonprofit organizations pursuing a variety of service objectives. The study draws on the literature of interorganizational relations, as well as management information systems, public management, and organizational behavior to devise a preliminary model of how such collaborations form and operate. The case study data are then compared to the preliminary model and a revised, more dynamic model is presented. The revised model more closely fits the case experiences across various service types, project structures, and national settings.

Introduction – The Search for New Service Delivery Models

The search for more effective methods of delivering public services has been a fixture of public management for several decades. Overall, the trend in both Europe and North America has been toward reducing the service delivery role of the government in certain areas of activity and encouraging the private or nonprofit sectors to play a more important role. In the last decade, governments in both industrialized and developing countries have sought to deliver public services through new working relationships among governments or between government and the private and nonprofit sectors. These public service delivery innovations are shifting to more equal partnership models enabled by interorganizational collaboration and the use of advanced information technology (IT) (Prefontaine, et al., 2001). The focus on government reform and re-engineering has coincided with the emergence of new technologies, and together these trends have encouraged a tighter coupling of work processes and information flows across organizational, jurisdictional, and sectoral boundaries.

During the 1990s in the US, the National Performance Review (NPR) urged government agencies to "re-engineer government activities, making full use of computer systems and telecommunications to revolutionize how we deliver services" (NPR, 1993, p. V). In response , government agencies often turned to the private sector for the IT expertise needed to implement more efficient public service delivery systems.

In Canada, growing attention to e-government generated "government on-line" priorities in the late 1990s including (1) organization of government information and services by user needs instead of government structures; (2) on-line availability of government information and forms; and (3) provision of transactional services through secure networks (Government of Canada, 1999). The first priority requires government agencies to collaborate in order to provide integrated services that better respond to citizen and business needs (Government of Canada, 2002). To achieve this goal, Canadian federal agencies and provinces

have begun to experiment broadly with new interorganizational relationships within government and between government and private and nonprofit organizations.

The European Council has made pan-European e-government initiatives a top priority for improving the delivery of public services to EU citizens and businesses. The stated goal of the "eEurope initiative," is to provide interactive government services throughout the European Union. Interoperability is sought within and between public agencies at the European, national, regional, and local levels; as well as with the private sector. (European Commission, 2003).

All of these approaches are illustrations of a phenomenon that Milward and Provan (2000) call the "hollow state," in which government provides the framework of authority for public services, but delegates or shares implementation responsibility with other sectors in society. Often these arrangements depend on innovative multi-organizational collaborations. These organizational forms have been extensively studied under the rubrics of interorganizational networks and interorganizational relations (or IOR). IOR has a long tradition in sociology, (stimulated especially by the early work of Granovetter, 1973; Van de Ven, 1976 and Hall, et al., 1977), economics (e.g. Williamson, 1996) and strategic management (e.g., Jarillo, 1988; Koza & Lewin, 1988). Since the 1980s, the emphasis of IOR research has shifted from a focus on understanding interorganizational conflict (Aldrich, 1971) to the prospects for interorganizational collaboration (Distefano, 1984; Gray, 1989). Consequently, IOR has been of increasing interest to scholars and practitioners of public management (e.g., Weiss, 1987; McCaffrey, et al., 1995; Faerman, et al., 2001) seeking to improve understanding of the nature, benefits, and risks of these emerging organizational forms (Provan & Milward, 2001, Agranoff & McGuire, 2001). This study is an attempt to test empirically the salience and relationships among IOR concepts in operational e-government initiatives in an international setting.

Research on interorganizational relations addresses a wide variety of concepts and concerns. Key among them are environmental and structural conditions that stimulate and shape IORs (Hall, et.al, 1977; Gray, 1985; Oliver, 1990; Burt, 1992), motivations for entering into such relationships (Schermerhorn, 1975; Oliver, 1990), the processes of IOR formation and operation (Van de Ven, 1976; Vand de Ven & Walker, 1984; Ring & Van de Ven, 1994; Doz, 1996; Gulati, 1998), the structures of IORs (Granovetter, 1973; Powell, 1990; Gulati, 1995), and their performance (Provan & Milward, 1995; Gulati, 1998; Koza & Lewin, 1999). Each of these areas is elaborated in the section below.

Study Design and Methodology

The study reported here is a multinational investigation of collaborative e-government initiatives that involve multiple organizations. The study documented and compared the experiences of collaboration efforts in four countries using a consistent method of data collection and description that allows comparisons across cases that might reveal fundamental characteristics that transcend national boundaries (Dawes & Prefontaine, 2003).

