4. Success Themes

The previous chapter shows three distinct IT governance models in use by the four non-California states studied. Clearly, any particular model is not a critical determiner of state IT governance success. But what then are such determiners? We asked ourselves, “What are the ‘success factors’ that allow some other states’ IT initiatives to succeed, and the absence of which may well have contributed to the failure of the former DOIT?” We attempted to identify factors for success from the literature and our interviews so that whatever IT governance mechanism California adopts in the future might be designed explicitly with these characteristics in mind. Factors from the literature are based on empirical studies of IT or business processes. Factors from interviews were included only if they were mentioned by multiple respondents in each state.

Based on these sources of data, we uncovered a number of factors that contribute to the success of IT governance. These include: executive leadership support for IT, using a collaborative management approach, showing commitment to employees during periods of organizational change, and designing and implementing IT initiatives in modular form. These factors focus largely on organizational processes rather than technical specifications, policies, procedures, or standards. This emphasis reflects a recurring theme we heard from interviewees: that the technology part is easy; it’s the organizational part that is difficult. Moreover, studies based on sociotechnical systems theory (e.g., Trist & Bamforth, 1951) confirm the importance of having good organizational/social and technical processes for effective performance. Such factors can enable successful IT governance independently of the degree of control vested in a state’s highest IT office.

We elaborate on each of the success factors we believed were common in the states studied and of substantial importance, below. In this and the two following chapters we discuss success themes, challenges, and conclusions and recommendations within three overall topic areas:

1. Governance structure and organization of statewide functions
2. Roles and functions of a statewide agency
3. Management style and context.
It is our intent that, from this structure, the reader can follow our derivation of conclusions and recommendations from success themes and challenges in each of those topic areas.

1. Governance Structure and Organization of Statewide Functions

One organizational theme for statewide IT governance stood out in our study. We label this success theme S1.1, below.

S1.1. Success for Statewide IT Governance Is Enhanced by a Direct Reporting Relationship to the Governor’s Office

As will be emphasized below (see S3.1), executive support for IT is critical. One way to demonstrate this support is through the organizational structure for IT governance. For instance, in Virginia, the Secretary of Technology is a cabinet-level position. Some interviewees stated that this structure communicates the message that the position has significant authority. In Illinois, the Chief Technology Officer sits within the governor’s office and reports directly to him. Interviewees reported that having this special status with direct access to the governor, but not being at the same level as and in competition with other cabinet-level departments for resources and attention, was a major advantage. In New York, although the CIO position sits outside the governor’s office, the governor issued an executive order establishing the CIO position and its powers. The research literature also supports the importance of having top-level champions of IT. In studies at the local and county levels, researchers have found that management support and leadership had a direct, positive influence on the commitment of employees to IT projects, organizational performance after IT implementation, and the realization of expected benefits from IT projects (Brown, O’Toole, & Brudney, 1998; Heintze & Bretschneider, 2000). A study of Fortune 1000 companies and government agencies found a significant positive relationship between top management leadership and the sophistication of IT infrastructure (Ravichandran & Rai, 2000). Other studies in the private sector have found that senior management support, championship, and commitment are critical for IT assimilation (Armstrong & Sambamurthy, 1999), for meeting procurement goals in large organizations (Avery, 2001), and for successful implementation of IT security (Internal Auditor, 1997). In fact, research on organizational change shows consistently that top management support is critical to the success of change efforts or other organizational initiatives, whether the initiatives are generated from the top down or bottom up.
A factor that contributes to placing value on IT is having executive leadership that understands the technical aspects of IT as well as good business processes. The Pennsylvania CIO is a superb example of a state IT leader who embodies these attributes. Through his experience in management positions in state government, both in IT and other aspects of business, the CIO has gained the knowledge of how IT can help the internal operations of the Commonwealth and provide services to its citizens. Likewise, in Virginia, the governor and CIO have substantial previous experience in the IT industry, which has enabled them to recognize how IT can improve business practices in the state. In fact, several interviewees in Virginia commented that the current governor and CIO “get it” when it comes to IT. Having a CIO and governor who “get it” not only contributes to the development of sound IT practices, but it enhances the leaders’ credibility, which, in turn, engenders needed support from staff.

A focus on IT also depends on support from the legislature. In Pennsylvania, for instance, the CIO has good relationships with members of the legislature. Consequently, they support many of his recommendations. Similarly, in Illinois, the CTO has a very strong working relationship with the House Technology Committee, which has served the office well. Both states consider the support and understanding of IT by the legislature to be an important component of their success. In contrast, several respondents in Virginia and New York commented that members of their legislature do not understand IT and view it as a cost. Some in Virginia also commented that current or future legislation might make it difficult to implement the strategic IT plan by restricting the power of the Secretary of Technology’s office. Whereas their CIO and governor work together effectively, it was not clear that they have such relationships with members of the state House or Senate.

