3. Alternative Models of Effective IT Governance

Case studies of four exemplary states—Virginia, New York, Pennsylvania, and Illinois—surfaced three quite different models for achieving effective IT governance. The models differ most notably in the extent to which formal authority for IT governance is concentrated in the state’s highest-level IT office. In Virginia, for instance, a great deal of responsibility for IT activities, ranging from policy development and enforcement to project technical approval and technical services operations, resides with its cabinet-level Technology Secretariat. In Illinois, by contrast, the state’s Chief Technology Office has no formal governance authority; housed within the office of the governor, it acts chiefly by making recommendations to the governor and, through him, to the cabinet. These differences notwithstanding, the states studied have highly successful IT track records.

Three Governance Models

As explained in the Introduction to this research, a primary objective was to learn lessons about effective IT governance from other states’ experiences. For this purpose we chose four states with reasonably large populations and relatively mature IT governance offices (like California) and with track records of successful IT initiatives (unlike California). The first lesson we learned is that effective IT governance at the state level can be achieved under widely varying structural and procedural arrangements. Between-case analyses of the four states we selected yielded three distinct models that differ markedly in where the highest-level state IT office is located structurally as well as the nature and extent of its influence over major IT initiatives relative to other stakeholders.

Below we first set out, for the states exemplifying these models, the mission and structural location of the highest-level state IT office as well as its main reporting relationships. Then we provide more detailed accounts of its technical control responsibilities (e.g., strategic planning, policy formulation, standards development, enterprise-wide project oversight or evaluation, and so on) as well as its technical operations (e.g., operating or directing the operation of data centers, e-government facilities, networks and telecommunications, security procedures, and the like). Finally, we give special attention in the discussion of
each model to how technical authority and financial authority are coordinated in IT project approval processes.

We do not, of course, mean to suggest that this set of three models exhausts the options for effective IT governance; a study broader in scope might well have surfaced a larger set of models from which to draw lessons. Nonetheless, we believe the obtained set is sufficiently varied on the dimensions of research interest for purposes of this study to provide the ground for highly useful comparisons and contrasts. (Appendix A provides additional systematic comparative information from the case study sites.)

Consolidated Control: Consolidating Authority for Many Control Functions in the Central IT Office

In Virginia and New York, a great deal of authority for diverse aspects of the state’s IT program is concentrated in a central high-level office. There are, however, some differences between them in how this authority is structured.

Virginia’s highest-level office is its Technology Secretariat, headed by a cabinet-level secretary. The Technology Secretariat has two distinct but complementary goals: to enable IT to become a means for promoting economic development in Virginia’s private sector; and to ensure that IT deployment in the public sector serves to improve the performance of the Commonwealth’s missions. In fulfilling the latter aim, the Technology Secretary acts as the Chief Information Officer (CIO) for the Commonwealth. The case study emphasized the CIO-related functions of the Technology Secretariat.

Four technology-related departments report to the CIO, along with two advisory bodies: a CIO council, constituted by CIOs of private sector organizations, that gives advice on emerging new technologies; and a Council on Technical Services (COTS), comprising CIOs from varied client agencies at local as well as state levels, that advises on new opportunities to deliver improved services through technology. In the Secretariat itself, two of the departments take on significant control functions.

- The Department of Technology Planning (DTP) is responsible for preparing a centralized IT strategic plan along with related policies, guidelines, and standards (over which the Technology Secretary has final approval). Agency projects and enterprise-wide projects are approved only if they are consistent with these. DTP also has a role in project management and oversight. It has prepared standardized project management techniques, offers client agencies training and mentoring, and requires their use. After project contracts are
signed, DTP engages in oversight and has the capability to “pull the plug” if a project is failing.

- The Department of Information Technology (DIT), in contrast, is operational in orientation. It is responsible for all data processing that requires mainframe applications; it also provides technical support for other databases, infrastructure operations, networks, and the security of all back-end processes. DIT additionally has responsibility for defining IT-related procurement policies. DIT itself handles all IT procurements over $50,000; under that level, client agencies are authorized to make their own purchases (consistent with DIT’s policies). Non-IT procurements are handled by Virginia’s Department of General Services (DGS).