Comparative case studies represent a methodology where "cases are developed though use of multiple sources of evidence, investigating phenomena with their contexts." Individual cases are then analyzed through cross-case comparison. (Agranoff & Radin, 1991). The process begins with an initial theoretical statement or set of propositions. Case findings are then used to test and refine them. (Yin, 1994). We used this method to document and compare 12 case studies (briefly characterized in Table 1) including six in Canada, five in the US, and two in Western Europe. Three teams of academic field researchers developed the cases in their respective regions.

The cases were selected based on the existence of a reciprocal and voluntary agreement between two or more distinct public sector agencies, or between public and private or non-profit entities, to deliver government services. The arrangements among the parties usually rested on a formal agreement, generally a contract, which specified the purpose of the collaboration, and the sharing or allocation of associated resources, risks, and responsibilities. All of the collaborations were operational at the time of the study (2000-2002).

Table 1. Case Characteristics				
Case	**Service Focus**	**Government sponsor**	**Predominant collaboration type**	**Service type**
Access Indiana	Public access to state government information and transactions	State of Indiana	Public-private	Public access to multiple services and/or information sources
Ambassadeur	Citizen Internet exposure & training program in rural areas	Province of Quebec	Public-nonprofit	Public access to a single service type
Bremen on-line	Public access to city information and transactions	City of Bremen, Germany	Public-private	Public access to multiple services and/or information sources
Cadastre Reengineering	Real property tax mapping	Province of Quebec	Public-private	Support for governmental operations
First gov	Public access to federal government information	US federal government	Public-private	Public access to multiple services and/or information sources
Hotjob	Job offers portal	Belgian national government	Public-private	Public access to a single service type
Internal Revenue Service e-file	Filing of personal income tax returns	US Federal government	Public-private	Public access to a single service type
NYS Geographic Information System Coordination Program	Data sharing and development of data analysis expertise	State of New York	Public-public	Support for governmental operations
One-Stop Business Registration	Unique kiosk allowing electronic filling of all forms required to open a new business	Province of British Columbia	Public-nonprofit	Public access to a single service type
Ontario Business Connect	Unique kiosk of government services to businesses	Province of Ontario	Public-private	Public access to a single service type
Partners in Change	IT system to manage welfare benefits delivery	Province of New Brunswick	Public-private	Support for governmental operations
Service Canada Initiative	Online government information to citizens	Canadian federal government	Public-public	Public access to multiple services and/or information sources

While the cases share the characteristics noted above, they also represent variation along other dimensions. For instance, they focus on different service types, such as health care, economic development, public access to government information, and taxation. They fall into three main service types: support for back-office governmental operations that underlie service delivery (3 cases), support

for public access to a single service (5 cases), or support for public access to a set of related services (4 cases). Where multiple cases were drawn from a single country, they represent different geographic regions.   They also vary in size and duration. In many cases, combinations of public, private, and nonprofit actors took part, but in each individual case one of three main types of collaboration dominated the arrangement. These three types and associated cases are described below.

Public-Public Collaboration (2 cases): These include both horizontal agreements between agencies or departments at the same level of government, and vertical or intergovernmental alliances across federal, state, and local levels. These collaborations are not the traditional legal frameworks that tie public agencies together through the funding and operation of single programs. They are voluntary relationships often driven by the need to solve mutual problems.

NYS GIS Coordination Program. Hosts a formal data sharing cooperative plus educational and support services to encourage state and local development and use of spatial data. Involves primarily state and local agencies but also universities and private companies.

Service Canada Designed to broadly improve accessibility and quality of services for citizens. Sponsored by the Treasury Board of Canada and built on partnerships with various federal departments, provincial governments, and intermediary groups.

Public-Private Collaboration (8 cases): Sub-contracting and outsourcing are the most common public-private relationships. However, public-private partnerships (PPP or P3) int the study involved a mutual sharing of resources, risks, and benefits associated with project operations. In these cases, government hands over part of its management responsibilities and potential benefits to the private partner while retaining accountability and enough control to ensure protection of the public interest.

Access Indiana. The official information and transaction portal for the state of Indiana is a public-private partnership using a self-funding strategy to deliver government information and services to citizens and businesses.

Bremen Online. A federally sponsored project to develop electronic government and provide citizens with secure online transactions and payments carried out by a PPP among the Free Hanseatic City of Bremen and regional and national partners from private industry.

Cadastre Reengineering Project. Involves development and installation of information and management systems for Quebec's real property tax program. Overseen by the Ministry of Natural Resources and implemented by the DMR Consulting Group, the project provides technical infrastructure and geospatial reference systems to the provincial government.

FirstGov.gov   The official US federal government web portal enabling information access and transactions. Initiated through a public-private partnership and maintained through public-public collaboration, the portal content covers federal and state governments, some local governments, and U.S. territories.

Hotjob.be. A portal for job-seekers and employers implemented by FOREM, a jointly managed PPP for public service in Belgium. Hotjob provides job-seekers and employers access to over 500 job and training sites.

