A New Legacy System:
Using Technology to Drive Performance

Little Hoover Commission

November 2008

State of California

LITTLE HOOVER COMMISSION

November 20, 2008

The Honorable Arnold Schwarzenegger
Governor of California

The Honorable Don Perata
President pro Tempore of the Senate
and members of the Senate

The Honorable Dave Cogdill
Senate Minority Leader

The Honorable Karen Bass
Speaker of the Assembly
and members of the Assembly

The Honorable Michael Villines
Assembly Minority Leader

Dear Governor and Members of the Legislature:

It is time to get over Oracle.

The specter of that lobbying scandal and the fear of repeating it have hurt the state's ability to develop an overall strategy for information technology projects. It has prevented the state's leaders from maximizing the use of data from technology projects to measure performance of state programs and to improve them.

Worse, it has reinforced the view – even within the state's leadership – that California "can't get IT right." This perception persists despite a string of successful projects and recognition by national experts that California is growing as a technology leader.

In the past, the state has focused on technology projects in isolation. The goal must be to use information to gauge progress, change the course of action when appropriate and improve program results. It must propel California forward as a national leader in using technology to improve government.

The state's on-going fiscal crisis only underscores the urgency with which California must move in this direction. More budget cuts are likely, and absent a clear way to determine what is working from what is not, the state is left with the blunt tool of across-the-board cuts, shrinking programs that are producing outcomes the state wants as well as programs that fail to deliver performance.

California can learn from other states, such as Virginia and Washington, which are using performance data to drive improved results. And it can capitalize on efforts already underway in pockets of many government departments here in California, where state employees have seen the value of such an approach. Many of them are ready for the cultural change that will be required for data-driven performance improvement. They are ready to be led by policy-makers who share that vision.

Policy-makers must support and encourage these burgeoning efforts while at the same time, build the capacity to make this cultural change possible not just in pockets, but throughout state government.

The governor and Legislature have taken an important first step in creating a cabinet-level Office of the Chief Information Officer. Other steps must follow. California must seize the

opportunity to take the various resources it has and organize them under the leadership of its new state chief information officer to drive change.

The Department of Technology Services, now under the State and Consumer Services Agency, should be relocated under the state CIO. Another group now located in the agency, the Office of Information Security and Privacy Protection, likewise should shift some functions to the Office of the State Chief Information Officer. The Office of Systems Integration, now located in the Health and Human Services Agency, should be moved under the state CIO to form the core of a statewide project management team.

The state CIO must be given the authority to set statewide funding priorities for technology projects, including oversight of the $6.8 billion investment the state has underway. Ambitious enterprise projects like Fi$Cal, which will align the state's accounting, financial and procurement systems, must become part of the state CIO's portfolio.

This consolidation of resources and authority under the state CIO would give the Legislature a single point of accountability that does not exist currently. It also would improve communication.

Consolidating resources and authority under the state CIO will enhance efficiency and bolster performance as the state starts its transformation to a performance-based culture. Greater accountability and better communication can build trust and confidence the Legislature will need in order to be a full partner in the effort.

The Commission's report, *A New Legacy System: Using Technology to Drive Performance*, makes the case that the challenges in state government require more than simply upgrading old "legacy" computer systems. The times demand new approaches and traditions to delivering public services and programs by leveraging technology to improve outcomes. The Commission's hope is that this report can help the state make the changes that will make the difference.

Sincerely,

Daniel W. Hancock
Chairman

A New Legacy System:
Using Technology to Drive Performance

Table of Contents

Executive Summary i
Background 1
Pieces Not Integrated 15
Leveraging Technology for the Future 29
The Commission's Study Process 49
Appendices 51
- Appendix A: Public Hearing Witnesses 53
- Appendix B: Little Hoover Commission Public Meetings 55
- Appendix C: Past Little Hoover Commission Recommendations 57
- Appendix D: Selected Acronyms 63
- Appendix E: California's Child Support System 65
- Appendix F: Grading the States 67
- Appendix G: Technology Outsourcing 69

Notes 71

Table of Sidebars & Charts

Oracle – What Happened? 2
Defining "Enterprise" 4
California's IT Strategic Plan 5
Top IT Projects by Cost 7
Charter Agencies: "Bureaucracy-busting" in Iowa 12
Key Characteristics of a CIO 18
Department of Technology Services 22
California's Overlapping Technology Boards 24
Data Reliability 27
Creating the State's IT Budget 31
Managing Technology in California State Government 38
Choosing Performance Measures 40

Business, Transportation & Housing Agency: A Performance Leader..... 41
Champions Determine The Primary Use of a Performance Management System: Who Are They?..... 42
Measurement, Metrics and Leadership..... 44

Executive Summary

California's budget crisis has made plain that scarce revenues will put a premium on managing public resources better than ever if state government is to meet its obligations and realize its vision for serving its people.

The best management practices rely on sound information technology systems that can deliver streams of up-to-date data about operations to decision-makers, who can act upon them to improve programs and services.

In the eight years since the Little Hoover Commission first looked at how the state harnesses new information technology (IT), California has made great strides in delivering some of these critical information technology tools to its managers.

California's progress has been noted, but it is still far behind other states that are using data to drive performance. In California, state government has been slowed in its attempts to catch up by a culture of fear as well as a decentralized approach to technology planning that has defied attempts to capture the full potential of the state's investment in information technology.

The fear comes from two sources: fear of another big system failure and fear of repeating the Oracle debacle, a lobbying scandal, not a technology disaster.

It is time to push past those fears so that state leaders can begin changing the culture of government by building the state's technology capacity. This first step is critical to using data to drive improved program performance and make more informed decisions about how to deploy scarce state dollars.

Today, the state continues to rely on its legacy systems – expensive, aging information systems built on first generation database technologies around "green screen" user interfaces – to support many of its programs and services. In a 2007 report, the state chief information officer concluded the state is long overdue for an upgrade, which now is underway.

Due in large part to the efforts of the state's previous chief information officer, who created a strategic plan for California information technology, the state's reputation for technological sophistication has improved. In a few years, California has gone from the back of the pack to near the front. The Center for Digital Government placed California in the No. 5 position in its most recent ranking of tech-savvy states. The state's Web site also has improved dramatically, earning recognition and awards for its customer-service features.

But there is a world of difference between plans and the state's Web presence – the face it shows to the Internet – and the state's current IT infrastructure, which is fundamental to carrying out the daily tasks of government. In this too, California is moving forward, with complex projects that are showing promise – and success – such as the long-troubled $1.8 billion child support collection and disbursement system that rolled out in 2008. When finished, these projects will improve government operations, from modernizing the payroll and personnel system through the 21st Century project, to the Financial Information System for California (Fi$Cal), which will integrate the state business, accounting and procurement systems.

Another crucial step forward has been the elevation of the state chief information officer (CIO) to cabinet-level status, followed by the recruitment of a nationally recognized leader in 2008 to oversee the rebuilding effort: Teresa "Teri" Takai, a former Ford technology executive. As Michigan's CIO, Ms. Takai restructured and consolidated the state's technology resources into one centralized department with more than 1,700 employees. There, it was not a matter of choosing to change: Michigan's shrinking economy forced its state government to reengineer how it delivered services.

California's $6.8 billion portfolio of technology projects in state government rivals the budgets of its many large departments. Yet the management of those resources – mired in layers of oversight and red-tape – has been reactive, not proactive, shaped in response to crisis and designed to avoid pitfalls. Fears of failure and scandal have prevented California from fully implementing its technology overhaul.

The state's lack of strategic IT investment runs counter to California's reputation as the birthplace to the technology that can harness information and process and analyze it with lightning speed. State government has been slow to integrate the modern information technology systems that other states – and the federal government – have used to streamline administration, eliminate waste and serve the public more efficiently and quickly.

As the Commission noted in its 2000 study, *Better.Gov: Engineering Technology-Enhanced Government*, and repeated in 2005 when it endorsed the merger of state data centers into the Department of Technology Services, more consolidation of resources is needed. Real authority must be vested in the state chief information officer to finish the job of aligning computer systems across agencies to provide more seamless exchanges of information. To this end, the Commission focused on the governance structure of the state's technology activities in this report.

Once the state CIO is empowered to implement policy and coordinate activity, the state's leaders and managers will be able to use data to drive performance.

The Oracle scandal, centered on a single-source software contract, cost California the ability to create the technological environment to make this possible. Policy-makers must know the relationship between cost and performance, and the only way they can have that understanding is to have the right data in hand to make budget decisions and set state priorities. Agency managers must have the appropriate information required to make program management decisions. The public must have access to information about the performance of state programs and services so it can properly exercise oversight of its elected representatives.

This approach – performance measurement – has exploded across the country, but California is behind other states as policy-makers wrestle with decades-old issues of procurement hurdles and governance overlap. That is why the Pew Center on the States gave California a C+ for its use of performance data to make decisions and drive improvement.

This is an arena in which California should be the leader. Instead, states like Virginia and Washington are demonstrating the power and simplicity of reporting performance data to the public. Silos fall. Priorities are recast. Decision-making improves.

California's failure to embrace this approach is not for a lack of data. Through this and other studies, the Commission heard repeatedly from department leaders that they are data rich, but information poor. They lack the ability to organize and analyze data in a way that can help them make better decisions, anticipate trends and react more quickly to problems. Data collected by the state, whether patient claims or an inmate's history, often are organized in a way that makes them easy to store, though difficult to extract and analyze.

What is needed is the leadership and vision to cut across agencies' vast collections of data, forge connections that span programs, then link data to performance goals, question results and use the answers to correct course.

"Simply put, we must move from risk that paralyzes to risk that motivates."

Teresa "Teri" Takai

The state has tried this approach in the past, most recently with the performance-based budgeting exercises of the 1990s and the California Performance Review of 2004. Those projects may have been too ambitious, too early, but they planted roots that are showing areas of promise today.

During this study, the Commission heard from more than a dozen departments and agencies that have developed or are planning internal performance-tracking systems to drive improvement. The Business, Transportation and Housing Agency spearheaded a performance initiative in 2003 that tied together department strategic plans, performance measures and action plans. Through the process of tracking and regularly reviewing performance objectives, the Department of Motor Vehicles was able to reduce wait times in field offices, reduce phone waits and increase online license and vehicle registration renewals.

The Department of Corrections and Rehabilitation launched a performance measurement program in 2008, modeled on the successful CompStat program pioneered by the New York City Police Department. Equipped with performance data from each prison, department officials travel to facilities to meet with wardens and discuss how well prison management is meeting the closely-watched agency's goals. Corrections officials credit the process with helping guide day-to-day operations and high-level management decisions.

Despite their vastly differing missions, departments such as Social Services and Toxics Substances Control are embarking on self-generated performance projects – encouraging signs that the people within these entities see the value of such an approach, especially in a tough budget environment.

Empowering these enterprising employees to truly transform government requires leadership and support from the governor and the Legislature. Otherwise, these efforts will languish in isolated pockets.

Repeatedly, the Commission heard the need for a unifying approach to developing high-level goals linking data to performance, and tracking the state's progress toward meeting those objectives.

The arrival of Ms. Takai as the state's first cabinet-level chief information officer offers California the opportunity to discuss performance measurement again and in the context of real technology reform. The Office of the State Chief Information Officer must steer the state's technology investments to collect data and provide information that has been identified as necessary for improvement. Giant technology projects can no longer be an end to themselves.

To ensure the state CIO has the authority and tools to complete this ambitious task, a first step must be providing the state chief information officer with not only the authority, but the right tools to get the job done. The state must expand the resources available to the state CIO, including transferring to the Office of the State Chief Information Officer the Department of Technology Services, now located in the State and Consumer Services Agency, as well as the Office of Systems Integration, now located in the Health and Human Services Agency. These units represent project and services expertise that can be best deployed by the state CIO to meet the state's overall IT goals.