2. Roles and Functions of a Statewide Agency

Two success themes relate to the roles and functions of a statewide agency: commitment to employees (those within the agency itself, as well as IT professionals in other state agencies); and emphasis on a modular approach to system development and procurement.

S2.1. States with Successful Information Technology Initiatives Demonstrate Commitment to Employees During Major Changes

One role of a statewide IT agency is to provide substantial career paths for IT professionals within the agency itself, and to aid in providing such paths for IT professionals in other state agencies. In concert with a collaborative approach
(see S3.2, below) we found leaders who demonstrate a commitment to their employees’ jobs and career opportunities in states with exemplary IT practices. There are several examples from Virginia. For instance, in Virginia, although the DMV was initially opposed to the directive to use VIPnet, executive leadership jumped on board and used the situation as an opportunity to restructure the department and make it more efficient. The DMV also retrained employees, allaying fears about layoffs across the state. When the Department of Taxation began its public/private partnership with AMS, the commissioner explained to employees that the change was not about cutting jobs and that all employees were needed to make the project work. Employees were flexible, took on new roles, took advantage of opportunities to learn by working side-by-side with AMS staff, and ultimately became owners of the project. When SAP workflow software was implemented in the Department of Corrections, the CIO used involvement, cross-training, and open communication that emphasized that employees would not lose their jobs. Similarly in Pennsylvania, when the OIT decided to consolidate 23 independent data centers into one, it made a commitment to train and redeploy personnel who would be displaced by the consolidation. The OIT followed through on this promise, which strengthened its credibility as an entity that keeps its word. A number of interviewees commented that through restructuring and retraining, employees gained opportunities to learn new skills. These efforts also freed up personnel to take on new projects, enabling the agencies to accomplish more of their IT objectives.

S2.2. Using a Modular Approach to Enterprise Initiatives Has Numerous Benefits

Another success factor cited by many of our interviewees is use of a modular approach to development and implementation of IT initiatives. Pennsylvania uses a concept referred to as an “energy burst development process,” which was borrowed from an e-trade company. In short, it designs projects in modules in which benefits are delivered every 90 days. It can stop the full project and still have fully functional pieces with only three months of risk. This process shows value in a short time, and the ability to demonstrate results fosters subsequent employee motivation and support. A specific example from the Commonwealth is PA Open for Business, the web portal for small business owners (see http://www.paopen4business.state.pa.us/). The Commonwealth added a new piece to the website every 90 days until it became fully interactive. In 1995, Pennsylvania was one of only three states that did not have such a website; in 2001, it earned second place in Government Technology’s annual, prestigious “Best of the Web” competition.
This modular approach also applies to the way in which initiatives are rolled out. For instance, the Pennsylvania portal was initially rolled out to a few key agencies. Agency heads talked to each other, which eventually led to a critical mass of participants.

We also saw examples of this approach in Virginia within specific agencies. For instance, the Department of Taxation undertook a large IT initiative to reengineer its tax collection processes four years ago including centralization of functions such as scanning, customer service, call center operations, and executive offices. It began by replacing all the existing software with new technology to support reengineered processes in imaging and scanning, followed by an Internet initiative and a customer relations initiative, accounting system changes, and an electronic collections system. It planned to close nine district offices, and began by closing two of them to show that it was effective. Auditors and collectors work from home or go to other agency offices for services such as teleconferencing. Ultimately, all 250 audit personnel will be mobile. The department decided to implement all of the customer-facing tools first, then the employee-facing tools, and last, the back-end system. It wanted to make small infrastructure improvements that could impact stakeholders. The Department of Corrections also uses incremental steps to change, and reports that successes encourage employees to continue their efforts.

3. Management Style and Context

Two management factors stood out in our interviews: knowledgeable executive support, and a collaborative management style.