IRS e-File. Provides for electronic filing of personal income tax returns through a partnership that began between the US Internal Revenue Service and H&R Block in 1985 and has since grown to include a large number of private tax preparers and individual and business taxpayers.

Ontario Business Connect. Provides registration services for new businesses at multiple access points. Led by the Ontario Ministry of Consumer and Business Services, the main partners are government departments and agencies involved with new businesses at the provincial and federal levels, IT firms, point-of-service partners, and three wholesalers.

<u>Partners in Change</u>. An initiative to redefine and reorganize the delivery of income assistance and social services provided by the New Brunswick Department of Human Resources Development. Carried out in partnership with Accenture.

Public-Non profit Collaboration (2 cases): Traditionally, public-nonprofit relationships have been characterized by fee-for-service contracts, especially for health and human services. By contrast, more collaborative relationships are now emerging that embody joint development of service programs in which the public and non profit participants share responsibility for program design, performance, and evaluation.

<u>Ambassadeur Project</u> Provides public education and training in the use of information technology to obtain government information. Led by the Jonquière office of Human Resources Development Canada, the project is mainly a partnership with the six Community Development Assistance Corporations in the Saguenay/St-Jean Lake region.

<u>OneStop Business Registration</u>. a service project sponsored by the British Columbia Ministry of Small Business, Tourism, and Culture involving a network of nonprofit organizations as lead partners plus more than ten partners from the public and private sectors. The service offers kiosk-based one-stop electronic business registration.

The preliminary model

Drawing on the research literature of interorganizational relations and several other fields, the study team constructed a conceptual model that covers macro, meso, and micro levels of analysis of the collaboration projects (Prefontaine et al., 2001). This complex model attempts to represent influential factors that operate at these three different levels. The model (Figure 1) also comprises a temporal dimension as it takes into consideration the different stages of the collaboration process and accounts for change over time.

The first dimension includes factors in the political, social, economic, and cultural environment reflecting the international character of the research project. In order to evaluate the possibility of transferring lessons among countries, it is necessary to identify country-specific factors, such as governmental form and economic characteristics that have an impact on the collaboration process or use of IT (Lubatkin et al., 1999; Clift & Osberg, eds., 2000). Hofstede's (1990) cultural factors (power distance, masculinity, individualism, risk avoidance, and time orientation) were also included as variables.

Dimension 2, includes factors in the institutional, business, and technological environment. The institutional environment refers to the legal framework of the project (such as privacy, trade, intellectual property, or procurement laws). "The legal framework of cooperation imposes structural barriers and creates opportunities that can make a substantial difference to agency managers" in their willingness and ability to engage in cooperative action (Weiss, 1987). The business environment refers to the characteristics of the industry or sector of activity in which the collaboration project takes place. The technological environment, (i.e., the role and use of IT) is pertinent because all the projects use information technologies as key agents of change (Heeks & Davies, 1999).

These first two dimensions constitute the macro environment. We hypothesize that factors in these environments influence the motivations of the project participants and may determine the limits of project performance. Other research in multi-organizational e-government projects shows that the variability across these environments can influence the focus and limits of technology-supported collaborations (Dawes et al, 1997). In this research, these environmental variations are important influences on the transferability of results from one culture to another.
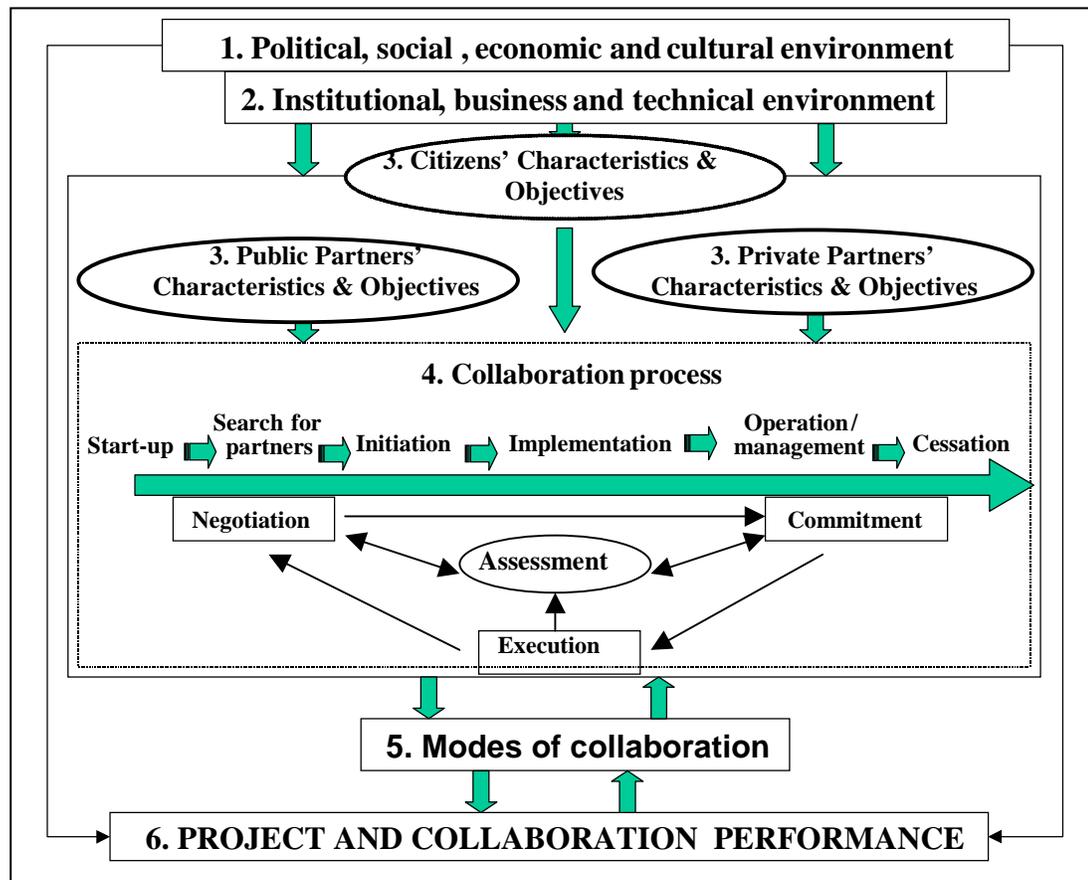
Figure 1. Preliminary Model