The Fi$Cal project, now the responsibility of four separate departments, needs a single point of accountability. The project to integrate the state's business, accounting and procurement systems is important to improving operations throughout state government. It properly belongs under the responsibility of the state CIO. This shift should improve communication to the Legislature about the project's progress, which is critical to continued support for Fi$Cal.

These changes will position the state to embark on the next step, which requires nurturing the existing efforts to measure and track performance using data from operations and expanding such efforts to all parts of state government. The state benefited tremendously from the work of its previous state chief information officer. California's new state CIO has vision, energy and a proven track record. To ensure continued momentum across administrations, the state CIO should be given a five-year term.

The Commission's research has shown that state workers on their own have started on the path to performance-driven government. The Commission was excited by their enterprise and encouraged by their progress. The value of this new culture is clear to them, but they need leadership. The governor and Legislature can lead by giving the CIO the appropriate tools and authority and championing the need for performance-driven government.

This cultural change, already underway in other states, is overdue in California. Now, given the budget crisis and difficult outlook, these reforms are essential.

Recommendations

Recommendation 1: The Legislature must empower the state chief information officer with tools and resources to oversee a generational transformation of information technology in state government.

- ❑ Consolidate resources.
  - ✓ Move the Department of Technology Services under the Office of the State Chief Information Officer (OCIO).
  - ✓ Move the information security component of the Office of Information Security and Privacy Protection under the OCIO.
  - ✓ Create a Geospatial Information Office within the OCIO.
- ❑ Take ownership of projects and strengthen the IT workforce.
  - ✓ Consolidate the state technology workforce under the OCIO.
  - ✓ Place the state CIO in charge of enterprise-wide efforts, such as Fi$Cal and the 21st Century Project.
  - ✓ Create a project management office under the state CIO. Move the Office of Systems Integration under the state CIO.
- ❑ Appoint the state CIO for a five-year term.
  - ✓ Restructure the state CIO position to serve under a five-year contract that overlaps gubernatorial administrations. The position would remain a cabinet-level post.

Recommendation 2: State agencies must use public money for technology projects responsibly and with transparency in order to rebuild the confidence of the Legislature and the public.

- ❑ Expand the scope of the Information Technology Council. The state needs a powerful, but lean, technology board to create accountability for performance.
  - ✓ Fold the Enterprise Leadership Council and the Technology Services Board into the IT Council, reduce membership for efficiency.
  - ✓ Add legislative members to the IT Council.
  - ✓ Hold regular, open meetings to review the status of large technology projects.

- Post more information online. The state CIO must make budgets and progress reports for technology projects available on a Web site.

Recommendation 3: The state must use technology to track, measure and improve performance.

- Foster and encourage growth of existing performance management efforts. Numerous agencies and departments have implemented or are in the process of developing performance measurement systems, creating a groundswell of interest and support for this data-driven management strategy.
  - ✓ Re-establish the technology innovation fund. Lawmakers authorized a technology innovation fund in 2000 that is not being used. The Legislature should direct savings from a new aggregated IT budget to be used as seed money to support this effort.
  - ✓ Engage leadership in performance reviews. The governor must hold regular public meetings with agency heads to evaluate data on state goals, devise action plans and follow up on previous improvement efforts.
  - ✓ Establish a Performance Measurement Forum. To build on existing efforts, an outside party from the academic or non-profit sector should coordinate regular meetings with practitioners of performance management to share best practices.

Background

In June 2008, California turned around one of its most enduring technology embarrassments. Winning federal approval of the state's nearly $2 billion computer system used to collect and disburse child support payments proved that California state government could successfully implement a large-scale technology project, even one dogged by delays, false starts and dead-ends. Completing the project provided a much needed confidence boost to state managers and legislators and offers lessons about managing complicated technology efforts.*

There was no question about the need for the new system:

- California's child support enforcement effort was considered one of the poorest programs in the country, ranking 49th among the 50 states in 2005 in terms of cost-effectiveness for the state's child support collections. The state collected $2.15 for every dollar spent, less than half the national average of $4.58.[1]
- California was the next-to-last state to obtain federal certification for the state's child support automated system; only South Carolina remains out of compliance.[2]
- The state had accrued almost $1.2 billion in federal penalties because of delays, including two failed attempts in eight years.[3]

Despite these setbacks, some now say the development of the state's child support system should be seen as a best practice.[4] It is celebrated as a breakthrough, not only for its success, but because it bucked the perception of a state government riddled with abandoned and failed technology projects. Given the high profile of the child support project, and its uncertain success during various turns of its development, many overlooked California's other technology improvements. Over the past four years, California state government has implemented more than 90 successful technology projects.[5] Now, more than one million low-income households can access government food and cash benefits through automatic teller machines. Teachers can apply for and renew credentials online, eliminating a backlog that had persisted for years. Electronic improvements for fingerprinting have speeded the hiring of prison health care workers.[6]

* See Appendix E.

Oracle – What Happened?

In 2001, the state Department of Information Technology became embroiled in controversy over a six-year contract that would have locked state agencies into purchasing software from Oracle Corp., the Redwood Shores, California, database technology giant. The State Auditor concluded the awarding of a $95 million, sole-source contract to Oracle was overpriced and the system of checks and balances used to approve large technology projects had not been followed closely. It became a full-blown media scandal that delved into Oracle's campaign contributions, legislative hearings, an Attorney General's probe and top-level resignations.

Sources: California State Auditor. April 2002. "Enterprise Licensing Agreement: The State Failed to Exercise Due Diligence When Contracting With Oracle, Potentially Costing Taxpayers Millions of Dollars." Sacramento, CA. Also, William Welsh. "Oracle Scandal Puts IT on Ropes." May 20, 2002. Washington Technology.

"The history of information technology in California is one of many successes and a few failures," state Chief Information Officer Teresa "Teri" Takai told the Commission.[7]

It is the technology failures, however, that have taken root in the folklore of California's IT culture. For most, the exact details are long forgotten about the Department of Motor Vehicles' failed database upgrade from the 1980s or Oracle's no-bid software contract in 2001. But the stigma remains – the loss of taxpayer dollars in the hundreds of millions and real delays in services from abandoned technology projects and procurement scandals have fueled a perception that California state government is ill-equipped for the 21st century.[8]

The disasters that shaped the state's image represent the low point. The Department of Motor Vehicles became the standard punch line, Christy Quinlan, the chief deputy director in the Office of the State Chief Information Officer, told the Commission. "There is this perception that it is too hard or [that large-scale technology projects] can't be done. It tends to be an albatross," she said.[9]

Continuing to focus on these misses, however, neglects the dramatic transformation in recent years at the DMV, which has used online strategies to reduce wait times at field offices. It overlooks as well the fact that Oracle still supplies the state with $20 million worth of software each year that agencies find valuable to meet their needs.[10]

Because of the perception, the occasional failures still gain outsized attention.

Consider this March 2008 headline from the Sacramento Bee editorial pages: "Another software fiasco costs us millions." The column described a California Department of Transportation plan to automate the way it grants permits to truckers carrying oversized loads on state roads and highways. After spending more than seven years and $10 million – a mid-sized project for state government – the state cut its losses and canceled the project in December 2007.[11]

The Bee wrote: "The Caltrans debacle thus became the latest in a long and puzzling line of computer contract failures in California government. Although the state is home to Silicon Valley, the center of innovation in the software industry, its government has repeatedly spent millions of

dollars on projects that were ill-designed or mismanaged or simply collapsed under the weight of their own complexity."[12]

This is true, to a point. The handful of costly IT failures are memorable, but they also are rare.

The Caltrans truck-permit system represents only the second technology project the state has abandoned in more than five years, of more than 100 under construction.[13] The other failure occurred in November 2006, when the state canceled the California Developmental Disabilities Information System (CADDIS) project, intended to improve the tracking of expenditures and services to nearly 200,000 people with disabilities from 21 regional centers under contract with the state. The Department of Developmental Services had invested more than $10 million in the system over six years, but an additional $30-$50 million would have been needed to turn the project around.[14]

While the loss of taxpayer dollars and delay in serving program needs is painful, cancelling a troubled project also can be seen as a risk-management decision to avoid escalating costs of projects likely headed toward failure, according to the state CIO.[15] The state, however, does not get credit for wisely abandoning flawed technology projects.[16]

The state's failure rates for technology projects are lower than the comparable rate for the private sector. In 2004, the Standish Group found a success rate of only 29 percent in the private sector, with 53 percent of projects challenged and 18 percent failed.[17]

When it comes to the perception of California state government, the high-profile of individual project failures have drowned out the state's overall experience in implementing successful technology projects.[18]

Such is the vicious circle, which has given rise to an onerous review process that, combined with fear of another scandal, stunts innovation, according to Ms. Takai. "People are petrified of doing IT projects," Ms. Takai told the Commission. "It's become a self-fulfilling prophecy that large projects will fail."[19]

State managers and legislators are stuck. Though they care little for the status quo, they are wary of embarking on needed technology projects to improve government performance.

Repercussions from the Oracle contract continue to haunt Sacramento. In conversations with Commission staff, stakeholders inside and outside of government refer to it as "the scandal" and take pains from even mentioning the word, "Oracle."

In his research, Richard Callahan, of the University of Southern California School of Policy, Planning and Development, studied the management of technology in state government and found that Oracle had a chilling effect on the state's ability and willingness to purchase new technology systems. In interviews with department technology leaders, Oracle was a "conversation stopper," Professor Callahan said. Moreover, he said, the review and oversight system put in place after 2002 would not have prevented the Oracle deal from happening, even as it blocks good projects from moving forward today. "It's the worst of both worlds," Professor Callahan said.[20]

Today, departments tend to move only when faced with the possibility of system failure or when the costs of system maintenance start to exceed the cost of installing a new system, as in the case of the Department of Health Care Services' efforts to replace its circa-1978 medical management information system. At the Department of Social Services, despite federal mandates – and more than a billion dollars in penalties – the state took years to develop a child support collections and disbursement system. It is no surprise then, that the Legislature lacks confidence to invest in Fi$Cal, a promising statewide accounting system that will take $1.6 billion and more than a decade to implement.

Defining "Enterprise"

The word *enterprise* can be used as a synonym for *organization*, but it also is a corporate buzzword used to describe business structures, processes and professions. In this study, *enterprise* is used in a broad sense to refer to issues that cut across multiple organizations.

As such, *enterprise architecture* refers to something broader than just IT issues – it involves a discussion and clarification of businesses processes and procedures and requires input from both IT and business experts. Enterprise architecture is a blueprint for standardizing and unifying the state's core business processes using information technology. For example, instead of operating discrete information systems, through Fi$Cal, the State Controller, Treasurer, Department of Finance and Department of General Services will unite the state's budgeting; procurement; accounting; human resources, cash, asset and grant management systems into a single system. Enterprise applications, such as Fi$Cal, span across departments and address common functions and data needs across systems.

Sources: J. Clark Kelso, Chief Information Officer, State of California. December 28, 2007. "California Service-Oriented Architecture." Also, Office of the State Chief Information Officer. Enterprise Architecture. http://www.cio.ca.gov/Business/Enterprise_Architecture/EA.html.

The Pendulum Swings

The Commission has long called on state policy-makers to create strong statewide leadership to effectively develop and deploy technology projects and make California a leader in using technology to improve government. In its 2000 report, *Better.Gov*: *Engineering Technology-Enhanced Government*, the Commission noted that it has been difficult to hold the state chief information officer accountable given that the position lacked the authority or political support to forge solutions. The Commission made several recommendations in 2000, 2004 and again in 2005, to empower the state CIO to lead the charge.[21] Proposals to formally consolidate authority in the state CIO languished.

