

6. Conclusions and Recommendations

We present here the key conclusions we believe can be drawn from this study and make recommendations regarding effective IT governance for California. Again, we structure both conclusions and recommendations within three categories: governance structure; roles and functions of a statewide IT agency; and management style. We trace our conclusions back to relevant success factors, challenges, and governance models, and point forward from those conclusions to relevant recommendations.

Conclusions

1. Governance Structure and Organization of Statewide IT Functions

Our survey of other states leads to the conclusion that:

N1.1. It is possible to provide visionary management, oversight, and control of major information technology initiatives at the state government level.

In other states, notably Pennsylvania and Virginia, we found effective governance mechanisms in place. To be sure, some projects had funding or schedule overruns. But we found capable management and frequent cooperation between IT/CIO leadership and budget/finance departments, resulting in an overall vision for service delivery and supporting infrastructure within the state, statewide IT projects vital to the states' operations, and improved ability to reach citizens and residents with needed services. Even central IT offices with a shorter history than the former DOIT had a longer track record of successful initiatives.

N1.2. There are several models of IT governance exhibited by various states; no one is the "right" one, but some are more relevant to California's current context than others.

In Chapter 3, we described three models of IT governance encountered in other states: "consolidated control," "collaborative leadership," and "advocacy." All three appear to be operating with considerable effectiveness within their own diverse state contexts. The models differ primarily in the degree of authority they give to a state-level IT office in technical, financial, operational, and

procurement areas. It is possible to evolve from lesser to greater authority as a state-level IT office demonstrates competency and earns trust over time.

Regardless of governance model, the states we studied have an organizational statewide focus for IT developments. We conclude that California would be best served by reestablishing a state IT agency to act as that focal point (recommendation R1, below). Because of the size and scope of California's IT developments and procurements, and a poor track record to date for "collaborative" effectiveness in a California IT agency, we believe the "consolidated control" model may be appropriate for a new attempt at an effective California IT governance agency—while providing substantial in-house technical expertise in that agency to guide statewide development and procurement initiatives. Our recommendations, below, lead toward the establishment of an agency based on that model.

N1.3. Other states have decided that there are significant advantages in consolidating state data centers.

Almost uniformly, other state IT control and advisory agencies have concluded that there is considerable duplication and redundancy in their state's existing data centers, and that cost savings can be attained by consolidating them. A California interview noted that data centers offer duplicate services and that the economies of scale will not be realized until they are realigned along lines of services rather than the silo structures that now exist. Another state describes decreases in IT operating personnel from such consolidation of nearly 50 percent. Other reasons for consolidation are: (1) to create a career path for IT professionals that might not exist in individual client agencies; (2) to form a critical mass of expertise in IT skills and to promote uniform training of IT personnel in new techniques and technology; (3) to manage security of networks and nodes professionally and centrally, since any "weak link" in state information security might endanger other systems.

Deciding on the appropriate degree of centralization was listed as challenge C1.1. We find the reasons for greater centralization of IT services—and the need for that level of expertise in a new California IT agency—sufficiently compelling that we recommend (in R1.3, below) that California's data centers—particularly Teale—report to a single new IT agency.

N1.4. Direct support from the governor's office for critical statewide IT initiatives is a key success factor in other states.

In the four other states studied for this report, there is direct support for IT initiatives from the Office of the Governor. That support appears to be crucial in

getting the diversity of agencies and departments “pulling together” toward a few common IT goals and systems needed statewide¹ (see success factor S3.1, above). California did not consistently receive such support for state-level IT initiatives.

The importance of this conclusion leads us to recommend (R1.1 and R1.2, below) that a new IT agency should report directly to the Office of the Governor, with the state’s CIO possibly heading this new agency.

2. Roles and Functions of a Statewide IT Agency

Regarding appropriate roles and functions of a statewide IT agency, our primary conclusions are:

N2.1. Other state IT agencies conduct IT development activities and have been successful using a modular approach that provides both metrics for managing progress and tangible results to keep developers and clients motivated..

Modularity in IT development has two distinct aspects: (1) intermediate *deliverables*, allowing accomplishments to be measured, and (2) staged, incremental *deployment* of a system (e.g., by subsets of agencies).

The importance of modularity in IT system development and deployment was emphasized in success factor S2.2, above. The challenge of developing metrics is discussed in C2.3, above. This emphasis on modular development is reflected in recommendation R3.1, below.