The third dimension includes the characteristics and objectives or motivations of the different participants in the projects. Participation in cooperative projects is usually motivated by the need to secure greater control of or access to necessary resources, or to establish favourable exchange relationships (Williamson, 1991; Ouchi, 1980). However, cooperation can be difficult in many settings. McCaffrey, Faerman and Hart (1995) assert that these difficulties include past experiences, costs, uneven distribution of power, divergent interests, and conflicting incentives and purposes, leadership systems, and practices. In addition, strategic, cultural, and technological differences among the participants may accentuate differences and create difficulties in collaborating. We tried to understand how motivations, similarities, and differences were addressed and how they shaped the elements of Dimension 4, the collaboration process.

The fourth dimension includes factors related to the collaboration-building process *per se*, from inception to implementation. The research literature suggests specific stages of the collaboration process and certain success factors associated with these stages. For example, early successes and positive interactions are important to establishing the interpersonal basis of relationships (Larson 1992; Gulati, 1995; Ring & Van de Ven, 1994) which develop trust and reduces risk aversion (Gulati, 1998). This initial trust is of critical importance in the formation and early efficacy of collaborative networks (Lansbergen and Wolken, 1998; Ring and Van de Ven, 1994). Strong supportive leadership has been identified as a crucial element in interorganizational projects (Trice & Beyer, 1993). Often, the implementation of the project depends on the presence of a champion, and the support of top management (Weiss, 1985; Van de Ven & Poole, 1995; Pfeffer, 1992; Mintzberg, 1983). In addition, the processes of negotiation-decision-action-evaluation that take place at each stage of the collaboration project (Grandori & Soda, 1995). These processes are influenced by knowledge sharing (Pardo, et al., 2003) and by the modes of collaboration employed (i.e., Dimension 5).

Dimension 5 includes factors related to collaboration methods, including the different governance schemes adopted (Gulati & Singh, 1998), the nature of risks and benefits, the nature of leadership (Huxham & Vangen, 2000), distribution of authority and control, resource sharing, and the interorganizational management of the collaboration process. We expect the governance scheme adopted to determine the power structure within the collaboration, the relationships among partners, and the participation of stakeholders (Ring & Van de Ven, 1992; Hill & Hellreiegel, 1994). Success of the collaboration process is likely to be affected by learning (Simonin, 1997), shared experience (Lambright, 1997), mutual adjustment and consensus building (DeHaven-Smith et al., 1996), and trust relationships (Rousseau et al., 1998). Conversely, the high levels of participation that are desirable for trust-building, may reduce the effectiveness of the collaboration by raising the costs and complexity of deliberation and increasing the opportunities for conflict and confrontation (Pfeffer, 1992; Mintzberg, 1989). We expect this set of choices and their effectiveness to have direct effects on project and collaboration performance. We also expect that performance will, in turn, prompt the participants to alter their methods to achieve better results.