S3.1. Executive Leadership Support for and Knowledge of Information Technology is Essential for Success

States with exemplary IT practices have executive leadership (governor and state CIO) who are champions of IT initiatives. All four of the states we visited exemplify this characteristic. These leaders emphasize the value of IT for the state in performing its missions. They view IT as an investment, rather than a cost, and they focus on using IT to provide services for citizens (rather than emphasizing return on investment (ROI), for instance). Indeed, empirical research in the public sector concludes consistently that IT investment pays off. Studies at local, county, state, and federal levels show that public sector IT investment has a direct, positive effect on productivity and performance (Brown, 2001; Brown, O'Toole, & Brudney, 1998; Heinze & Bretschneider, 2000; Lee & Perry, 2002; Lehr & Lichtenberg, 1996, cited in Lee & Perry, 2002). A study of IT
investment by state governments, based on data from all 50 states, showed a
direct, positive effect on economic productivity, as measured by Gross State
Product (GSP). This held true whether IT investment was measured in financial
terms or by a performance index based on total computer processing power (Lee
& Perry, 2002).

Support for IT from state governors and CIOs is demonstrated in concrete ways.
First, IT is an important part of the administration’s agenda. The governors in
the four exemplary states have clearly articulated goals for the use of IT in their
states that are well known to the rest of the administration. In Pennsylvania,
then-Governor Ridge gave the Office of Information Technology substantial
authority to carry out its mission through both a management directive and an
executive order that outlined his “priority to bring Pennsylvania to the forefront
of the IT world.” Interviewees in all states consistently cited support from top
leadership as key to the success of the states’ IT initiatives. As we explained
earlier (S1.1), a direct reporting relationship to the governor’s office can signal
such support; but such structural arrangements do not by themselves guarantee
that executive leaders will be effective champions of IT initiatives, as the
California case illustrates.

S3.2. A Collaborative Management Style is a Key Factor in States
with Exemplary IT Governance

A participative management style, with an emphasis on collaboration and
communication, is important. There are two key aspects to this process. First,
executive leaders involve staff in making decisions that affect them. Involving
staff members helps create the buy-in that can make projects successful, which is
particularly important in achieving organizational change. It also means that
there are fewer surprises for personnel who are affected by changes in policies
and procedures, which engenders trust in the leadership. (Note, however, that
participative management should not be interpreted to mean that the CIO or
governor gets too involved in or micromanages the day-to-day activities of his or
her staff.) Second, teams are used to share information and make decisions. In
the past decade, literature in management has stressed the value of using teams
(e.g., Bikson, Cohen, & Mankin, 1998; Cohen & Bailey, 1997). In comparison to
individuals, teams have a diversity of knowledge and skills to bring to their
work, which enhances performance on complex tasks. Team collaboration
enables organizational members to share information and perspectives that can
improve local business processes. With respect to IT governance, collaboration
gives staff opportunities to learn about other IT initiatives across the state and
potentially join forces and realize greater economies of scale. A collaborative
approach also provides opportunities for members of control agencies and client agencies to work together and develop the trust and interpersonal skills that support enterprise-wide efforts.

The primary role of business units or agencies in determining the goals of IT is emphasized in several empirical studies. A program to introduce IT in the Charlotte-Mecklenberg Police Department, for instance, began with several rounds of interviews and focus groups to find out what kind of information officers and other employees thought they needed in order to do their work better; once the resulting IT system was implemented, between half and three-quarters of officers perceived a three-fold or better improvement in performance, efficiency, call-response, and problem-solving productivity (Brown, 2001). Several studies emphasize the importance of letting business units or agencies who will use the IT set the agenda by proposing initiatives, controlling the financing, and being continuously involved in the planning and testing of IT projects (Radosevich, 2001; Internal Auditor, 1997; Kiely, 1997; Northrop, 2002; Avery, 2001). Two studies also demonstrate the benefits of using teams with diverse knowledge and skills; these researchers found that involving people with both business and technical expertise in procurement and outsourcing decisions was better than either group operating alone (Avery, 2001; Lacity & Willcocks, 1998).

In Pennsylvania, virtually everyone we interviewed identified the CIO’s collaborative approach as a key factor underlying the success of IT. He meets regularly with agency CIOs and other agency IT personnel as well as with members of the OIT. He rarely issues mandates; instead, he involves personnel, uses a problem-solving approach to situations, and empowers staff to implement plans. For example, OIT’s Bureau of Consolidated Computer Services (CCS), which was responsible for the consolidation of the Commonwealth’s data center operation, had access to a large data center transition fund that could be used for unanticipated costs that arose during the consolidation effort. This allowed CCS to make quick decisions when faced with a roadblock, without having to go to the Office of Budget for each new request. A small amount of money is still available for this purpose, but it is used infrequently.

Consistent with a participative management style, the Pennsylvania CIO emphasizes “carrots” versus “sticks.” One example of a carrot is funding to help agencies develop new IT projects. For instance, together with the Office of Budget, the CIO established a Technology Improvement Program, which provides seed money for agencies that develop cross-agency initiatives, particularly e-government applications. This money allows agencies to be responsive to rapid changes in IT without having to go through the 18-month
funding and procurement cycle for each new purchase. OIT told agencies if they put together a business case outlining why their request was important and how they would partner with other agencies to show a single face of government, the money would be available to them to use.

