

RAND

*Effective Use of Information
Technology*

*Lessons about State Governance
Structures and Processes*

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Preface

The study reported here was undertaken because of questions being raised about the effectiveness of information technology (IT) governance in the State of California. Created in 1995 by the California legislature, the Department of Information Technology (DOIT) was to provide leadership, guidance, and oversight for IT initiatives and projects throughout the state. By the summer of 2002, DOIT would cease to exist, but the need for what DOIT was chartered to do would continue.

RAND, as an independent nonprofit research organization, responded to a request for proposals to conduct a study of California's IT governance structures and strategies for the Bureau of State Audits. The request for proposals resulted from legislation aimed at determining whether California's IT program complied with best practice and identifying any reforms needed. Between the time of the original legislative request and the awarding of the study contract to RAND, DOIT's sunset clause was allowed to take effect. The orientation of the study was therefore refined to emphasize how California could best take advantage of prior experience, both in that state and elsewhere, to shape future directions in IT governance.

This report is intended to inform and advise policymakers in the state of California about the next steps toward effective IT governance structures and processes. However, we believe the findings and recommendations will be of interest to a broader range of decisionmakers, stakeholders, and researchers concerned with how best to deploy advancing IT to serve public sector missions.

The project was housed within RAND's Science and Technology (S&T) research unit. Its charter is to assist government and corporate decisionmakers in developing options to address challenges created by scientific innovation, rapid technological change, and world events. RAND S&T's research agenda is diverse. Its main areas of concentration are science and technology aspects of energy supply and use; environmental studies; transportation planning; space and aerospace issues; information infrastructure; biotechnology; and the federal R&D portfolio.

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Summary

In 1995, the California Department of Information Technology (DOIT) was created to provide leadership, guidance, and oversight for Information Technology (IT) initiatives and projects throughout the state. By 2002, DOIT would cease operation, but the need for what DOIT was chartered to do would continue.

California, the most populous state in the union, is governed by a multitude of agencies and departments each with a mission to support the business of the state. The complexity of the state's governance and other circumstances created challenges for DOIT as it attempted to achieve its mission. Some of these challenges can be traced to the composition and organizational placement of DOIT, others stem from the all-encompassing charter of being both an advocate and control organization, and still others are a result of the inability of state IT stakeholders to collaborate.

To determine what lessons can be learned from states with exemplary practices in IT governance, we conducted case studies in Virginia, New York, Pennsylvania, and Illinois. The studies surfaced three quite different models for achieving effective IT governance. They varied substantially in the extent to which formal authority is concentrated in the state's highest-level IT office as well as where that office is located in the governance structure and how it interacts with other stakeholders in IT initiatives.

Cross-case analyses plus a review of relevant research literature enabled us to identify a number of common factors likely to account for successful IT programs under different governance models. These include: (1) executive leaders who are champions of IT and emphasize its value for achieving state missions; (2) a management style that is participative and collaborative, that emphasizes "carrots" over "sticks," and that evidences a commitment to employees during periods of change; and (3) a modular and incremental approach to development and implementation of IT initiatives. These factors did not characterize California's approach to IT governance.

Besides common success themes, there are a number of common challenges faced by states, regardless of their approach to IT governance. Most of these challenges involve making decisions about tradeoffs among competing interests and approaches, with no particularly right answers. Among the most critical

challenges is the need to determine the appropriate amount of centralization of state IT functions and the degree of standardization of IT systems. A related challenge is ensuring public values such as equity through competitive procurement when deciding on the degree of standardization. The decision whether to outsource IT operations poses a challenge for state government, which must weigh the benefits of the flexibility gained from contractor-provided services against developing overdependence on such services. In deciding on the appropriate strategic approach, states face a challenge in developing an IT strategic plan focused on IT, or developing a business strategy in which IT plays a supporting role. Another issue faced by state governments is the establishment of an IT inventory and a regular refresh cycle of IT office equipment, lessening the burden of the approval and procurement process requirements for such routine purposes.