Instead of moving forward, the state retreated. Following the Oracle scandal, the Legislature shut down the Department of Information Technology, leaving the state without a central technology planning agency. The state CIO position remained – as a figurehead.

What happened next was something like a system reboot. In May 2002, Governor Davis appointed J. Clark Kelso, a professor at the University of the Pacific's McGeorge School of Law, as the state's chief information officer. Mr. Kelso had built a reputation as a government fix-it expert after stepping in to oversee troubled state agencies for the last 15 years. Mr. Kelso described his CIO mission as "putting Humpty Dumpty back together."[22]

Operating with a shoestring budget, small staff and little formal authority, Mr. Kelso adopted a collaborative approach to working with technology leaders in state government to develop a new IT strategic plan and vision for California.[23]

To link common functions and data needs across agencies, the Office of the State Chief Information Officer also unveiled an Enterprise Architecture framework in January 2008 to provide "a coherent

California's IT Strategic Plan

Goal 1: Make government services more accessible.

Objectives: Develop a foundation for transforming government. Leverage services between state, federal and local government and promote interagency and intergovernmental data sharing. Leverage and secure the state's GIS assets. Support statewide efforts to develop health IT solutions and promote health information exchange. Support statewide efforts to expand broadband access and usage in California.

Goal 2: Implement common business applications and systems to improve efficiency and cost-effectiveness.

Objectives: Develop an integrated administrative and financial management system for all agencies and the Legislature. Establish executive governance for projects with significant statewide implications. Create coherent state processes for access, management and preservation of digital material.

Goal 3: Ensure state information assets are secured and privacy protected.

Objectives: Adopt statewide security and privacy protection standards. Assess and mitigate security risks. Develop a governance structure for IT security.

Goal 4: Lower costs and improve the security, reliability and performance of the state's IT infrastructure.

Objectives: Adopt a statewide enterprise architecture. Consolidate technology infrastructure and services. Modernize legacy systems. Pursue enterprise-wide procurements. Ensure IT disaster recovery plans, processes and capabilities support continuity of governmental services. Standardize state document management systems.

Goal 5: Strengthen our technology workforce.

Objectives: Lead succession and workforce planning. Expand recruiting efforts for technology professions. Modernize the IT classification structure and selection tools and methods. Provide professional development for technology personnel.

Goal 6: Better align enterprise business planning with technology governance.

Objectives: Establish a layered technology governance structure. Improve alignment of technology governance with business planning. Implement performance measures.

Source: Office of the Chief Information Officer. November 2006. "California State Information Technology Strategic Plan – Update to the 2005 Plan." Page 39. Sacramento, CA.

structure, disciplined approach and attitude to technology development and deployment."[24] (One irony of the Oracle episode is that the software in question was designed to coordinate and link information across state agencies.)

Mr. Kelso also successfully advocated for the restoration of a technology oversight agency with a cabinet-level chief information officer, an idea echoed by the Commission in several reports. That enabled the state to attract a nationally recognized expert as his replacement, former Michigan CIO Teresa "Teri" Takai.[25]

Through these efforts, Mr. Kelso earned widespread praise for putting the state on a path to rebuild its technology environment. In its biennial survey of state-level technology performance and structure, the Center for Digital Government ranked California as the fifth most tech-savvy state in 2008, a considerable jump from the state's 2004 ranking near the bottom.[26] A Brookings Institution technology study of government Web sites showed a similar gain, ranking California fourth in 2008, up from 47th in 2005.[27]

The state has clearly improved its front door on the Internet, making state operations more welcoming for Web users and garnering attention from outsiders, but when it comes to using technology to improve the actual act of running and improving government programs, the state has far to go.

In another 2008 survey, for example, the Pew Center on the States gave California an embarrassing C+ for its lagging use of data and information to drive management and budget decisions.[28]

True technology success is greater than an easy-to-navigate state Web site. Today, the state has more than $6.8 billion in technology projects under development – an amount equal to the budget of a large state department or as much as the state spends annually on the University of California and California State University systems combined.[29]

Top IT Projects by Cost

Project Title	Department	Project Costs
California Child Support Automated System — Child Support Enforcement. This project will develop a single statewide system for child support. Length of project: 5.3 years.	Franchise Tax Board, Child Support Services	$1,503,353,875
Financial Information System for California (Fi$Cal). This project will replace the state's aging and non-integrated financial systems with a single comprehensive financial application supporting the state's fiscal and policy decision processes. Length of project: 11.8 years.	Finance, Controller, General Services, Treasurer	$1,620,052,518
Strategic Offender Management System. This project will replace or integrate almost all existing manual or automated offender management systems and provide one source for reliable and instant data to CDCR staff. Length of project: 5.7 years.	Corrections and Rehabilitation	$416,278,518
In-Home Supportive Services / Case Management Information and Payrolling System. This project will handle case management and payrolling services for caregivers providing in-home supportive services for qualified aged, blind and disabled individuals. Length of project: 10 years.	Social Services	$298,810,625
Consolidated Information Technology Infrastructure Program. This project will expand the CDCR data communications network, increase network bandwidth and replace old computer terminals. Length of project: 1.9 years.	Corrections and Rehabilitation	$191,036,710
Interim Statewide Automated Welfare System (ISAWS) Migration. Project will consolidate the automated welfare systems of 35 counties into the ISAWS. Length of project: 3.8 years.	Social Services	$263,549,843
Information Technology Modernization. This project will modernize all components of the existing driver license, vehicle registration and occupational licensing legacy systems applications and programs, transactions processing and database architecture. Length of project: 6.8 years.	Motor Vehicles	$242,157,699
Child Welfare Services / Case Management System New System. Project will replace the old CWS/CMS system, with a new system to meet all federal requirements. Length of project: 7.3 years.	Social Services	$254,611,503
California Child Support Automated System — State Disbursement Unit. This project will develop a single statewide system for child support collections and disbursements. Length of project: 3.8 years.	Franchise Tax Board, Child Support Services	$204,126,504
Business Information System. This project will purchase, modify and install and enterprise resource planning system to reengineer CDCR's business processes for financial, human resource and procurements/contracts. Length of project: 4.5 years.	Corrections and Rehabilitation	$144,465,388
Human Resources Management System (21st Century) Project. This project will replace the state's employee roster and payroll systems. Length of project: 5.2 years.	Controller	$178,671,658

Source: Jon Dickinson, Director of Governmental Affairs, Office of the State Chief Information Officer. October 15, 2008. Sacramento, CA. Personal communication. Also, Office of the State Chief Information Officer. "List of Approved State Projects." Sacramento, CA. http://www.cio.ca.gov/Business/projects.html. Accessed October 23, 2008.

Managing the state's growing technology portfolio – and positioning the technology to improve government performance – continues to pose challenges, all the more so given the rising number of projects underway. The state has experimented with a number of governance models over the past three decades, but none has proven to be an effective, long-term solution, according to the Legislative Analyst's Office and other experts. The failure to establish a coherent and effective IT governance structure continues to place the state at risk of not completing technology projects on time and on budget, the Legislative Analyst's Office said.[30]

The state is continuing to recover from its post-Oracle stumbles, but in terms of technology solutions, it essentially is at the same place it was in 2000, when the Commission first studied the subject. While policy-makers jousted over organizational charts, California lost eight years standing still when it could have been re-engineering government operations. Other states have surpassed California in their use of data and technology to drive improvement in public services and internal decision-making.

According to the Pew Center on the States, California has fallen behind all but 14 states in using technology to track and measure performance to improve budgeting and management decisions. Michigan, Missouri, Utah, Virginia and Washington have taken the lead in using data and information to drive budget decisions – with the technologies developed here in California. Texas, Georgia, Iowa and Louisiana all do better.[31]

California's lack of progress is not from lack of review. During the study process, the Commission heard from experts with deep experience in California state government who described the increasing layers of oversight and approval required to implement technology projects – accretions that developed over the years in response to decades of crises and project disappointments.

How Many Layers Are There?

The latest configuration uses multiple organizations, at times overlapping, to oversee the state's technology portfolio.

With the state CIO office now in place, information technology decisions are collaboratively made through the Office of the State Chief Information Officer and a number of key agencies and oversight boards.[32]

The Office of the State Chief Information Officer sets policies and the strategic vision for state technology efforts. The office shares statutory

authority for project approval and oversight with the Department of Finance.[33]

Under the State and Consumer Services Agency:

- The Department of General Services is responsible for all technology procurement activities conducted by state agencies.[34]
- The Department of Technology Services operates the State Data Center and manages technology operations for departmental technology and networking systems.[35]
- The Office of Information Security and Privacy Protection sets information security standards for state technology projects and promotes consumer privacy issues.[36]

Separately, each cabinet-level agency also provides leadership, coordination and oversight of technology activities and procurements within its jurisdiction. Each department manages its own technology development and operations.[37]

Because of the state's sizeable investment in technology, the Department of Finance long has had a role in tracking and approving technology projects. The Department of Finance approves project funding and is responsible for project approval and oversight with the state chief information officer.[38] The Information Technology Consulting Unit (ITCU), a five-person team which operates within the Department of Finance, is responsible for analyzing the fiscal effects of proposed statewide technology policies and enterprise initiatives.[39]

The department's historic involvement with technology oversight began officially in 1983 with the creation of the Office of Information Technology (OIT).[40]

The OIT was given the responsibility to develop statewide technology plans and policies, and oversee agency technology plans. It was an immense task, considering the complexity of the issues and the size of state operations. The OIT came under sharp criticism for failing to adequately perform these responsibilities after a number of costly project failures, most notably a computer modernization project for the Department of Motor Vehicles that began in 1988.[41] By 1994, after the DMV had spent $45 million, it had no major components in place and abandoned the project.[42]

Following the DMV failure, investigations by the Bureau of State Audits, the Legislative Analyst's Office and the Task Force on Government Technology, Policy and Procurement, prompted legislative hearings and

an effort to create a new technology department that could provide more effective leadership and oversight for the state's technology program.[43]

Introduced in 1994, Senate Bill 1 (Alquist) proposed to consolidate the management of all information technology projects into a single state agency that would be responsible for policy, procurement, project oversight and the administration of state data centers and networks. The bill called for a cabinet-level secretary of information services to oversee a new Information Services Agency. Staff would be pooled from the technology oversight unit in the Department of Finance and the personnel involved with IT acquisition in the Department of General Services.[44]

The Department of Finance opposed the bill, arguing that individual departments should be responsible and held accountable for their success in using technology to improve services and reduce the costs of government. Transferring these responsibilities to a central agency would shift accountability and reduce incentives for success, the department said. The Department of Finance also said the new agency would unnecessarily add to the size of state government and would interfere with the ability of the executive branch to manage state government programs.[45]

The legislation was scaled back to include a new, but limited, Department of Information Technology (DOIT) that would develop technology plans and policies. The Department of Finance retained financial authority to approve technology projects in a new Technology Investment and Review Unit (TIRU). DOIT's responsibilities were to be managing the acquisition and appropriate use of technology in state agencies, coordinating between various federal, state and local government stakeholders as well as private industry, and ensuring that agencies' technology plans and projects were in line with the state's vision and goals. DOIT also had direct oversight authority to review, change or veto agencies' technology projects as it deemed necessary. The Legislature approved the bill in October 1995.[46]

A RAND report for the Bureau of State Audits later found this arrangement to be poorly defined: "DOIT became primarily a 'rubber-stamp' department, while the Department of Finance made the final decisions about IT project approval." Agencies that sought approval from the two entities saw the roles as overlapping, which led to ambiguity and an imbalance of power that eroded trust and confidence in both DOIT and the Department of Finance.[47]

DOIT would be short lived. Just as it took an IT disaster to create the Department of Information Technology, it took another – albeit a lobbying one, not a technology one – to shut it down.