The Pennsylvania CIO also is quick to give credit to agency personnel for IT successes; he makes an effort to recognize performance with rewards such as staff luncheons, T-shirts for transition leaders, and expressions of appreciation from himself or the governor by e-mail, videotape, or in person. Many interviewees described the CIO in terms such as “motivator,” “team-builder,” “creates an atmosphere of mutual respect,” and so forth.

The Pennsylvania CIO uses collaborative approaches in other ways as well. He has a board of 18 corporate CIOs from the private sector (which excludes technology service providers to avoid conflicts of interest). As noted by an interviewee in Virginia, the states can learn a lot from the private sector, and credibility is enhanced when state decisionmakers have the backing of the corporate world. The Pennsylvania group meets quarterly with members of the OIT to provide advice and act as a sounding board. The CIO also collaborates with his peers in other agencies. For instance, he decided early on to form partnerships with his counterparts in the Office of Budget and Office of Human Resources, to keep them updated on the status of OIT’s activities and involve them in decisionmaking. This effort has gone a long way in establishing trust in the CIO and OIT by the Office of Budget, which has financial authority over projects. It is unusual for Budget to reject a request supported by OIT because of this relationship. In addition, the former director from Budget now serves as the Chair of the Appropriations Committee in the state congress, a relationship that helps the OIT achieve its objectives via the legislature. The CIO’s relationship with the Office of Human Resources has been advantageous as well because of its involvement with personnel and training issues.

Another important aspect of collaboration exemplified by the Pennsylvania CIO is his emphasis on building coalitions with local governments and explaining successful IT projects in terms of service delivery and benefits to local communities. For example, Pennsylvania’s Justice Network (J-NET) is a nationally recognized model for interagency sharing of public safety information. OIT stressed successes like number of criminals taken off the street to illustrate the project’s impact on the community. It also worked hard to get the endorsement of local police departments for the project. This grassroots support makes the selling of IT projects much easier, particularly to the legislature, which hears positive feedback from its constituents.
The Illinois Chief Technology Officer also exemplifies strong collaborative processes. The CTO lacks formal authority, so she relies mainly on communication and collaboration with state agencies to achieve IT objectives. Like the Pennsylvania CIO, she has a Board of Advisors comprised of agency CIOs. This board began as an informal complaint group, but now serves a formalized advisory role to the CTO. The CTO also serves as facilitator for a seminar series in which agencies present their IT activities to their peers. In addition, the CTO sponsors a popular exhibit hall at the state fair, called “Tech Town,” where agencies present to the public how IT is used in government. The exhibit hall also serves as a networking and information sharing activity between agencies as they have the opportunity to learn about what each of the others is doing with IT in its organization. All of these activities facilitate important internal collaboration and information sharing.

The Secretary of Technology in Virginia too has an internal committee of agency CIOs and representatives of local government (the COTS board) as well as a CIO advisory board from the private sector (see http://www.cio.state.va.us/). However, several interviewees remarked that these resources could be used more frequently.

This does not mean that every decision is based on collaboration or that collaboration is always necessary for successful outcomes. For instance, in Pennsylvania, the previous governor mandated the decision to have a single email system and desktop software. This initiative, called “Commonwealth Connect,” saved Pennsylvanians an estimated $9.2 million in software costs over three years and continues to save taxpayers an estimated $9 million a year in productivity gains and related savings, as calculated in a study conducted by Xerox. Standardization of email and desktop software also has facilitated communication and file sharing among employees. This initiative was a winner in the National Association of State Chief Information Officers 2001 Recognition Awards for Outstanding Achievement. In Virginia, the DMV was required to use VIPnet. As we described above, the DMV was successful in this initiative. Despite the compulsory nature of these projects, in both situations, the agencies affected by these decisions were given the freedom to determine how to implement the directives. This strategy is consistent with recommendations by Hackman (1998), who argues that teams are motivated to perform when they are given the ends (goals), but allowed to determine the means to achieve those ends. Of course, it is important to give goals that are achievable and to provide organizational resources and support that enable teams to meet their objectives (Hackman, 1998).
In the preceding discussion, we outlined and illustrated a number of success themes that characterize effective IT programs in states that rely on markedly different governance structures and processes. The next chapter treats IT governance challenges that all states must address and resolve—not necessarily in similar ways—to enable effective IT deployment.