Moreover, operating in the public sector poses some unique challenges that state governments must face in carrying out their IT operations. Critical decisions about the type of oversight for IT budgets and procurements must take into account the appropriate level of oversight to ensure accountability, while giving agencies enough flexibility and discretion to meet their IT needs. Another challenge unique to the public sector is the effect of administration turnover on the continuity of the statewide IT vision. In addition, the lengthy state government budget cycle causes major problems for IT development. The impending baby boom retirement also has major implications for the public sector because of its limited ability to hire enough personnel with the needed IT skills. Lastly, the importance of executive leadership for IT and the creation of a collaborative organizational culture are challenges that must be addressed, particularly in California.

We conclude that other states are providing visionary management, oversight, and control of major IT initiatives at the state government level in the face of such challenges. Those states' governance structures differ in the amount of authority given to an IT agency. Other states are consolidating state data centers, foreseeing a variety of advantages. In each of the states studied, there is direct support from the governor's office for critical statewide IT initiatives, which seems to be a key factor in their success. Themes arising from the operation of other states' IT agencies are promotion of a modular approach to IT developments, and the need to deal with complications arising from a yearly budget planning and approval cycle. Our California interviews lead to the conclusions that the former California DOIT was not sufficiently effective, and that leadership style appears to be a critical success factor. Part of the management style and context in other states' effective IT programs is use of IT

oversight and advisory boards, and widespread use of master service agreements and statewide license agreements. We also conclude that, since IT oversight and governance in California has now been reconsolidated within the Department of Finance, moving some of this authority to a new agency will involve significant power shifts, possibly resulting in compromises of the type that crippled the previous DOIT.

On the basis of lessons learned in other states, we recommend that a new agency of information technology be established for California, reporting directly to the Office of the Governor. Existing statewide IT data centers should report directly to this new agency, and the existing offices of e-government and IT innovation should be consolidated within the new IT agency. The technical parts of the existing Technology Investment and Review Unit (TIRU) and Technology Oversight Review Unit (TOSU) groups within Finance should also be transferred to the new IT agency. 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. The new agency should establish a context and management style conducive to success, including stress on modular development and early successes in IT projects and development of regular, collegial relations with Finance, the Legislature, and agency and department CIOs. It should be encouraged to establish advisory boards. The agency should also address change management issues, including specifically the treatment of state IT employees as new systems and skills are required and older ones become obsolete, as well as workforce issues related to the potential retirement of large numbers of the IT workforce within coming years. Developing effective governance structures and processes for the state's deployment and use of IT should be regarded as critical to California's vitality in the 21st century.

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Acronyms

AIO	Agency Information Officer
BCP	Budget Change Proposal
BOE	Board of Equalization
BSA	Bureau of State Audits
Caltrans	California Department of Transportation
CCS	(Bureau of) Consolidated Computer Services
CIO	Chief Information Officer
CMAS	California Multiple Award Schedule
CMS	Central Management Services
COTS	Council on Technology Services
CTO	Chief Technology Officer
DGS	Department of General Services
DIT	Department of Information Technology
DMV	Department of Motor Vehicles
DOB	Division of the Budget
DOF	Department of Finance
DOIT	Department of Information Technology
DTP	Department of Technology Planning
ECO	Electronic Collections Online
EDD	Employment Development Department
ELA	Enterprise License Agreement
ERI	Early Retirement Initiative
ERIC	Education Resource Information Center
ERP	Enterprise Resource Planning
FSR	Feasibility Study Report
GIS	Geographic Information System
GSP	Gross State Product
HIPAA	Health Information Portability and Accountability Act
IPOC	Independent Project Oversight Consultant

IRM	Information Resources Management
IT	Information Technology
ITB	Information Technology Bulletin
ITEPS	Illinois Technology Enterprise Planning System
ITP	Intent to Procure
ITQ	Invitation to Qualify
IV&V	Independent Verification and Validation
J-NET	Pennsylvania's Justice Network
MSA	Master Service Agreement
OA	Office of Administration
OB	Office of Budget
OFT	Office for Technology
OGS	Office of General Services
OIT	Office of Information Technology
PAIS	Public Affairs Information Service
ROI	Return on Investment
SOIT	State Office of Information Technology
SPR	Special Project Report
TIP	Technology Investment Program
TIRU	Technology Investment and Review Unit
TOSU	Technology Oversight Review Unit
VIPnet	Virginia Information Providers Network Authority