N2.2. The yearly budget planning and approval cycle creates excessive delays and bureaucracy for major IT development/procurement initiatives.

Although development and approval of a yearly budget is a major control mechanism for California state government, it creates 18-month-long planning and approval rituals for major IT developments, which are often obsolete by the time funding and authority to proceed is received. Other states have used special funds as “incubators” for multiyear, multiagency IT developments to great effect, as a means of partially ameliorating the effects of the yearly budget cycle.

The unique characteristics of state government, and their effects on IT governance as well as IT budgets, were discussed as challenge C1.3. The

¹An interviewee commented that California’s response to Y2K exhibited all those positive characteristics: support from the highest levels of government, a clear goal, and success in marshaling resources throughout government to address the problem.

importance of having cross-fiscal-year “incubation” funds leads to our recommendation R2.4 regarding establishment of such funds in California.

3. Management Style and Context

We believe a focus on management style and context for statewide IT functions is important, because it recurs in discussions of “success factors” in other states, and as a reason for lack of success of the previous DOIT agency. Our conclusions in this topic area are:

N3.1. The former California DOIT was not sufficiently effective, for several specific reasons.

Several factors contributed to the lack of success of DOIT: (1) There appears to have been a lack of vision and prioritization of goals; DOIT attempted to do too much, spread too diversely, with its available resources. (2) DOIT was not given, in the end, the skilled, experienced personnel nor the clear authority (especially vis-a-vis roles of the Department of Finance) to accomplish what was needed. (3) A particular leadership style appears to be necessary (see following conclusion), and the previous management was not as effective as needed in this particular style of management.

This conclusion derives from the discussion of the former DOIT in Chapter 2, and the California interview summaries in Appendix B.

N3.2. Leadership style appears to be a critical success factor; genuine collaboration appears to be much more effective than hierarchical command-control.

A collaborative, cooperative management style appears to be a key “success theme” (see S3.2, above) in gaining the cooperation of client agencies, of the legislature, of budgetary/finance control agencies, and of the Office of the Governor. This management style is especially necessary in large state governments with competing interests, various control and client agencies (some with large constituencies and revenue sources), and differing branches of government.

We make an explicit recommendation regarding collaborative leadership style in R3.2, below.

N3.3. A variety of useful IT oversight/advisory mechanisms and partnerships are in use in other states. We discovered useful models of the composition and

function of various advisory boards and other mechanisms for collaboration used to foster communication and cooperation among diverse agencies in other states.

There is also significant use of public/private partnerships as a means of providing expertise from companies to which some services and functions can be outsourced, without becoming dependent on them. These partnerships also either generate funds or save money for the state.

We recommend use of advisory boards for the new IT agency in R3.3, below.

N3.4. California’s Department of General Services should be encouraged to utilize mechanisms that reduce the arduous processes for purchasing routine or standard equipment and services, such as master service agreements and statewide license agreements, while instituting safeguards to ensure fairness.

In other states studied, we found procurement of IT-related goods and services to be effective and efficient through the broad use of master contracts and agreements, with standard legal contract language promulgated for use by agencies, and with periodic outreach to, and solicitation of, new firms to be put under contract. Until recently, California also employed these types of agreements and licenses, but has since retreated from such mechanisms rendering most IT purchases subject to a lengthy procurement process.

N3.5. IT oversight and governance in California have now been reconsolidated within the Department of Finance; prior experience indicates that moving some of this power and control to a new agency will involve significant political infighting, possibly resulting in compromises that would again cripple the resulting new agency.

Lessons from the establishment of DOIT should be learned and mistakes not repeated. Under any foreseeable near-term future, Finance will retain overall budgetary control, as is appropriate. At present, it now asserts responsibility for “. . . providing oversight of the most critical IT projects . . . and provide[s] direction, as necessary, on remediation efforts, . . . and provide[s] appropriate notification to the administration and Legislature of project oversight activities, and project risks and remediation efforts.”² That same document states that “. . . all IT policies and procedures will be promulgated through Finance [Budget Letters].” Any alternative agency or organization created to handle some or all such activities must necessarily wrest these powers from Finance, which will be reluctant—for understandable reasons—to see them placed in an untested,

²Budget Letter 02-37, “Statewide Information Technology Oversight,” Department of Finance, October 16, 2002.

untrusted new agency. To the extent that the power to alter proposals for IT developments continues to rest within Finance, a number of interviewees (Appendix B) stated that a mechanism should be developed by which Finance is held accountable for delays, cost overruns, and other problems caused by such actions. At present, the burden and accountability for dealing with adverse effects of such Finance decisions appears to fall on the client agencies implementing these projects.