In this post-Oracle atmosphere the Legislature allowed the statute authorizing the Department of Information Technology to expire on July 1, 2002. Dissolving the agency left the state without an organization to coordinate technology initiatives. The department's responsibilities fell to other departments. The Department of Finance became the sole gate-keeper for new technology funding through its Office of Technology Review, Oversight and Security (OTROS). Procurement policy and implementation became the responsibility of a sister control agency, the Department of General Services. The governor would continue to appoint a state chief information officer, who essentially became an advocate responsible for strategic planning and leadership over the state's technology policy, though the position lacked any formal authority.[48]

In the absence of DOIT, the Department of Finance created a more rigorous oversight framework for projects, adding levels of scrutiny based on cost, length of implementation and experience of project managers. Individual departments were allowed to develop their own, potentially stricter, guidelines for smaller purchases.[49] Project liability began shifting toward private vendors through rigid "terms and conditions" for contracts and a blackout of communication between vendors and departments that, together, often reduced competition and led to large projects receiving only one bid.[50] Missing was an overall strategy for technology and a way to link technology projects to a streamlined action plan.

The new process left vendors and state IT managers frustrated.

Lawmakers, too, grew frustrated, and the pendulum began swinging toward a less restrictive approach. In 2005, SB 954 (Figueroa) established a "solutions-based" methodology for the Department of General Services to use on its technology projects valued at more than $5 million (about 20 projects a year) to promote greater competition and innovation among vendors. The methodology entails working with the market to solve specified business needs, rather than going to the market with a long list of technical requirements. It allows interactive exchanges between the state and bidders to negotiate the contract. In 2007, AB 617 (Torrico) replaced the rigid requirements in the Public Contract Code, including the requirement of at least a 50 percent performance bond in certain technology contracts, with a more flexible program of risk management to be overseen by the Department of General Services.[51]

Charter Agencies: "Bureaucracy-busting" in Iowa

Based on the assumption that agencies will be able to produce better outcomes for their customers at a lower cost if given greater authority and operating flexibility, Iowa in 2003 initiated an experiment in governance. In return for a reprieve from bureaucratic requirements, the Iowa experiment encouraged government agencies to shift from a focus on rules and procedures to a focus on results.

Six agencies volunteered to produce measurable benefits for their customers and contribute $15 million annually in savings or additional revenues to the state to help close Iowa's budget gap. In exchange, the agencies gained a number of flexibilities, including:

- Authority to waive administrative rules in personnel, general services and IT.
- Authority to retain proceeds from asset sales, 80 percent of new revenues generated and half of their year-end general fund balance.
- Exemption from full-time equivalent employee caps and from statutory across-the-board budget cuts.
- Access to technical assistance at no charge from experts on innovation and public entrepreneurship.
- Access to a $3 million grant fund to foster innovation.

As a result, these agencies have improved their program outcomes. Among other successes, the Iowa Department of Human Services increased access to health care coverage for low-income children by 33 percent and increased the number of eligible Iowans receiving food and nutrition benefits by 44 percent. The Department of Corrections increased the number of probationers who successfully complete their probation periods by 17 percent. The Department of Natural Resources reduced turnaround time for air quality construction permits from 62 to 6 days and eliminated a backlog of 600 in six months. Additionally, the charter agencies achieved $22 million in savings/revenue contributions – exceeding their target by close to 50 percent.

Source: Iowa Charter Agencies. http://charter.iowa.gov/default.htm. Accessed October 24, 2008.

This is an area that will bear further monitoring to ensure current progress maintains its momentum. For this study, the Commission focused its attention on the new cabinet-level Office of the State Chief Information Officer, which opened in January 2008 and the governance structure of state information technology activities.

Opportunities to Leverage Technology

The organizational structure has created a dizzying web of overlapping authority. This web has cocooned the state's overall technology program and kept California from moving forward.

With a new, cabinet-level state CIO, California has an opening to make a fresh start. But the window of opportunity is limited. Unless reappointed by a new governor, Ms. Takai, a national leader with the demonstrated ability to use technology to re-engineer the business of state government, has the remaining two years of Governor Schwarzenegger's term to continue building on the work of Mr. Kelso.

Ms. Takai brings with her the experience of functioning within an IT governance structure that centralized authority and personnel under the state chief information officer, a markedly different approach than California's highly decentralized system. When she appeared before the Commission, Ms. Takai did not comment on the issue of consolidating technology resources and staff under the Office of the State Chief Information Officer. But she has called for a more coordinated effort in California to effectively manage the state's technology portfolio and restore the confidence of the Legislature and public.[52]

At present, state policy-makers lack the tools used in other states that measure program performance and guide decisions about balancing the state budget. By leveraging technology to track program performance, policy-makers can add transparency and meaning to difficult budget choices.

This is an area where California can benefit from others having gone first.

State agencies in Iowa, for example, report performance information and post their reports alongside strategic plans on the Web. Agencies provide performance measures in their budget justifications, which compare past, present and future performance. The performance levels illustrate how different levels of funding would increase or decrease related performance measures; moreover, agencies are required to commit to achieving future expected performance levels.[53]

Budget writers in Texas use performance measures to indicate progress toward agency goals and objectives, in order to allocate resources and determine appropriation levels. The Legislative Budget Board instructs agencies to include "clear targets for specific action and the quantified results or impacts of that action" in their budget requests. As part of the performance culture in Texas, state managers use performance reports generated automatically on a monthly or weekly basis.[54]

Virginia offers one of the most instructive examples of how technology ties into performance management.

Virginia launched a reform effort in 2003 called the Council on Virginia's Future, chaired by the governor and comprised of the governor's secretary of technology and other cabinet members, representatives from the state legislature, business leaders and private citizens. The council is charged with long-term planning, establishing policy priorities and developing a performance leadership and accountability system.

Information technology forms the foundation of this ongoing effort. The commonwealth formed a 10-year, $2 billion partnership with Northrop Grumman to consolidate its technology workforce and upgrade its old computer systems to operate on common platforms. The move enabled Virginia to use 21st century business-intelligence software, connect more than 200 disparate reporting systems and exchange data – all with the broader goal of tracking the performance of agencies against the priorities established by the Council on Virginia's Future.[55]

A "Virginia Performs" Web site provides the public with access to the performance information for each state agency. Data is available for the baseline performance level, targeted performance level and historical performance trends. The information is incorporated into the budget process to drive funding decisions, with the governor meeting regularly with agency heads to discuss the performance measures and the best way to achieve results.[56]

"We facilitated the technical environment to make that happen," Aneesh Chopra, Virginia's secretary of technology, told the Commission. He said the approach toward performance measurement would not have been possible without the commonwealth taking on the sizeable and costly challenge of replacing its outdated computer infrastructure with a more cohesive system able to operate modern applications.[57]

Major projects are underway in California to modernize the state's aging computer systems and standardize the state's business management systems. The money and complexity involved in the projects, as well as a new governance structure put in place to oversee this effort, will test the state's commitment to a generational transformation of government operations and services.

In testimony, Ms. Takai told the Commission that California has reacted to the multibillion-dollar challenge of upgrading its technology infrastructure across the state by adding layers of overlapping oversight. Oversight is necessary, she said, but the state needs to acknowledge that focusing only on preventing risk also prevents movement.

This approach has left California struggling, while other states, having developed ways to better manage risk, move forward.

"Simply put, we must move from risk that paralyzes to risk that motivates," said Ms. Takai.[58]

Pieces Not Integrated

While much progress has been made to rebuild the technology environment in state government, the Commission found that challenges remain in coordinating and mobilizing California's technology program that prevent the state from using its data systems strategically to drive budget and management decisions.

Since the promotion of the state chief information officer to cabinet-level status, the office has grown to a small staff of about 30 people, most of whom review requests from departments for technology funding. While the office has the power to green-light good projects – and to stop bad ones – it lacks any official authority that would allow the chief information officer to correct or guide troubled projects, or even to get in early and help at the planning stage so that mistakes can be avoided.

Resources of infrastructure and experienced staff are scattered over state government, limiting effective oversight and reducing the chance for creating efficiencies through better coordination. Three separate but overlapping statewide technology commissions offer limited guidance, but this situation is exacerbated by the lack of a centralized authority – with real clout – to manage the state's technology efforts. The state CIO cannot fully work with departments to re-engineer operations, share technologies and truly transform the way government serves people.

Instead of coordinating resources, departments and agencies develop technology projects in silos, with a stretched workforce and a growing reliance on more costly outside contractors. The diffused authority and responsibility can result in poor public outcomes and missed opportunities to share applications, share data and consolidate similar business functions.[59] Unaligned technology projects and fragmented data systems provide volumes of data but little accessible information to inform high-quality management and sound policy-making.

In 2007, the California State Auditor identified the management of the state's information technology systems as a high-risk issue because of the state's large investment and need to keep pace with technological changes. "Without strong statewide oversight and a clear vision of its IT needs, the state is at risk for ineffective and improper IT investment and use," the State Auditor concluded.[60]

Successful technology projects can break through on a case-by-case basis. The potential for a statewide technology solution, however, cannot be achieved because the organizational problems have not been resolved. For example,

- The state lacks a single point of authority to manage long-term and costly enterprise-wide initiatives that encompass all executive branch and constitutional offices, such as the Financial Information System for California (Fi$Cal) project.
- The Department of Technology Services, formed by the merger of state data centers in 2005, provides networking and infrastructure services to state departments. It is an historical anomaly placed under the State and Consumer Services Agency because the formal CIO office had yet to be reestablished.
- The state chief information officer does not supervise the 130 department-level CIOs to help guide and coordinate projects across department boundaries.
- The Office of Information Security and Privacy Protection, which analyzes safeguards needed for technology projects, among other duties, also is positioned within the State and Consumer Services Agency. It was established in January 2008 and falls outside of the state CIO's purview – a division of labor that can add additional layers of review.

The Fi$Cal project offers a good example of the type of costly technology effort that is cheered for its potential to reshape government but burdened by the fear that it could fail.

To its backers, implementing the Fi$Cal project is a critical step toward understanding and analyzing how the state spends its money – "the last, best hope to ever come to grips with this bookkeeping nightmare."[61]

The project combines dozens of disparate and unconnected financial systems that were developed in isolation decades ago by state agencies. It is designed to serve as a central nervous system that will store financial and operational statistics allowing state managers to make real, informed, fact-based financial management decisions about budgeting, accounting, procurement and asset management.[62]

The project also will take 12 years to complete under its 2020 timetable, which has raised concern among lawmakers.

This tension was evident during a June 2008 exchange at the State Capitol. At a budget committee hearing, lawmakers were reviewing the annual spending request for Fi$Cal and were caught off guard by a change in the project of which they had not been informed. The lack of clarity sparked concerns about the project itself and the way it was being managed.

"This project has such a long life that it absolutely defies accountability," one legislator said. Another legislator, recalling other long-term technology projects that faltered in the past decade, remarked, "I think you have to get to a point where you have one person in charge whose throat you can throttle when they fail to perform."[63]

Legislators are wary when it comes to supporting costly technology projects. Though they established the state chief information officer as a cabinet-level position, recognizing the importance of a single point of contact to oversee the state's technology program, they have not to date given the state chief information officer the authority and resources to coordinate and manage technology projects.

In the case of Fi$Cal, lawmakers demanded something that should be relatively easy to provide: better communication. The project, however, is governed equally by four agencies – the Department of Finance, the state controller, the state treasurer and the Department of General Services. This program is needed but is troubled by a lack of communication and too many sponsoring agencies. The state CIO has no official role in the program.

The lack of focused, high-level leadership with experience in such projects contributes to the Legislature's concern. There is no single throat to throttle.