The Technology Secretariat has no direct role in budgeting, apart from the ability to support some enterprise-wide projects with a limited Capital Fund. Generally, IT projects approved by DTP are prioritized and forwarded to the Office of Budget along with prioritized project requests from all the other cabinet secretaries. The Office of Budget is concerned strictly with dollar amounts requested and how to finance them. It accepts technical approval decisions made by DTP and tries not to cut funding requests so as not to jeopardize projects’ success prospects; it never makes line item cuts but it may make alternative financing recommendations. The Office of Budget’s recommendations then go to the governor, who makes final budget decisions.

In New York, by contrast, the Chief Information Officer is housed within the Office of the Governor and reports directly to him but it is not a cabinet-level position. Rather, that office was created by an executive order of the governor. The Office for Technology (OFT) is a separate agency that was created by the legislature but reports to the CIO. Other IT-related agencies that are not a part of OFT (e.g., the Geographic Information Systems (GIS) Office and the Office for Cyber Security) also report to the CIO. Additionally, the state CIO is served by two advisory bodies: the CIO Advisory Council (comprising private sector CIOs who give feedback on proposed new technologies); and the Architecture Board (which represents stakeholders in enterprise-wide systems). Roles are divided between the CIO’s Office and OFT in ways that resemble the division of responsibilities between DTP and DIT in Virginia.

- The CIO has broad powers to develop and enforce IT policies and strategic plans. Agencies must prepare strategic plans that are consistent with the state plan and reflects its directions and priorities; and they are not allowed to make IT purchases until their plans are approved by the CIO. The CIO also decides on standards for basic platforms and enterprise-wide
technologies. Presently, for instance, there is a moratorium on agency acquisition of financial management systems; because so many agencies have made requests to move to upgrade their old financial management technology, the CIO and OFT are pursuing a standard or guideline in this area.

• OFT, like DIT, has operational responsibilities. It has operational authority for the data centers as well as for telecommunications and networks (including e-commerce and e-government as well as data transfers involving private health information governed by the Health Information Portability and Accountability Act (HIPAA). Further, OFT has developed a project management guide and trains and mentors client agencies in this area. If client agencies want to use centralized Technology Entrepreneurial Funds for projects, they have to comply with the project management guidelines. Finally, OFT handles IT procurement when many or all agencies will be involved. It reviews smaller procurement requests for consistency with planned or existing tools and platforms (and looks for trends in new acquisitions). After OFT approval, these kinds of purchases are handled by New York’s Office of General Services (OGS); but OFT also has to approve contractual arrangements with vendors.

Except for the capability to seed promising IT projects with the Technology Entrepreneurial Fund, the CIO and OFT do not have financial authority. Rather, that authority belongs to the Office of Budget. Early in the planning process, client agencies meet with Budget Office representatives to describe and justify their IT aims for the coming year. They get a fast response to their plans before preparing and submitting a full request. The Office of Budget does a review of the business case for IT that is independent of the technical review and makes funding decisions (although projects cannot be funded if they do not receive technical approval as well). Because of the early vetting process, client agencies’ funding requests are usually approved by the Office of Budget.

Both New York and Virginia, then, concentrate a significant degree of control over IT policy, planning, and standards, as well as technical operations and procurement authority, in their highest-level IT organization. Within that organization, both divide major roles among constituent entities so that some are predominantly engaged with IT strategies and policy guidance while others have more hands-on responsibilities (e.g., operations, procurement). In both cases, these entities also control a limited central fund for stimulating new enterprise-level IT ventures. While financial authority in the main is formally retained by a finance or budget department, technical approval is required before a project can be funded. And when proposed IT projects are aligned with state priorities and
judged to be technically sound, their funding requests are rarely denied. Future directions for both states include steps toward greater centralization and concentration of IT authority.

