

The potential of information technology for transforming government is widely recognized. There are many available strategies for achieving these transformative effects, such as increasing transparency by making data about the process of governing more available as well as improving service quality through more integrated service programs. In most cases the strategies themselves require significant changes in the way governments and government leaders operate; in particular, they often require new levels of interoperability. In terms of improving government operations and providing services to citizens, interoperability, like technology, is not an *end* but a *means to an end*. Citizens do not demand *interoperability*; rather, systems must be interoperable in most cases for governments to deliver what citizens do demand. Exploiting the potential of information technology for government transformation through the creation of new levels of interoperability requires new forms of coordinated action across the boundaries of government agencies, national boundaries, and with partners outside the formal institutions of government.

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Governments are creating this new capability for coordinated action by operating in new network forms, i.e., networks of persons and organizations that are capable of working together, sharing information, and exchanging knowledge in order to solve problems and provide services to citizens (Dawes, Cresswell, and Pardo 2009, Pardo and Burke 2008, Christensen and Lægreid 2007, Ikenberry and Slaughter 2006, Agranoff and McGuire 2003, and UNDP undated-a).(1) Government interoperability is at the core of enabling these new networks to deliver on their promised benefits by making it possible for network members to share knowledge and other resources *in addition to* creating interoperable technological infrastructures (Pardo and Burke 2008). To leverage the power of a network form of organization, government leaders must understand that *not all organizations involved in a network need to have the same capabilities or the same level of capability* to achieve interoperability. They must understand the complementary and multi-dimensional nature of capabilities among the organizations in a network. They must also understand that while capability is specific to a setting, it is also dynamic and requires ongoing assessments to ensure that the capabilities held collectively by the network are relevant and appropriate for the task at hand.

Table 1. Government Interoperability FrameworkMaturity Levels	
Level 1	There may be evidence of interoperability within individual government organizations, but there is little to no evidence of any interoperability across agency or organizational boundaries. At this level, government agencies work independently and do not share information with other organizations; government or private sector. In addition, there is little evidence of the decision making, strategic planning, and resource and project management structures and processes needed to develop and manage ongoing or future initiatives requiring improved government interoperability.
Level 2	There is evidence of interoperability in specific policy or program areas. However, there is little evidence of interoperability across multiple networks (e.g. criminal justice networks cannot share information with public health networks). In addition, while interoperability initiatives in these areas may be planned and managed in a consistent way, the process for selecting, controlling, and evaluating initiatives is not consistent or standardized across networks or at a government wide level.
Level 3	There is evidence of interoperability across multiple networks. For example, public health and criminal justice networks can effectively share information across their two networks in support of the larger policy goal of public safety. In addition, consistent and standardized processes and structures are in place to develop and manage government interoperability initiatives regardless of policy domains. As a result, existing networks can scale and apply resource sharing and process integration across multiple policy and program areas as needed, essentially creating new networks.

The *Government Interoperability Improvement Framework* was developed to support the efforts of government leaders to build understanding of this capability-based view (see Table 1) of interoperability and to guide capability development investment decisions. The *Government Interoperability Improvement Framework* is comprised of three maturity levels considered most appropriate for guiding a government in understanding and assessing its *existing* level of government interoperability in order to determine what additional types of capabilities need to be developed to achieve the *desired* or *target* level of interoperability (Pardo and Burke 2008).

Table 2. Capability Dimensions for Improving Government Interoperability Source: Pardo and Burke 2008

<ul style="list-style-type: none"> • Governance • Strategic Planning • Business Case Development • Project Management • Resource Management • Stakeholder Identification & Engagement • Leaders & Champions • Business & Technology Architectures • Performance Evaluation 	<ul style="list-style-type: none"> • Collaboration Readiness • Organizational Compatibility • Information Policies • Change Acceptance • Technology Knowledge • Data Assets & Requirements • Secure Environment • Technology Compatibility
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Many governments are facing problems that require coordinated action not only within government, but also in the networks that involve private sector companies, non-governmental organizations, and academic institutions (Goldsmith and Eggers 2004, MercyCorps undated, and UNDP undated-b). As they seek to work together in this new way, public managers find that engaging in coordinated action across the boundaries of organizations to create interoperability requires new models of decision making; in essence, new governance capability. Governance capabilities provide the appropriate decision making rules and procedures to direct and oversee related initiatives that are planned, underway, or implemented to create new capability for interoperability (Pardo and Burke 2008).

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Research and practice have begun to identify governance as a foundational capability for improving government interoperability. Overall capability for interoperability should be viewed as a set of multidimensional, complementary, and dynamic capabilities that are specific to both a defined network of organizations and achieving a particular goal (Burke and Pardo 2008, Cresswell, Pardo, Canestraro, and Dawes 2005). An examination of the maturity levels themselves shows an increasing need across the levels for formalized cross-boundary decision making. Moving from Level 1 to 2 requires evidence of explicit investments in decision making processes to support coordinated action and information sharing with other organizations. Moving from Level 2 to 3 requires the creation of processes for selecting, controlling, and evaluating initiatives across networks or at an enterprise level. Level 3 maturity requires the use of governance capability to create consistency and standardization among processes and structures in a network.

Differences in characteristics such as the size of government, institutional structures, and political priorities make it difficult to apply IT governance structures from one government directly to another (Pardo and Hrdinová 2009, Weill and Ross 2004). For those seeking to enhance existing governance capability as a building block for developing government interoperability, there is no “one size fits all” IT governance model. This lack of a simple solution is explained in part by the reality that the governance of IT in any government environment is intimately embedded in the policies, problems, and structures of that government. This embeddedness contributes to the complexity of creating effective cross boundary governance; the greater the diversity of the organizations involved, the more complex the process of creating new governance capability can be. Regardless of this complexity, a number of governments around the world are making substantial progress in this area. Progress is being driven in large part by an increasing realization that new forms of governance are needed if governments, at any level, are to be successful in creating the interoperable systems necessary to deliver on the transformative potential of technology.

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Findings from a research project conducted by the U.S.-based Center for Technology in Government, University at Albany, New York (CTG) with New York State government provide valuable guidance for governments interested in understanding the IT governance development process and building the IT governance capabilities necessary for improving government interoperability. To support this research project, CTG conducted a current practices review of IT governance in the public sector (Hrdinová, Helbig and Raup-Kounovsky 2009) and interviews with state-level IT leaders from U.S. state governments. These findings inform a new yet important

perspective for governments attempting to improve their IT governance capabilities. This perspective recognizes that while effective IT governance structures include a generic set of components, the design, development, and implementation of these components, as well as the processes used to create new governance capability, must take context into account. This discussion is framed first in a definition of IT governance itself, followed by an introduction to IT governance in the context of public value creation. The paper concludes with the New York case example and a set of lessons from the field for creating IT governance capability. This paper contributes to the efforts of governments working to create new capability for interoperability by outlining the critical role of IT governance. It does so by building on the details of the Government Interoperability Framework (see Table 1), in particular the framework dimension of IT governance.

(1) Examples of recent terms that are being applied to cross-boundary and collaborative forms of governing include: network form of organization, whole-of-government approach, collaborative public management, joined-up government, and democratic governance.