Criteria for Good Governance

Studies by outside IT governance experts have spelled out the required components for success.

The Deloitte Touche Tohmatsu consulting firm observed that public agencies rely on technology more than ever to maximize the value of government – to make government more efficient, useful, responsive and accessible. According to Deloitte, a government CIO plays an increasingly important role as a business leader, much more than the old role of a technology steward who operated data centers. To that end, Deloitte asserted that state CIOs need full and unwavering support to execute technology decisions across agencies.[64]

> ***"Asking a CIO to transform an organization and drive innovation without the necessary authority or resources is a recipe for disaster."***
>
> Deloitte Touche Tohmatsu consulting firm

A key component involves the financial authority of the CIO to refocus IT dollars, according to Deloitte. A surge of technology spending in the 1990s when the economy was booming led to uncoordinated and bloated technology infrastructures, superfluous systems and applications, misaligned resources and huge IT support staffs, Deloitte said. The CIO needs to eliminate turf battles and other costly distractions, making sure technology projects achieve the organization's goals.[65]

The Center for Digital Government, an independent group that studies state technology performance, also found that state CIOs need budget authority, among other tools, to remain successful.[66]

The Pew Center on the States defined success as deploying technology to measure the effectiveness of state programs, make budget and other management decisions and communicate with one another and the public.[67]

Pew used the following standards to grade state IT programs: strategic direction, budgeting for performance, managing for performance, performance auditing and evaluation, and online services and information.[68]

The A-rated states (Michigan, Missouri, Utah, Virginia and Washington) use technology to engage the public, streamline business processes and improve the quality and utility of the information upon which state leaders rely to make policy and program decisions. Tracking and reporting performance data to inform budget decisions stood out as a unifying strategy across the successful states, according to Pew.[69]

California received a C+ from Pew because of the lack of a statewide system for reporting or tracking performance data.[70] The state's budget, for example, is based on a line-by-line review of the previous year's operating costs and does not address performance or productivity. Once a program is in the baseline budget, it is seldom revisited to see if it is meeting expectations or is still relevant.[71]

The Pew Center recommended that California create and implement a uniform, statewide system for reporting performance measures and tracking performance data.[72] This is the value that technology leaders can bring to an organization. In California, the state chief information officer stands at the center of such an effort but cannot catalyze it.

Key Characteristics of a CIO

The Center for Digital Government cites the following key characteristics of a strong governance model:

- ✓ An information technology (IT) commission, board or council provides comprehensive policy direction and oversight of large, high-risk projects on an enterprise basis.
- ✓ The state CIO has statewide policy setting authority, either alone or in conjunction with the board.
- ✓ The state CIO is a cabinet-level official.
- ✓ The state CIO has operational responsibilities for computing and telecommunications through the state technology agency.
- ✓ The state CIO has enterprise-wide authority over information technology project management.
- ✓ The state CIO has enterprise-wide information technology budget approval authority.
- ✓ The state CIO has enterprise-wide information technology procurement approval authority.

Source: Paul W. Taylor, Chief Strategy Officer, Center for Digital Government. July 23, 2008. Olympia, WA. Personal communication.

The state CIO still lacks organizational control over the state's technology assets, including personnel, the state's data and networking infrastructure, or enough budgetary authority to execute projects. John Thomas Flynn, who served as California's state CIO in the 1990s, told the Commission that the arrangement "sets the stage for confusion, confrontation, a continued lack of strategic coordination and makes real reform that much more out of reach."[73]

Fragmented Systems

The state's fragmented governance arrangement is manifested in its fragmented technology program. California state government consists of hundreds of organizational entities, many of which exercise substantial independence not only from each other, but also from the governor's office. Despite the overlapping oversight groups, coordinating IT activity across agency lines – permitting information to be shared by managers, policy-makers, the Legislature and the public – is not an easy task, and happens only rarely given the current obstacles.

For example, education information for the state's six million students is split among eight large data systems, and that only includes test scores and attendance records. Understanding the success of educational programs would require reviewing data from employment, juvenile justice, corrections, health and social services agencies. No one entity is authorized to extricate that breadth of information.

Signed by the governor in September 2008, SB 1298 (Simitian) begins to address the issue by requiring the state CIO to design procedures for sharing education data across agencies.[74]

While it took an act of the Legislature to break down organizational silos around education data, the state lacks the ability to quickly match and analyze performance information across departments from different programs that serve the same populations, whether mental health services and substance abuse treatment, or the relationship between where women offenders serve their sentences and their demand for foster care.

The ability to conduct higher level analyses of state functions using data is often desired, but unavailable. The state CIO offered this candid assessment of the state's IT capabilities in a 2007 annual report:

- The state lacks reliable information about the performance of the corrections system.
- The Department of General Services has struggled to determine the number of vehicles owned by the state.

- Departments have substantial inconsistencies among databases that track procurement activity.
- The state controller has difficulty closing the state's books in a timely manner at year's end.
- The Department of Finance has an opaque budget system that is an amalgam of digital and paper systems held together only by virtue of dedicated process experts.
- Departments that manage billions of dollars in payments to local government have difficulty tracking and accounting for those payments.
- The state maintains multiple accounting systems that frustrate accountability and transparency.[75]

The state's challenge is compounded by the fact that many of its computer systems are 30 years old, do not have the flexibility or power of modern systems and are difficult to maintain.[76] "Many of these systems were architected around 'green screen' user interfaces and written in computer languages that are viewed by today's technologists as archaic," then state CIO Kelso noted.[77]

The issue of the state's aging IT infrastructure was further highlighted during the state's 2008 budget negotiations, when Governor Schwarzenegger ordered a reduction in state workers' pay to federal minimum wage to help the state's cash flow. State Controller John Chiang, who oversees the state's payroll system, said a pay cut would take months to implement and even longer to correct because of the reliance on antiquated software based on a 1970s-era COBOL programming language – so old it is no longer taught in schools. The payroll system has tens of thousands of lines of code that would need to be changed manually for each employee. Efforts to upgrade the state's payroll and personnel system have mushroomed into what has become the $180 million "21st Century Project."[78]

Technology Operations Not Aligned

Technology resources, meanwhile, remained scattered, making it difficult to prioritize projects at a state-wide level. Individual agencies compete for individual technology projects through a piecemeal approach that has produced overlap and duplication.[79]

The best place to address these issues is at the planning and budgeting stages. But it is not happening in California.

Under the latest governance configuration, the process required to initiate or make substantive changes to individual technology projects primarily involves the Department of Finance and the Office of the Chief Information Officer.[80] Essentially, the state CIO shares the authority with Department of Finance to approve solid projects and to stop troubled ones from continuing. The Department of General Services also handles procurement activity.

Witnesses told the Commission that the state took a step backward when it created the cabinet-level CIO but allowed the Department of Finance to retain oversight for individual IT projects through its Information Technology Consulting Unit (ITCU). Mr. Flynn, the state CIO in the 1990s, told the Commission that the same dynamic existed in earlier versions of Department of Finance technology-oversight units, the Technology Investment Review Unit (TIRU) and the Office of Technology Review, Oversight and Security (OTROS).

It led to duplicative, competing reviews, Mr. Flynn said. With the Information Technology Consulting Unit, "it's as if TIRU and OTROS have risen again like the Phoenix," he told the Commission.[81]

The Legislative Analyst's Office also questioned the arrangement and laid out a scenario in which the state CIO could approve a project based on sound management practices only to have the project denied or shrunk by the Department of Finance. The LAO noted this arrangement contributed to the downfall of the Department of Information Technology (DOIT). "DOIT's role became diminished because it did not have the financial clout to support its decisions," the LAO said. [82]

The LAO, however, recommended that the Department of Finance retain the role of overseeing individual technology projects to allow the CIO to focus on strategic planning rather than the nuts and bolts of detailed reviews. The LAO raised concerns that the CIO's advocacy for projects could limit its ability to provide an independent perspective.[83]

The Department of Finance has argued that its review helps departments develop effective technology initiatives and compete for scarce funding.[84] Department officials said the role of the ITCU is fundamentally different than those of previous oversight teams, and without the resources to match the scope of work those offices once performed. The ITCU's role currently is limited to reviewing funding issues in order to craft the state's budget. They said that the Department of Finance works cooperatively with the Office of the State Chief Information Officer and, in fact, defers to the CIO's decisions about project approval.[85]

Under different leaders, however, a productive relationship could falter, and a strong structure needs to be in place to ensure the state's technology priorities remain on track.

As an improvement, witnesses recommended that the Legislature and governor send the state CIO an aggregated technology budget, and delegate the authority to the state CIO to distribute the funds based on statewide priorities.† The state CIO would prioritize and plan technology projects based on the agreed upon budget framework, forgoing the need for a subsequent review of the projects by the Department of Finance.[86]

Infrastructure. Another example of the state's decentralization of IT assets is the Department of Technology Services, one of several technology divisions that exist outside of the Office of the State Chief Information Officer.

In 2005, the state combined its largest data centers and networking operations into a new Department of Technology Services (DTS). The Commission recommended such a merger in its 2005 report, *Reconstructing Government: A Review of the Governor's Reorganization Plan to Create a Department of Technology Services*. Lacking an Office of the Chief Information Officer at the time, DTS was moved into the State and Consumer Services Agency.[87]

Establishing DTS three years before the state was able to reconfigure and re-launch the state CIO's office has complicated the effort to centrally manage the state's technology program. Separating the state's technology assets from the jurisdiction of the state CIO makes it more difficult to enact infrastructure consolidation, technology standardization and spending prioritization, experts told the Commission.[88]

Former state CIO J. Clark Kelso testified before the Commission that "DTS should be under the CIO, but when the department was created there was no other place to put it."[89]

Information Security. The State and Consumer Services Agency houses another technology activity not under the Office of the Chief Information Officer. In January 2008, the state formed the Office of Information Security and Privacy Protection (OISPP). Created by the merger of the Office of Privacy Protection and the State Information Security Office, the OISPP provides two separate functions.

Department of Technology Services

With 800 employees and a $280 million budget, the Department of Technology Services (DTS) provides data warehousing, network and telecommunications and training services for more than 500 state and over 2,000 local government customers. The department is funded by charging service fees to other departments and agencies. The 2005 merger of the Teale Data Center, Health and Human Services Data Center and Office of Network Services into DTS has delivered $43 million in savings to departments by reducing billing rates. Staffing reductions have saved $1.3 million.

Sources: P.K. Agarwal, Director, Department of Technology Services. Sacramento, CA. June 25, 2008. Written communication. Also, Department of Finance. Undated. "Governor's Budget 2008-09: Enacted Budget Detail." Sacramento, CA. http://www.ebudget.ca.gov/Enacted/StateAgencyBudgets/1000/1955/department.html. Accessed October 22, 2008.

† See "Creating the State's IT Budget," page 31.