**Collaborative Leadership: Institutionalizing Strong Collaborative Control Relationships Between the Central IT Office and Other Stakeholder Entities**

In Pennsylvania, authority for the Commonwealth’s deployment of IT is distributed among multiple departments and agencies. The effectiveness of this approach to IT governance depends on clear articulation and constructive integration of their separate roles.

The highest state-level office, the Office of Information Technology (OIT), is one of two major branches of the Office of Administration (OA), a cabinet department. The state CIO, as deputy secretary for OA, reports to the secretary, who in turn reports to the governor. Five regular divisions within OIT report to the CIO, along with Project Boards (enterprise-wide IT projects are overseen by specially constituted boards comprising representatives of the agencies involved). Additionally, all agency CIOs have a “dotted line” relationship to the state CIO even though they formally report to their own agency heads; they meet quarterly with him. The CIO also has an advisory CIO council whose members are CIOs in the private sector; they serve as a sounding board for exploring the potential of contemplated new enterprise-wide ventures.

- IT strategic plans, policies, standards, and guidelines are developed by the CIO with assistance from his policy and planning division. New policies and guidelines are issued first as draft IT Bulletins to all agencies, which have two weeks to respond with comments. After the comment period, the Bulletin is issued in final form and becomes binding. Agency-specific IT projects are initiated and planned by client agencies themselves, but must be compliant with OIT’s standards and guidelines as well as with the Program Policy Guidelines issued by the governor’s office. Concept plans and draft budgets for IT initiatives are submitted to both OA and the Office of Budget (OB), another cabinet-level department, for early feedback, with detailed plans and budgets to follow. Technical approval authority resides with OA while financial approval must come from OB. Enterprise-wide initiatives may be generated by OIT or may arise from the bottom up when multiple agencies submit concept plans reflecting shared needs.

- Besides policy authority and technical control, OIT has considerable operational responsibility. For instance, its bureau of consolidated computer
services led the centralization of 23 independent data centers into a single operation which the bureau now outsources but oversees. Its bureau of desktop computing selects, maintains, and upgrades a standardized suite of desktop tools across the Commonwealth’s agencies. Other divisions are responsible for network and telecommunications policy and management as well as e-government planning and support. Additionally, OIT is responsible for managing enterprise-wide projects, with formal guidance from agency representatives. Project board members are able to vote on major project decisions; each agency on the board, regardless of size, has one vote. At the request of OB, OIT may also oversee and evaluate very large agency-specific IT projects.

Officially, OIT has no financial control over IT initiatives except through its Technology Investment Program (TIP) funds, which it uses to stimulate and reward innovative agency applications that have the potential to diffuse to other organizations in the Commonwealth. Formally, only OB has the authority to approve budgets. However, along with its technical review, OIT also examines budget requests associated with agencies’ proposed projects and makes funding recommendations to OB. While these are advisory in nature, in practice OB usually concurs.

A third cabinet-level department, the Department of General Services (DGS), has formal responsibility for statewide procurement policies and procedures. DGS manages all hardware procurement, handling major acquisitions itself while allowing agencies to do small acquisitions (selecting from list of pre-qualified vendors and employing standardized purchase agreements). DGS delegates procurement of routine IT services to OIT; through its Invitation to Qualify (ITQ) process and its standard terms and conditions, OIT enables agencies to acquire these kinds of services on their own. Procurement of large-scale software systems and major systems integration services is also delegated to OIT; while OIT manages these acquisitions, DGS assists in developing and reviewing the bids and contracts.

As this overview suggests, Pennsylvania’s IT governance relies on the sharing of authority among diverse stakeholders. OIT, for instance, formally empowers client agencies to share control over the development and implementation of the enterprise-level projects that will affect them. DGS delegates a substantial part of its IT procurement authority to OIT. And the Budget Office seeks and values the IT funding recommendations made by OIT while retaining official financial control. What makes this distribution of power effective, rather than crippling or divisive, is the close collaborative relationships that are cultivated by the
stakeholders. Mutual respect, plus frequent and open communication and consultation, are cited as major contributors to Pennsylvania’s success.