Dimension 6 includes performance factors. "Performance" and "results" have emerged as the key measures of success for public investment in services (US Congress, 1993). Several aspects of performance were considered. DeLone and Mc Lean (1992) identified six measures of information system success: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. Pitt et al (1995) added service quality. Zeithman et al. (1990), Gerhinger and Herbert (1991) and Provan and Milward (2001) also recommend measuring expectations versus perceptions of service performance. Evaluating the performance of collaboration methods is also important in order to determine whether the governance method leads to satisfaction among participants.

Data Collection and Analysis

Interviews with the main participants in each collaboration project constituted the primary method of data collection. For each case, native researchers conduct semi-structured interviews with six to twelve knowledgeable participants. These included initiators, sponsors, executive champions, and project leaders as well as staff responsible for different aspects of the project such as technology infrastructure, marketing, legal affairs, or human resources. The interview protocol contained questions related to the project context and initiation (history, scope, management), to the technology solution used, to the collaboration process (participants, negotiation, objectives, conflicts, strategies), and to the performance of the project. The second method of data collection was document analysis including a review of laws, regulations, contracts, project plans, and other written material pertaining to each collaboration and its context. These secondary data from legal documents and official or published sources describe the environmental factors and also provided a way to compare the official record against the opinions gathered in the interviews.

Data were coded and analyzed using a coding scheme keyed to the specific variables that make up each dimension of the conceptual model. New codes or factors were added to account for variables that appeared in the data, but were absent from the preliminary model. The codes were applied to the interview transcripts using text analysis software. Each interview transcript was coded separately by two coders and then results compared and discussed. Where differences occurred, the coders reached a consensus decision about the correct codes to use. Each case description was written by the appropriate interviewer(s) following a standard format in either English or French, depending on the language of the researchers. All the case study narratives were then translated into the other language so the entire research team could make use of them.

Test of the Model

This paper reports how well the preliminary model fits the experiences represented by the case data. Specifically, we investigated how well the preliminary model accounts for key environmental influences surrounding the collaboration; for key structural characteristics; for participants' motivations, objectives, and contributions; for the role and effect of technology; for critical success factors; and for key dynamics

of the collaboration. Most important, we tried to determine whether the model provides a conceptual structure that is flexible enough to account not only for the similarities among the cases but also accommodates the differences in their experiences and cultural settings.

Table 2. Summary of the fit between the preliminary conceptual model and the case data		
Dimension	**Model adequately accounts for**	**Model does not account for**
1. **Political, social, economic and cultural environment**	• Political, social, and economic context • Fundamental cultural factors	• The pervasive influence of cultural factors on all other dimensions
2. **Institutional, business and technical environment**	• Specific legal authority • Absence of specific of legal authority to form the cooperative • Specific legal barriers • Status & nature of technology infrastructure & applications • Nature of a specific business domain • History of issues preceding the project	• Political commitment in lieu of legal authority
3. **Characteristics and objectives of the participants**	• Characteristics of each type of organizational partner at project start • Motives of each type of organizational partner at project start	• Changes in participant characteristics, roles, and motives over time
4. **The collaboration process**	• Collaboration-building, problem-solving, and collaboration processes employed • CSFs predicted by research literature • Management philosophy & processes	• *Hypothesized stages are not discernible* • *Expected association of specific CSFs with specific stages was not found* • Other CSFs not predicted by the literature • Learning and adaptation over time • Role of key individual actors re: informal leadership and personal commitment
5. **Modes of collaboration**	• Governance, risk & resource sharing, authority structures, interorganizational management	• *Organizational structure of the collaboration is not discernible* • Dynamics of changing circumstances and roles
6. **Project and collaboration performance**	• Collaboration expectations and performance from organizational point of view • Service expectations and performance from the point of view of external users	• Personal & professional performance expectations and impacts on individual participants • Independence of collaboration performance from service performance • Ongoing effects of performance throughout the relationship

Table 2 summarizes our findings on the adequacy of the preliminary model. It lists the main focus of the variables of each dimension and indicates where the model does and does not account for them when compared to the complete set of interviews and documentary evidence. The model adequately accounts for most of the hypothesized variables but it failed to fit well with the data in two ways: (1) some variables

were identified in the data that were not present in the preliminary model, and (2) some variables were present in the model, but were not discernible from the data. Type 2 variables are presented in the table in *italics* for ease in identification. In addition, the relationships among variables and dimensions were inadequately addressed by the preliminary model.

As Table 2 indicates, the model does fit the data reasonably well for many aspects of the five dimensions, but it does not fit some of the cultural aspects, changes in participants' involvement over time, the collaboration structures, critical success factors, the dynamic elements of the collaboration process, or the pervasive effects of performance.