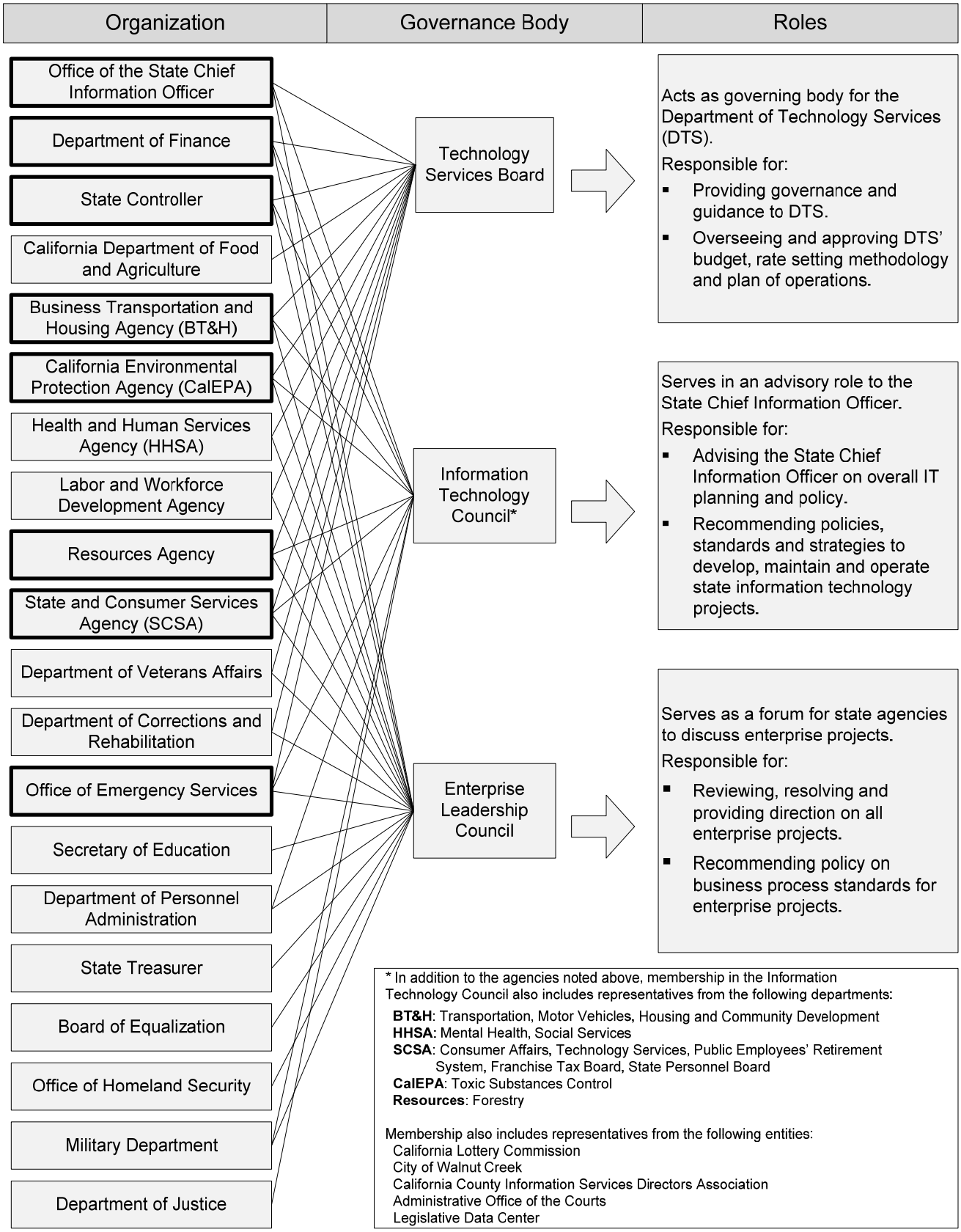
The office offers consumer-protection services to the public and reviews technology programs to ensure adequate safeguards are in place to protect the state's data. The current leadership of the OISPP and the Office of the State Chief Information Officer report a productive relationship dealing with the state government's internal information security needs – in fact, both offices are located on the same floor. Experts, however, told the Commission that the existence of the OISPP outside of the Office of the State Chief Information Officer can exacerbate the multi-layer process for projects to win approval. The Legislative Analyst's Office also concluded that the existence of the OISPP outside of the state CIO's purview could lead to "another cumbersome layer of review" for technology projects.[90]

Given the dual functions housed in the OISPP, the office should be split in two. Shifting the office's information-security role into the suite of responsibilities under the state CIO would streamline the approval process for technology projects. The OISPP's public-advocacy role regarding consumer-protection and privacy is a better fit in the State and Consumer Services Agency.

Technology Commissions. In the absence of a strong state CIO, several forums were established to further guide policy-making. Membership of these councils often overlaps:

- The Information Technology Council advises the state chief information officer on overall technology planning and policy matters in the executive branch, including the development of statewide IT strategic plans and the adoption of enterprise-wide IT standards and policies. The council's membership includes representation from several constitutional offices; departments of Finance, General Services, Personnel Administration and Technology Services; agency information officers; department CIOs; the judiciary; and, local and federal governments.[91]
- The Technology Services Board sets policy on services provided by the Department of Technology Services, such as setting networking rates charged to state departments. Board membership includes top executives from all cabinet agencies and the State Controller's Office.[92]
- The Enterprise Leadership Council provides a forum for executive branch agencies to discuss and resolve business issues related to enterprise-wide IT projects, such as the Fi$Cal project. The council is composed of members of the governor's cabinet, the controller, the treasurer and the executive director of the Board of Equalization.[93]

California's Overlapping Technology Boards



Note: Organizations highlighted in bold indicate membership in all three governing boards.

Dispersion of IT Skills Across Departments. In Michigan, where Ms. Takai last served as the state's technology leader, the 1,700 technology workers in state government reported to the state CIO and were assigned to work in various departments depending on staffing needs.[94] In California, the state chief information officer cannot move its best and brightest in and out of projects across agencies in order to respond to troubled projects, changing timelines or other needs.

At present, Ms. Takai is employing an alternative, federated strategy – working with agency-level information officers to coordinate agency-wide efforts.[95] The collaborative approach, however, can only go so far without a more direct line of supervision and authority. To improve success and accountability, experts told the Commission that agency-level information officers should have at least a dual reporting relationship to the agency secretary and the state CIO.[96]

One of the largest collections of expert IT staff is aggregated in the Health and Human Services Agency. Originally part of the state health department, the Office of Systems Integration (OSI) spun out of the DTS data-center merger in 2005 to become a nationally recognized project management team. With a 200-person staff, it oversees $5.5 billion in large technology activities spread across the health agency's 20 departments and commissions. The OSI works on some of the state's biggest case-management automation projects, from child welfare, to in-home supportive services to health insurance programs for low income, disabled and elderly Californians. These projects represent a large portion of the state's entire IT portfolio.[97] At the time, locating the unit in the Health and Human Services Agency made sense, given the work it had been doing and the major projects underway in various HHS departments.

When only failed IT projects seem to make headlines, leaders of the OSI pride themselves for *not* getting in the news.[98] But this successful team's mission is too constrained. Several of OSI's projects are scheduled to wrap up by 2009-10 – such as in-home supportive services, food stamps and child welfare – but state law restricts the Office of Systems Integration from operating outside of the health agency.[99] The state CIO lacks a similar vehicle to help manage large technology projects and, under current law, the state CIO cannot direct the Office of Systems Integration to step in to help troubled projects in other agencies.

Workforce Succession Planning. The state's ability to better coordinate its staffing resources will hinge on its ability to develop a technologically enabled and sophisticated workforce. Over the next five years, more than 50 percent of the state's total workforce will be eligible to retire.[100]

Identified by the Commission in its 2000 *Better.gov* report as a major obstacle to recruiting and hiring, the state's classification system has not been updated in more than 20 years – before the Internet or servers were widely used.

The State Personnel Board, the Department of Personnel Administration, the Service Employees International Union, the state CIO's office and the Legislature are now working to create a new classification and skills-based testing system for state technology workers and other state workers, known as the Human Resources Modernization Project.[101] The administration and union officials also will address the disparity in pay between the public and private sectors, another contributing factor to the shortage.[102]

Consultants. One consequence of the workforce shortage has been the state's growing reliance on IT consultants, seen in the tripling of personnel spending in recent years – to $307 million in 2006-07 from $91 million in 2003-04.[103] It now is common practice for the state to hire consultants to watch over other consultants, ratcheting up project costs by more than 25 percent, according to some estimates.[104]

As Ms. Takai told the Commission, the state needs to retake ownership of its technology projects: "Right now in many cases, the vendors are running IT for the state because we have walked away from some of our responsibilities and we are not going to change that until we step up and we own the contracts and we own the projects."[105]

It is unclear exactly how many contractors are working for the state. An unsuccessful legislative proposal, AB 2603 (Eng), in 2008 would have required each state agency to prepare an annual report on their consulting contracts that included staffing levels. At present, the state is unaware, for example, if it is paying one person $1 million or 100 people $10,000 each.[106]

The Service Employees International Union, which represents state workers, estimates that the state employs between 1,000 and 1,475 IT contractors on any given day. SEIU contends the state could save up to $100 million annually by reducing its reliance on IT contractors. The typical cost to employ an IT contractor is $218,136 a year compared to the typical cost to employ an IT worker in the state – $98,985 a year, including benefits, according to SEIU.[107] Faced with a shortage, however, and the need to hire people for specific projects, state managers say they have little choice but to go this route and argue that a non-permanent workforce is at times appropriate for specific projects.[108]

GIS. Geospatial Information Systems (GIS) represent a promising tool that could be used to break down silos of data across agencies. On a basic level, GIS is a tool used to visually display data, such as a map. GIS, however, embodies the potential to bridge large data collections and translate them to a useable level for policy-makers and the public – an area of interest that is driving questions about data governance and leading many states and local governments to create formal GIS offices.

For example, the state used GIS technology to launch its "School Finder" Web site in July 2008. The site incorporates aerial views of schools and displays academic data about test scores, graduation rates and course offerings, allowing parents to make side-by-side comparisons of different schools.[109]

California does not have a formal statewide Geospatial Information Office (GIO) though it maintains some functions of a GIO in the California Resources Agency. The Commission learned that absent such a designee to coordinate cross-cutting data activities, the state could miss out on federal funding opportunities.[110]

In May 2008, Governor Schwarzenegger called for the creation of a task force to develop a statewide strategy to enhance GIS technology for environmental protection, natural resource management, traffic flow, emergency preparedness and response, land use planning and health and human services.[111]

From GIS to DTS, the state government has created the pieces of a strong technology program. The next challenge is to pull the pieces together to form a more unified, coherent organization under the state CIO.

During its study, the Commission learned that technology developed so quickly over the last few decades that individual departments and agencies implemented computer systems and processes on an as-needed basis, before the state could get a sense of a better overall strategy. The fragmented approach may have even been efficient at one point to accommodate immediate needs, but the Commission found that centralization and consolidation are now needed – and with urgency – to provide seamless, shared services and business direction across the

Data Reliability

Maintaining accurate and reliable data is important for agencies tasked with disbursing funds or tracking and monitoring programs or licensees, but also for policy-makers who make policy and programmatic decisions based on the data in the state's information technology systems.

In a review of 24 audit reports issued between 2006 and 2007, the Bureau of State Audits (BSA) examined the reliability of data from the state's existing information technology systems.

The BSA found that of the 68 systems audited, many had reliable data, meaning it was accurate and complete, but some did not:

- Data in 30 systems was reliable.
- Data in 19 systems was not sufficiently reliable – it was inaccurate or incomplete.
- Data in 19 systems had undermined reliability – the BSA could not determine the extent of inaccuracies or omissions in the data.

In those cases where the data was found unreliable, the BSA warned that the data could weaken an analysis or lead to incorrect or unintentional messages.

Source: California State Auditor, Bureau of State Audits. October 2008. "Data Reliability: State Agencies' Computer-Generated Data Varied in Its Reliability." Sacramento, CA.

state. The state CIO must be able to tailor California's $6.8 billion technology portfolio around a strategy that improves services and provides a return on investment.

The state CIO, however, is not in the driver's seat to execute a statewide strategy for technology. The scattered, siloed nature of the current structure inhibits the state's ability to manage technology resources, enforce policies, minimize overlap, coordinate activities and promote data sharing in a systematic way.

- Programs lack a single point of accountability.
- Assets are spread across state departments.
- The state is heavily reliant on contractors and retired annuitants.
- The state CIO cannot intervene quickly when projects go bad or participate at the get-go to prevent failure.