The following section states our recommendations for future IT governance in California, within the context of the above conclusions. Although opinions about the best path forward for California vary, we have tried to create a mutually consistent set of recommendations, compatible with our conclusions and having considerable explicitness, in order to provide a detailed structure and proposal for discussion. (In an earlier, interim briefing to key California IT professionals regarding our findings, such explicitness was requested by participants so that the implications of our recommendations could be debated and explored.)

Recommendations

There is a clear need for statewide IT system advocacy, planning, and coordination. These activities require a core cadre of professional IT specialists with significant skills. To achieve these goals, we make recommendations on (1) the structure and organization of a new IT agency for the state, (2) roles and functions to be performed by this agency, and (3) issues of management style and context for success.

1. Governance Structure and Organization of Statewide IT Functions

Based on our study's findings, we recommend that:

R1. A new agency of information technology should be established for California.

From the experiences of other states, showing the importance of the authority and interest of the Office of the Governor in creating momentum behind statewide IT initiatives, we recommend:

R1.1. This agency should report directly to the Office of the Governor.

It should be appropriate that the new agency be a cabinet-level office or otherwise have direct access to the Office of the Governor, to demonstrate the importance of IT developments within the state.

R1.2. The California Chief Information Officer (CIO) could remain as part of the governor's office (with the new agency reporting to it) or head this new IT agency.

To obtain and retain a critical mass of in-house IT expertise, and have responsibility and authority for statewide system security, we recommend that:

R1.3. Existing statewide IT data centers (e.g., Teale) should report directly to this new agency, and the new agency should have operational authority over statewide IT systems and services.

To the extent that the agency can demonstrate savings from consolidation, other agency data centers could, over time, become consolidated with the state data center.

R1.4. The existing offices of e-government and IT innovation, now located within the governor's office, should be consolidated within the new IT agency.

Among the activities these consolidated offices can perform—most likely in conjunction with advisory committees—is IT technology forecasting. These forecasts can help guide IT planning throughout the state's agencies and departments. To the extent that the e-government office has operational authority (e.g., operating the e-government portal for California), that authority should also reside in the new IT agency.

R1.5. The technical parts of the existing TIRU and TOSU groups within the Department of Finance should be transferred to the new IT agency. They should be responsible for reviewing major IT initiatives for consistency with the state IT strategy and priorities, with enterprise-wide applications (existing or planned), with technology standards, and with emerging trends (from forecasting). They will also review, initially and at follow-up intervals, proposed project management activities and progress metrics. The resulting recommendations should be reported to Finance, whose job will be to review the business case, taking into account the new IT agency's recommendations.

We recommend that not just the technology *charter* of these groups be transferred, but rather the majority of the *technical personnel* with the skills and experience existing within those groups should be transferred as well. With these skilled personnel and statewide data center personnel, the new IT agency will be properly staffed and positioned to provide technical approval and

oversight for major IT development projects. The suggested restructuring will have two effects. First, it seeds the key skills that the new governance organization will require to be successful. Second, it yields a clean division of responsibilities that minimizes overlap and competition.

It is important to underscore that operational responsibility and the experiences gained from it are central to the successful IT governance processes examined in this report. They provide the governance processes with two things. The first is credibility with agencies that are responsible for developing and operating IT systems—the governance process speaks from experience and becomes a peer with other agencies with responsibility for IT. The second is that experience tempers the IT strategy, recommendations (e.g., standards), and review processes—the governance is not seen as being theoretical but impractical in its findings and directions. Therefore, critical to the success of recommendation R1, above, are recommendations R1.3 and R1.5.

2. Roles and Functions of a Statewide IT Agency

We now consider roles and functions to be performed by the new IT agency.

R2. The key roles for the new IT agency involve advocacy of statewide IT initiatives, coordination of IT activities, and technical approval of major IT projects and procurements.