Cultural Influences

The model fits the data adequately for the main factors of the political, social, and economic environment, as well as the next level of environmental factors (legal, technological, and business domain). However, it does not allow us to discern the general political philosophy or the cultural elements that underlie it. Because the model deals with culture only at the macro level (i.e., in Dimension 1), it does not account for its effects on the other dimensions. Unlike the model, the case data demonstrate that culture is evident in every aspect of the projects, embedded in the way people think, perceive, and act. We identified important cultural factors by comparing responses to the same interview questions in different countries. For example, we found that leadership is viewed differently in the United States and French-speaking Canada. Although leadership was identified as a critical success factor by interviewees in both places, what they meant by leadership was not the same. The Americans referred to a personal style, skill, or ability to trigger trust among participants, whereas the Canadians referred to the authority attached to the formal position that a leader occupies. Similarly, different cultures assigned different meanings to another key concept, stakeholders. In the French-speaking cases, stakeholders were defined as those involved in operating the service program. Clients or customers were not considered stakeholders because they are external to the collaboration.   By contrast, Americans included clients among their most important stakeholders.

Participants' Motivations, Objectives and Contributions

In this area the preliminary model was quite effective for the initial phase of the projects. It matched well with data about why each partner participated, what they hoped to accomplish, and how they contributed to the collaboration and its results. However, the preliminary model did not fit well with changes in objectives, motivations and contributions over time. We found in the case data that some participants were originally quite reluctant and joined actively only after a project was well under way. Often, this change in willingness to participate was triggered by a phenomenon that one interviewee from the New York case called "me too-ism," i.e., once the project began to generate benefits for the initial participants, others decided it was safe and desirable to join. In the Quebec cadastre case, a traditional customer-supplier contractual relationship rapidly evolved into a more collaborative mode in the face of imminent failure due to serious technological problems and and policy challenges. In order to overcome those challenges, the Ministry of Natural Resources and DMR shared staff, work processes, and offices, revised roles, and engaged in an intensive joint effort to develop an innovative technological and managerial solution. These important developments cannot be accounted for by considering only the objectives and motives of the partners at the beginning of the project.

Structural Characteristics of the Collaboration

The preliminary model allowed us to capture adequate information about the structure of the individual organizations involved and about the formal agreements among them about roles and responsibilities. However, the model did not always lead us to a coherent picture of the structure of the collaboration efforts themselves. While some of the cases had clearly delineated organizational structures (generally those with fewer partners), most tended to be combinations of formal and informal arrangements that changed over time. These combinations would be quite difficult to describe in an organization chart depicting structure, or a process diagram that outlines the key interactions. The model represents formal agreements well, but not the informal relationships and interactions. We regard this as a serious

weakness in the preliminary model because the case data show that these informal factors often influenced the performance of the collaboration as much as, or more than, the formal ones.

For example, Cadastre Quebec was initiated as a second attempt with the same partner to create a provincial tax map system. The Ministry began its renewed relationship with DMR with the express agreement that the project goals would be achieved without any up front government funding. However, the emergence of unexpected technological and managerial problems made it clear that their project could not succeed on a pay-on-receipt basis. On the verge of failure, the government agreed to pay some of the funds during development. This change in the formal agreement was accompanied by significant changes in resource commitments, working relationships and communication methods. These combined changes in authority, structure, and process kept the project on schedule and on budget.

FirstGov began life with the personal endorsement of President Bill Clinton and a very unusual gift of technology from the private sector that was essential to quick implementation, but also a target of criticism from government watch dogs and would-be competitors. After two years of very intense effort, and politically savvy and creative management, the public-private partnership dissolved into a traditional set of contracts. However, at the same time a robust and long-lasting public-public collaboration emerged among federal agencies which brought about immense improvements in FirstGov coverage and content. In short, projects did not assume a fixed structure, but evolved in an ongoing series of adjustments that are not contemplated by the preliminary model.

Critical Success Factors

Our preliminary model identified specific CSFs and associated them with specific hypothesized stages of the collaboration process. One problem with this conceptualization is that the cases do not appear to evolve in predictable stages but evolve in an iterative process of feedback, learning, and change. Moreover, by trying to identify only a specific set of CSFs, we risked ignoring other factors that may be more relevant to our area of study. Fortunately, the open-ended nature of the interview questions allowed interviewees to describe success factors that were not predicted by the literature. For example, in some cases participants emphasized the importance of a mutual "need to succeed." In the Cadastre Quebec case, that need was based on the desire to regain the mutual and external credibility of the two participants after a public failure. In the New York GIS case, this need reflected an acknowledgment by an informal community of practice that their goal of a statewide spatial data program would not be achieved unless they cooperated informally, relentlessly, and without compensation to keep the issue in front of policy makers. In Hotjob, the sponsoring organization changed its name as well as its operation in order to disassociate itself from previous public dissatisfaction. Other CSFs included the value of networks of personal and professional relationships for working through the problems that were not addressed by formal agreements or fixed work processes, as well as "agreements to disagree" about certain issues whose resolution was not essential to the early success of the collaboration. Some interviewees pointed out how voluntary personal leadership, regardless of formal position, led to important progress toward their goals. Willingness to accept risks and manage them skillfully for the mutual benefit of all partners constituted another critical success factor in a number of cases.