Advocacy: Establishing a Strong Advocacy Role for a Central IT Office That Does Not Have Formal IT Control Functions

In Illinois, the state’s highest-level IT office has no formal governance authority. It achieves its effectiveness by playing a strong advocacy role; in the service of that role it acts as a change agent and brokers relationships among other key IT stakeholders.

The position of Chief Technology Officer (CTO) for Illinois was created by an executive order of the governor; it reports to the governor’s office but is not a cabinet-level post. However, as a member of the governor’s senior staff, the CTO has direct access to him and sits in on all cabinet meetings as well. Because it is not an independent department, the Technology Office does not have to compete with other departments to win support for its plans and priorities. On the other hand, all its authority derives from the governor. To get IT initiatives accomplished, the CTO makes recommendations to the governor, who then directs the cabinet to act on them. A Board of Advisors made up of CIOs from the client agencies in turn provides advice and feedback to the CTO.

- The Technology Office is charged with recommending IT standards and enterprise-wide IT initiatives; strategic planning for IT, however, is subsumed under the state’s overall strategic plan, prepared by the Strategic Planning Office within the Bureau of the Budget (a cabinet-level department). Client agencies develop proposals for agency-specific applications, which are forwarded to the CTO for guidance. But final technical approval lies within the Office of Planning and Performance Review, also housed within the Bureau of the Budget.

- Most IT-related operational responsibilities are borne by the Central Management Services (CMS) department. Consolidated data centers, for instance, report to CMS. CMS is also in charge of IT procurement. It has established master contracts with vendors, which work well for hardware purchases and for maintenance service but are less successful for software acquisition; all systems programming services as well as systems integration have to be selected through a bidding process overseen by CMS. However, responsibility for carrying out enterprise-wide initiatives may be delegated to the CTO. For instance, the CTO was responsible for agencies’ compliance with Y2K requirements, and now all IT components of Homeland Security
initiatives have been delegated to the CTO. It is likely that compliance with HIPAA regulations will become the CTO’s responsibility as well.

In the main, financial approval for IT projects rests with the Bureau of the Budget. However, there is a general Innovations Fund on which agencies may draw to cover project initiation costs if the CTO approves; these funds allow agencies to get off to a fast start on approved projects, partially offsetting some of the delay typically associated with lengthy government planning and budgeting lead times.

The main work of the CTO is done through communication, coalition-building, and coordination. For instance, the CTO has been able to broker some partnerships between the Budget Bureau, CMS, and client agencies to facilitate major IT projects. And it has established a good working relationship with the House Technology Committee. Additionally, the CTO has negotiated with CMS to arrive at some legal compromises between the need for technology standards on the one hand and the need for fairness on the other, in order to streamline time- and resource-intensive bidding processes. Finally, the CTO has organized several ongoing outreach and education activities, including: internal IT “fairs” where client agencies come together to share best practices; an internal seminar series to promote networking as well as professional development; and “Tech Town,” an exhibit hall at the annual state fair where agencies set up booths to demonstrate to the public how IT is used in government.

Illinois’ long list of accomplished enterprise-level IT projects is impressive given the Technology Office’s relatively short history. It attributes its success to a governor who understands the power of IT for delivering services to citizens and for changing the way government agencies operate. Another key to getting IT done, according to the CTO, is having stakeholders who are committed, passionate, really willing to collaborate, and who do not give up on the shared goal of using IT effectively to perform state missions.

As is evident, case studies of the four exemplary states surfaced three quite different models for achieving effective IT governance. The models range widely in the degree to which formal authority for IT governance is concentrated in the state’s highest-level IT office. Yet, regardless of differences in where they are situated in the governance structure and in their degree of formal power, all four of the state-level IT offices we studied played substantial roles in technical control areas and in varied technical operations. And, while none had significant financial control, each had a number of procedures in place for coordinating technical and budgetary approval of IT initiatives. Moreover, despite major differences in governance models, the states we studied have highly successful IT
track records. It is likely that factors beyond formal governance structures and processes account for their positive IT outcomes. In the chapter that follows, we present success themes, identified in cross-case analyses, that contribute to effective IT governance.