Until these issues are resolved, the state cannot truly embark on needed reform. Only then can California accelerate its technology efforts to improve the performance of state operations.

Leveraging Technology for the Future

The need for using data technology to improve government performance has never been greater. Faced with shrinking resources, California has little choice and much to gain.

Success requires the focus and determination of not only the state CIO, but the governor and bipartisan legislative leadership to share a vision of how the pieces fit together to best leverage the state's technology assets.

Currently, many of those pieces exist in different departments throughout state government, and the CIO lacks the ability and the authority to organize and strategically deploy the state's technology assets.

The state chief information officer must take the lead in these efforts and needs the authority to do so. The state CIO should set ambitious goals for building the technical infrastructure needed for a performance-based culture in state government, and be held accountable for them. Centralizing authority will have the benefit of providing a central point of accountability, a weakness in the current structure. The lack of a central point of authority also has contributed to the lack of confidence in technology projects in the Legislature. The Legislature's support for the state's IT strategy is essential, and will be even more if the executive branch is to develop and foster a culture of data driven performance improvements across state programs.

More Focused Accountability

The latest version of IT governance maintains a bifurcated and inefficient approach to approving technology projects. Because of a series of well-publicized missteps and scandals, the state's technology projects receive added layers of review, including additional scrutiny by the Department of Finance's technology oversight office. An earlier version of this governance structure proved ineffective in the 1990s, when the Department of Finance outranked the Department of Information Technology. Experts told the Commission that this same dynamic exists today, even though the state CIO currently enjoys a productive and

cooperative relationship with the Department of Finance. In a future administration, under different department leaders with different styles, this dual approval process could flounder. Technology has become so embedded and so critical to the day-to-day operations of state government that it is inefficient and cumbersome to manage it through the lens of an annual fiscal audit review rather than as part of a larger, multi-year strategic plan.

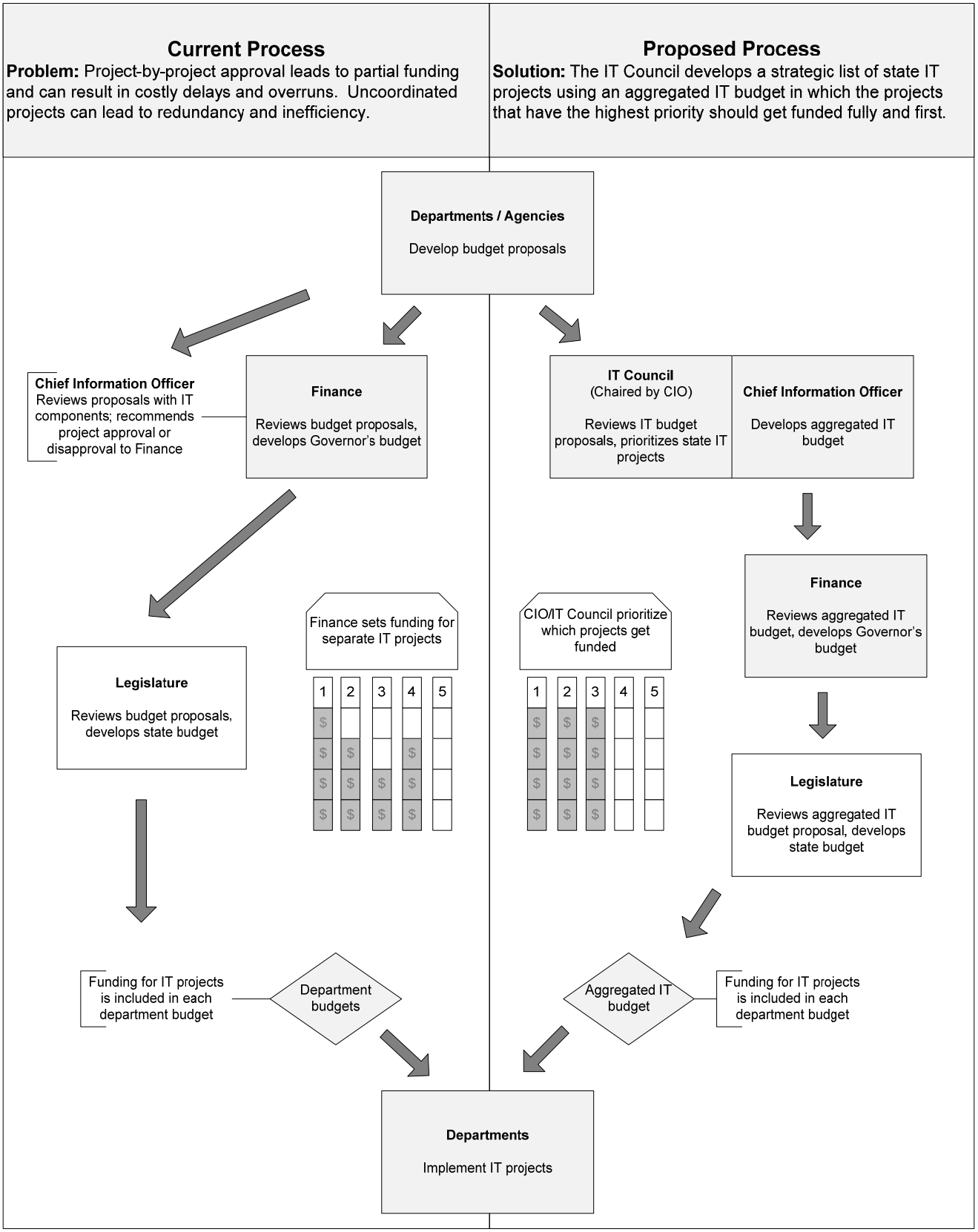
Currently, departments and agencies send budget proposals for technology projects simultaneously to the state CIO and to the Department of Finance. The CIO has the power to veto a bad project. The Department of Finance conducts its own independent reviews and can adjust funding levels. The Department of Finance ultimately moves the recommendations forward to be included in the governor's budget proposal.

Under the existing structure, departments compete for limited funds through isolated, project-by-project reviews. The Commission heard that this process has led to partial funding of technology projects, resulting in costly delays and overruns. Uncoordinated projects also create redundancy and inefficiency across departments and agencies, witnesses said.[112]

A more efficient approach would vest authority in the state CIO to develop an aggregated technology budget with input from the state's Information Technology Council. A forward-looking, strategic review of all proposals from a statewide perspective would be able to more effectively and efficiently rank projects based on such criteria as federal mandates, risk and the potential to improve services. Projects that have the highest statewide priority should get funded fully and first. Such an approach would standardize planning, create a central point of accountability and increase the likelihood of catching problems early. The state CIO should have this authority.

The technology priority list would work its way through the normal budget process involving the Department of Finance, governor and Legislature. Nothing would be final until the state budget is signed, but the benefit of building a transparent document based on an aggregated IT budget would show how the panoply of projects fits into the state's entire technology strategy. This would be similar to the priority list developed with stakeholder input by the California Transportation Commission for road projects.

Creating the State's IT Budget



Shoring Up Confidence

Rebuilding the confidence of the Legislature and the public in the state's ability to deliver large technology projects requires strong leadership, clear lines of authority and forthright communication. The Office of the State Chief Information Officer is best equipped to handle the challenge, given appropriate authority. The Legislature has given the state CIO the ability to reject technology projects that are duplicative or that lack the ability to operate on common platforms to facilitate data sharing. This authority alone is not enough, as it puts the CIO in a reactive role – wasting the potential of the office and wasting time when urgency is needed.

The CIO must be proactive – a champion to push, manage and oversee California's technology transformation, and with it, the potential to turn the state's multibillion-dollar data-collection systems into an interlinked informational tool to guide budget and management decisions.

Aligning the technology resources, from funding to staffing, would increase the state CIO's ability to execute a vision. At the same time, it would raise the expectations for the CIO and would provide a locus for accountability to the Legislature that has been unavailable previously. Burying the fear and paralysis that has hobbled the state's technology culture requires the state CIO to earn the confidence and trust of the Legislature. The state CIO cannot accomplish this without the necessary tools and authority.

In return, the state CIO must provide transparency and demonstrate results. The state CIO must regularly supply the Legislature, interested parties and the public with ample and relevant information. The CIO's Web site should provide timely access to budgets, project status updates, contracts, timetables and deliverables for major technology projects in easy-to-follow, searchable formats.

To build ownership and credibility for technology projects, an expanded and empowered Information Technology Council should be restructured to include legislative members. As it is, memberships of the Information Technology Council, the Technology Services Board and the Enterprise Leadership Council overlap. Eight agencies serve on all three boards, while 14 agencies serve on two of the boards. This overlap exists to provide oversight and coordination of functions located in different departments, but it is an inefficient use of department leaders' time. Bolstering oversight by expanding the IT Council and consolidating functions under the Office of the State Chief Information Officer would eliminate the need for three different boards.

To demonstrate openness and set expectations, the expanded IT Council also should adopt the CompStat model for its meetings. In this model, pioneered by the New York Police Department and first used by law enforcement agencies, department leaders meet with the chief to participate in regular, sometimes confrontational meetings to discuss data and statistics on crime and devise action plans. The CompStat approach since has been adopted by cities, school districts and several states. Conducting IT Council meetings in the open would encourage keeping technology projects on track, and when they fall behind, allow outside stakeholders to understand why.

The state's $1.6 billion Fi$Cal project demands a stronger point of oversight. Too much is at stake for the project to fail, or even falter. Currently, the project is collectively owned by four parties – the state controller, the state treasurer, Department of Finance and Department of General Services. The technological acrobatics required to align all of the state's accounting, financial and procurement systems into Fi$Cal are considerable, yet the state CIO has no official vote on Fi$Cal decisions. Arming the state CIO with authority to manage enterprise wide technology efforts, such as Fi$Cal, would provide a single point of contact and accountability for the administration, Legislature and the public.

The promotion of the state CIO to a cabinet-level post was long overdue. To allow the state CIO to gain momentum and build on successes, and to insulate the CIO from change in administrations, the Legislature should consider changing the parameters of the CIO position to serve a five-year term.

Virginia has used this approach since 2004, although the commonwealth also retains a cabinet-level secretary of technology, who serves at the pleasure of the governor. Virginia's CIO, who reports to a technology board, has said that the move provides the freedom to tackle major, time-consuming IT projects without facing many of the typical internal political problems common in government organizations. "The CIO has time to get things done," the Virginia CIO said. "Projects of this magnitude aren't short-term ventures."[113]

Fitting the Pieces Together

To accelerate the transition to data-driven performance improvement, the Office of the State Chief Information Officer must have a greater role in all phases of the transformation, from budgeting and planning to preparing tomorrow's technology workforce. In this, the Commission reiterates recommendations it made in 2004 and 2005 to consolidate

technology resources under the Office of the State Chief Information Officer.

The Office of the State Chief Information Officer can be an engine of transformation with the appropriate tools, so that it can provide state departments with infrastructure, networking, telecommunications, security and project management services.

Through guiding and helping departments build their next generation systems, the Office of the State Chief Information Officer can play a critical role in helping agencies and department heads use their data systems to improve performance through sharing best practices, solutions to recurring implementation problems or successful approaches that might be transferable, such as DMV's example of reducing wait times at branch offices or Child Support Services experience in knitting together 58 county reporting systems into a single statewide system.

Providing the appropriate governance structure is the essential first step of this effort. The state CIO must be given the authority to set and execute technology priorities as laid out in the state's 2006 IT Strategic Plan. The state CIO must be given the resources – the infrastructure as well as the human capital – to accomplish the task. These resources currently reside elsewhere in state government, limiting the CIO's ability to execute a statewide strategy, or even to ensure that the state's technology expertise – project managers, systems designers, and network engineers – are focused on the state's highest priority projects.