Key Dynamics of the Collaboration

The preliminary model is weakest in its treatment of temporal factors and the collaboration process itself. The model's use of highly structured relationships among key variables was not supported by the interview data. We learned that participants sometimes shifted roles and responsibilities as the projects developed and matured and as their needs changed. In several projects, trust and participation expanded gradually, moving from contract-like arrangements to more equal partnerships. Work practices within the collaborations often began with formal procedures and then either shifted to or added extensive informal communication and problem-solving mechanisms. Participants adjusted their expectations and their relationships as they learned more about their mutual capabilities and needs. For example, in both Access Indiana and Partners in Change in New Brunswick, confusion over roles and conflict among expectations and work styles stymied traditional processes and problem-solving mechanisms. In New

Brunswick, the private partner was completely unprepared for the media scrutiny that accompanied the project and the government partner for the extent of organizational and professional change that were required. Often unsure how to divide responsibility at the detailed working level, the staff participants in Access Indiana made little early progress and frustrated their political and corporate leaders. In response, both projects adopted a "war room" strategy in which staff from all partners were co-located both physically and psychologically in intense working sessions to solve problems. Over time, the war room activities led to close personal working relationships among the staff and substantively successful projects. However, these benefits did not automatically make for organizational satisfaction. The private partner in New Brunswick reported it would not undertake another project of this kind in the future. Despite the success of the project itself, Accenture found it too costly (financially, organizationally, and culturally) to work without a traditional contract in a politically-charged environment under the spotlight of media attention and public scrutiny.

Conclusions

As we have seen from this brief review of research findings, the explanatory power of our preliminary model suffers from being too linear. Although it incorporates several influential relationships among dimensions, we learned from the case data that more powerful feedback loops are at work that explain more about the key dynamics of the projects. Although the preliminary model hypothesizes the unfolding of projects in stages, it does not account well for the dynamics of these efforts over time. In most cases we could not discern the discrete and predictable stages that the model contemplates. While the model does prompt us to look for differences in goals and behavior from earlier phases to later ones, it does not lead us to expect the constant learning, iteration, and adaptation that we heard in the interviews about how and why these changes took place.

As one example, the preliminary model views service and collaboration performance as the final outcomes of the collaboration effort. However, the evidence suggests that performance is an ongoing factor and one that is strongly related to other dimensions in the model. For example, the case data revealed that early performance influenced the objectives, motivations, and contributions of different stakeholders at different points in time. Many interviewees said that small, early successes encouraged sponsors to persevere and more stakeholders to participate. However, in the case of Bremen Online, early success may not be enough for smaller private players to sustain their participation into the future. The initiative is funded initially by the federal government and large telecommunications and financial institutions. When the government funding ends, the program must become self-sufficient. The large companies can factor the public funding-to-private revenue transition into their financial plans; but smaller ones are likely to quit the partnership, despite its substantive success, if substantial revenue cannot be generated immediately. On the other hand, in at least three cases, (NYS GIS, Cadastre Quebec, and Access Indiana) early failures motivated the participants to rethink, revise, and renew their relationships and methods.

Another problem with the preliminary model is it combines collaboration performance and service performance into a single construct. However, most interviewees considered *collaboration* performance to be separate from the performance of the *project* in terms of its service delivery goals. Even projects that had early failures or took a long time to produce service results, were seen as successful collaborations as long as they contributed positively to shared knowledge, professional networks, and communities of practice. Conversely, as with the New Brunswick case, the service goal was achieved, personal professionalism and trust were built, but one of key organizational partners came away from the experience with a clear decision to avoid such endeavors in the future. Other projects, such as Service Canada put so much attention into successfully delivering the service project on time, that it failed to maintain the political support needed to sustain service integration across multiple agencies. After several years, the idea was abandoned and services were disaggregated back into separate agencies. In sum, a budgetary and technical success was also policy failure.

All of these findings suggest a need to reconsider both the specifications of and the relationships among the dimensions in the preliminary model. One possible alternative is presented in Figure 2 below.