Among the specific activities that should be given priority by the new IT agency are these. (We list these in the approximate order in which they need to be addressed, either because of urgency or because some later activities depend on the results of earlier ones.)

R2.1. The new IT agency should be the “single voice” for advocating and developing statewide IT initiatives.

R2.2. The agency should develop and promulgate a statewide IT strategy and priorities for improving the performance of state missions.

R2.3. The agency should provide technology scanning and forecasting functions for the state and its agencies and departments.

R2.4. The agency should be provided a special fund to stimulate and promote new crosscutting IT initiatives. This fund should be replenished yearly, and not require normal budget review, allocation, and control procedures for its expenditures.

R2.5. The agency should stimulate development of significant crosscutting IT statewide applications, such as initiatives to enhance security of the state's information systems.

Information security and safety is one of the primary statewide IT initiatives that requires a high degree of technical skill and statewide coordination, since a “weakest link” in state IT systems may allow access to other agencies’ data and systems.

R2.6. The agency should establish criteria (such as consistency with the state IT strategic plan, priorities, and metrics it develops for the effectiveness or importance of an IT initiative) by which new IT initiatives are to be judged and approved by Finance. Decisions on IT-related projects made by Finance should be justified by Finance in terms of these criteria, as well as in terms of the business case.

R2.7. The agency should lead in developing a statewide inventory of IT equipment and systems.

This inventory would serve as the baseline for understanding yearly costs for installed IT-related systems and services, and for establishing normal “refresh” cycles and their associated costs and savings for replacing outdated equipment.

3. Management Style and Context

Because of the importance of management style and context in successfully operating a state IT agency, we make several recommendations regarding management issues for the new agency:

R3. Establish a context and management style conducive to success.

The management approach of the new IT agency should rely on the success factors listed earlier in this report, and establish priorities for addressing the challenges listed. Several means for accomplishing this stand out:

R3.1. The agency should create an evolutionary strategy for IT developments stressing modular development and early successes and should involve stakeholders in planning and implementation.

Those early successes are vital in establishing trust for this new agency, upon which much of its effectiveness depends.

R3.2. The agency should develop regular, collegial relations among the new IT agency, the Department of Finance, the legislature, and agency and department CIOs.

Those relationships can include education (e.g., of legislators, regarding opportunities, costs, and benefits of new IT statewide initiatives), information sharing (e.g., regarding expected overall IT budgets for various departments and agencies within which those units' plans must be considered), and stimulation of shared IT initiatives among several departments or agencies that might allow sharing of development costs.

R3.3. The new IT agency and state CIO should be encouraged to establish advisory board(s) to help them assess future directions of IT technology and obtain lessons learned from IT governance within major corporations and nonprofit organizations.

These advisory boards should not, of course, have members with affiliations with organizations who are, or are potentially, suppliers of IT goods and services to the state.

R3.4. The agency should address "change management" issues, regarding how new systems, services, and capabilities are phased in and older ones phased out.

Particularly important in addressing change management is the treatment of state IT employees as new systems and skills are required, and older ones become obsolete. Effective (re-)training programs should be established, career paths for IT professionals developed, and issues of the "graying" of the workforce (with many workers due to retire in the coming years) addressed.

In summary, the proposed new IT agency has roles to play in all phases of the state's information technology development process.³ For example,

- *planning*: developing a statewide IT strategic plan; technology forecasting; liaison with agencies' CIOs, Finance, and other participants in IT project planning
- *approval*: providing technical approval of major IT projects, or cross-agency and enterprise-wide projects; developing criteria by which such approval is judged

³This listing of development phases is taken from Figure 1 of "Information Technology: The State Needs to Improve the Leadership and Management of Its Information Technology Efforts," BSA, June 2001.

- *procurement*: providing periodic oversight of technical IT procurement processes, for example, to ensure a lack of conflict of interest
- *implementation*: developing and providing an IT project management skilled labor pool to assist other agencies as needed, and promoting modular, staged implementation of large-scale projects
- *evaluation*: developing metrics by which IT project success can be measured, consistent with the business plan within which they are operating.

We believe that the recommendations listed above are both feasible and important for the State of California. Through these measures, California can develop a vision and strategy for exemplary IT governance and can then deploy advancing technologies to achieve the state's key missions. In a period of resource constraints it is even more imperative that the power of information technology be focused on effective and efficient provision of services to the state's residents.