In this revised model, we acknowledge the pervasive influence of the political, social, economic and cultural environments, as well as the institutional, business and technical environments, by nesting these layers of environment and embedding the collaboration initiative within them. This model better conveys the idea that these environments exert both obvious and subtle influences on collaboration projects, participants, and performance.
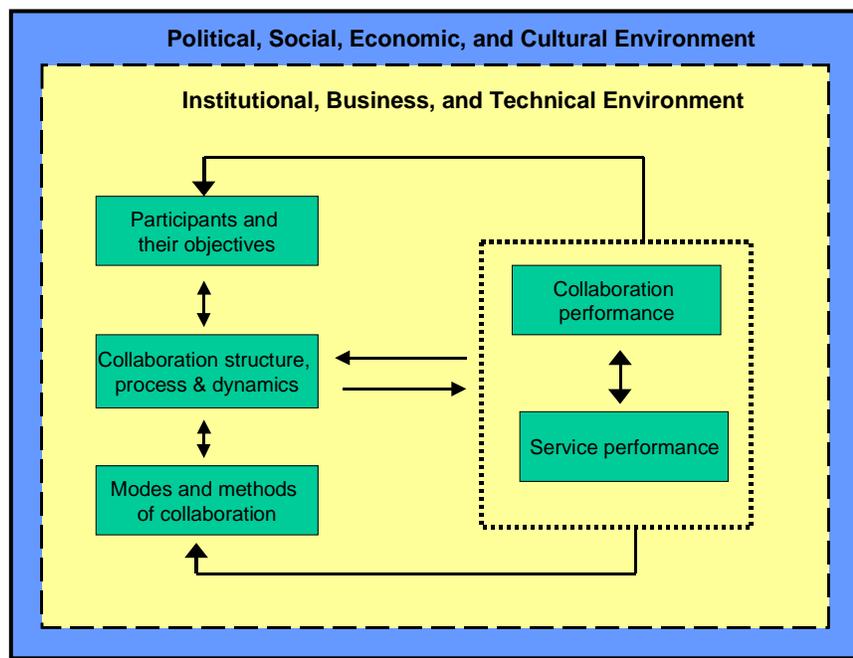
Figure 2. Revised model of service delivery collaborations

This new version of the model also illustrates the importance of the dynamic influences among the dimensions. It suggests that the collaboration process influences and is influenced by the players and their expectations, and by the modes and methods of collaboration they choose to use. The collaboration process leads to performance outcomes in terms of both the collaboration itself and the service goals it seeks to meet. These performance results continually influence the players' motivations, the tools they choose, and the way they interact. In addition, the feedback arrows shown in this revised model better represent the double-loop learning that appears to take place – the participants not only learned better ways to manage these particular projects, they also learned how to approach collaborative working relationships more generally. This iterative cycle of influences better describes the full range of experiences documented in the case studies and suggests the key factors and dynamics that shape new models of collaboration across programmatic and national boundaries.

Implications for Practice

Conceiving the collaborations in this way gave us an opportunity to think about their formation and performance in a more holistic way as a practicing manager might. Looking across all the cases the research team identified four overarching critical success factors that appear to strongly influence the performance and sustainability of these collaborations: leadership, trust, risk management, and communication and coordination. Leadership took a variety of forms and was exercised both by people in positions of formal authority and by others based on situation and expertise (Fletcher, 2003). Trust of two kinds was important: public trust in the essential transparency and fairness of the initiative and interpersonal trust in the motives and competence of the participants (Dawes, 2003). Risk management pertained to ways of managing, mitigating or avoiding external risks (that come mainly from the socio-economic, political, and technological environments) and internal risks (that stem from the nature of the project, the participants, and their relationships) (Prefontaine, 2003). Finally, successful coordination and

communication relied on several kinds of information sharing (among staff, to and from leaders, and with the public) as well as both formal governance structures and informal problem-solving techniques(Gant, 2003).

These four factors were at work in every stage of development. The survival and performance of the collaborations seemed to rest more on these factors than on such elements as structural characteristics, management tools, problem focus, technology choice, or financial resources.

Directions for Future Research

Further research could assess the ways in which these four critical success factors combine to influence results. This might be carried out in additional case studies, in surveys that operationalize the key variables and allow us to quantify their relationships, or though dynamic system modeling to test hypotheses about the changing effects of these variables under different conditions or points in time.

The revised model also presents an opportunity to think about the feasibility and usefulness of generic models of collaborative multi-organizational forms and their usefulness in understanding the evolution and performance of e-government initiatives. Most research in this area has focused on isolated aspects of this phenomenon or on the interaction of only two or three concepts or variables. This more holistic model lays a foundation for additional research that goes beyond description, as we have done here, to build a more robust and complete theory of interorganizational collaborations that involve the public sector.

Finally, the multi-national setting of this study suggests ways in which investigators in different countries and cultures might cooperatively explore these ideas in an international context. However, because all the countries included in the study are technologically advanced Western democracies with market economies, the findings may not hold true for developing countries or those with different political traditions or economic systems. These would be particularly interesting venues for replication of the research.

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