Such a consolidation would require moving the Department of Technology Services, now in the State and Consumer Services Agency, to the Office of the State CIO. This group provides a range of basic to advanced technology services, such as data storage and networking, to executive branch departments. It is an important function that will be central to developing a statewide IT architecture as envisioned by the IT Strategic Plan. The department was placed in the State and Consumer Services Agency upon its creation in 2005 when then state lacked a cabinet-level CIO. Now that the Office of the State CIO has been established, the Department of Technology Services should be relocated to a more fitting home. Having this group integrated into the Office of the State CIO would give the state CIO a direct connection to how departments use technology, allowing the state CIO to more easily implement common standards, reduce costs and redundancies, allocate personnel more effectively and initiate more data sharing. The current structure, with the Department of Technology Services beyond the CIO's direct influence, prevents this kind of strategic coordination.

Also in the State and Consumer Affairs Agency is the information security component of the Office of Information Security and Privacy Protection. This function should be relocated to the Office of the State CIO to ensure the state can integrate a standard strategy for information security throughout all of its IT programs. Locating this operation in the Office of the State CIO also can help coordinate and streamline the project approval process. The privacy protection component of the OISPP is a consumer function that is best served by the public-outreach expertise of its current agency and should remain there.

Similarly, the Office of Systems Integration, now in the Health and Human Services Agency, should be moved to the Office of the State CIO. This 200-person group of highly regarded program managers has helped the Health and Human Services Agency push forward on $5.5 billion in technology programs that includes the Department of Health Care Services' massive claims payment information system. State law prevents this office from sharing its expertise with other agencies, a luxury the state can no longer afford. When other departments have technology projects that run into trouble, the CIO lacks the capacity to send in a team of highly experienced project managers to help. The relocation would require legislation. Once under the CIO, the Office of Systems Integration could be used to help keep large projects in other departments on track and ensure the state's highest priorities get the appropriate attention, in whatever department they are located. Initially, it is likely that the bulk of this group's work would continue to be focused on the Health and Human Services Agency projects. Improving the IT capabilities of HHS departments responsible for $39 billion of the 2008-09 General Fund is an important objective with lasting benefits.

The state currently has no formal Geospatial Information Office, a function which other states are using to help break down barriers across agencies to share and present data in a more visually rich format for department managers and policy-makers. By demonstrating to departments the benefits of data mapping, the GIO could speed the state's ability to match sets of data from different departments, such as the Department of Alcohol and Drug Programs and the Department of Social Services. Using multiple data sets and mapping technology can help the state more efficiently locate resources, such as school-based health clinics, or ensure that parole services are near existing substance abuse treatment centers. Coordinating these efforts with the relocated information security group from the Office of Information Security and Privacy Protection would allow the state CIO to better address concerns about how data from separate departments is used and protected. Establishing a formal GIO in the Office of the State CIO provides for a more seamless coordination of implementing and operating the state's technology program.

These changes will address the problems that have long confounded the management of technology in state government and give the state CIO the ability to more quickly execute California's IT strategic plan.

Bolstering the State's Technology Workforce

California's technology workforce has not kept up with the pace of technological change or the growing demands placed on it by daily government operations. Increasingly, the state has relied on retired annuitants, consultants and contract workers to keep its aging "legacy" systems operable while integrating new systems alongside them. IT departments across the state government are facing the prospect of widespread departures as the bulk of the state's IT workforce becomes eligible for retirement.

The Commission has highlighted the need for a strategy to train project managers and develop staff in previous reports and reiterates that need.

Work on developing new classifications for technology workers has been underway for several years, any progress outstripped by the growing need for new employees with up-to-date skills and the constant change in technology itself. The State Personnel Board, the Office of the State CIO, the Service Employees International Union and the Department of Personnel Administration, together with the Legislature, are involved in the process. It is progressing far too slowly to meet the state's ever-increasing needs.

To bridge the gap, the state has turned to consultants and contract workers. When used in a coordinated way for a specific purpose, these contract workers deliver great value to the state. But the Commission heard testimony that the way these contractors and consultants currently are managed significantly boosts costs. Data on how many of these contractors and consultants work for the state have not been centrally collected or assessed. An unsuccessful bill, AB 2603 (Eng), could have provided a benchmark by requiring each agency to prepare an annual report on consulting contracts and staffing levels.

With the state's 8,000-strong technology workforce located inside individual departments, the state CIO has no way to make an overall assessment of what the state's workforce needs are, or how to match its existing workers to its most pressing technology priorities. Consolidating this workforce under the Office of the State CIO would allow such assessment and coordination.

In Virginia, such consolidation was seen as a critical first step toward creating a performance management system, allowing the commonwealth to standardize system design, applications and procedures, Aneesh Chopra, Virginia's Secretary of Technology, told the Commission. Previously, each agency had been responsible for its own IT infrastructure, resulting in different email systems and system architectures that could not interact with each other.

The consolidation was essential to the more strategically important next step, sharing data across agencies, he said.

"While individual agencies might have been relatively efficient, when we looked for opportunities to collaborate across the enterprise, we had no ability," Chopra said.

The process is complicated, and not without political risks, Chopra said, describing the consolidation as a radical, but necessary step.[114]

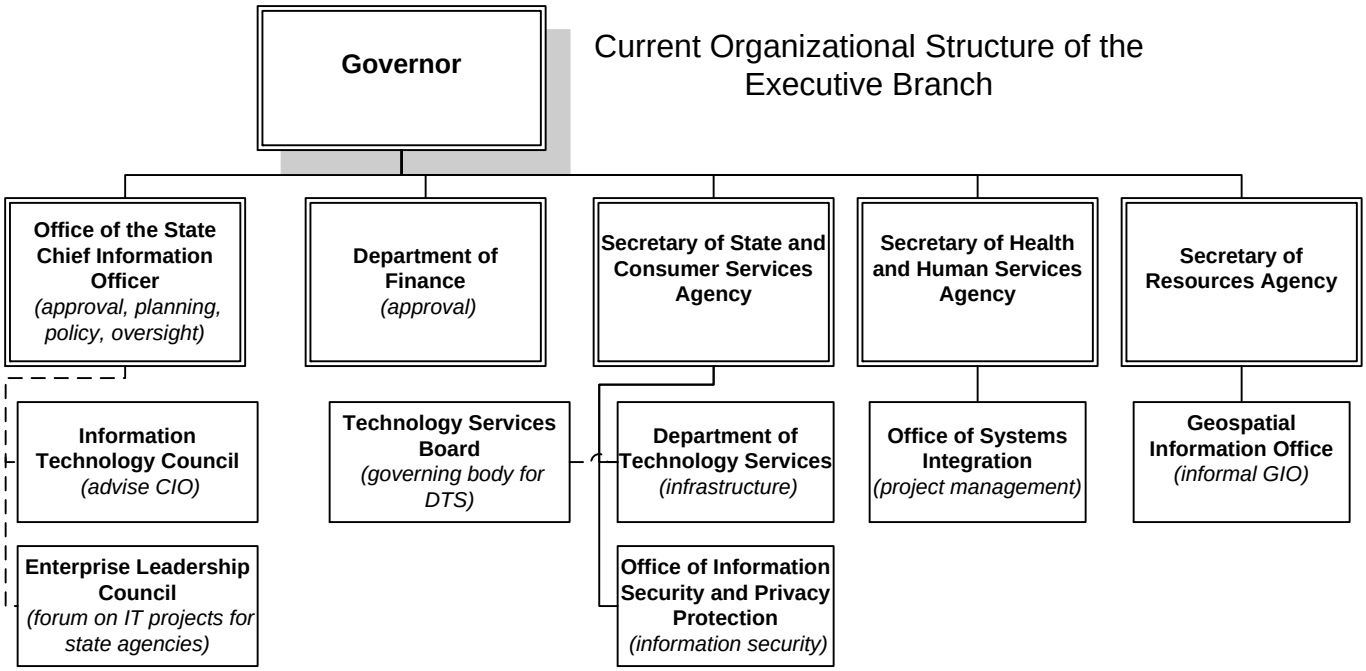
In California, such issues would be magnified by an IT workforce more than four times the size of Virginia's. The state CIO, working with department directors, should determine whether some IT functions, such as personal computer technical assistance, should remain in departments, allowing the state CIO to focus on system-level activities.

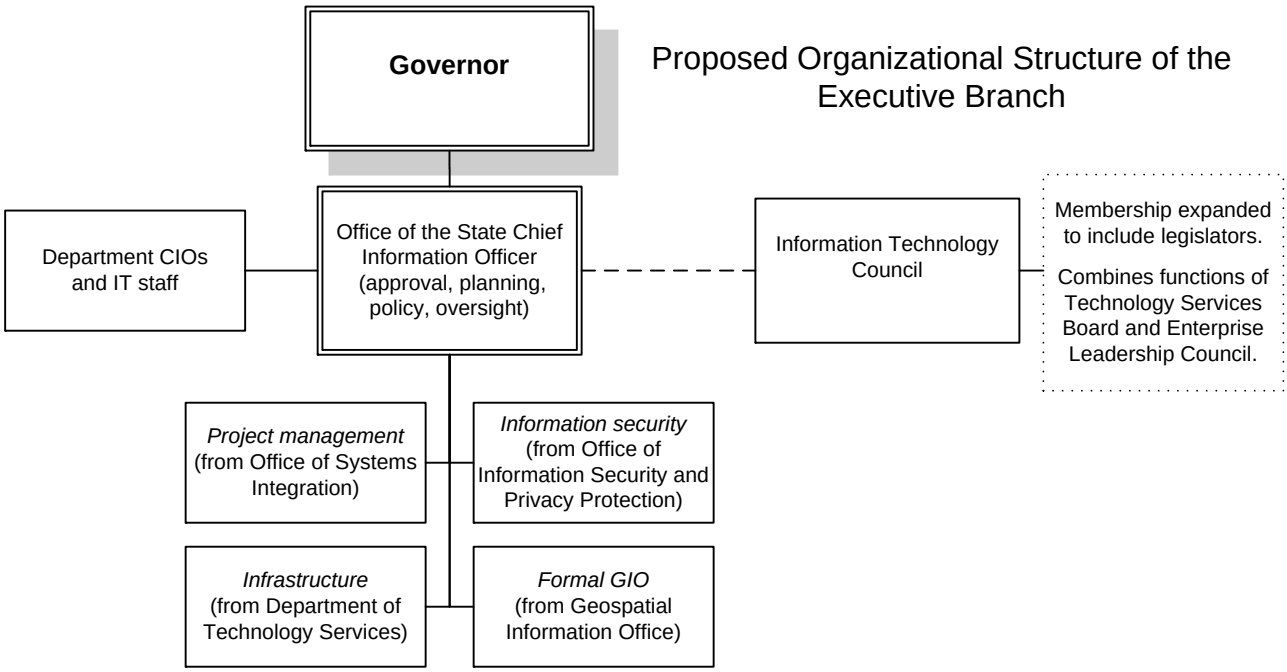
As the state moves toward using more common computer platforms, the state CIO would benefit from having the ability to adjust staffing levels and shift resources to meet project needs, especially with the added project management capacity provided by relocating the Office of Systems Integration.

Such a consolidation also would enable the state, through the Office of the State CIO, to develop a strategy for the anticipated retirements in the technology workforce in the next few years. These retirements present opportunities for the state CIO to restructure this workforce, but only if these employees are all in one department. The state CIO can drive an enterprise-wide training and hiring strategy but must have better information about where consultants and contract workers are presently working. Informed through the planning and priority-setting process, the state CIO also would have the best perspective on where state technology workers, consultants and contractors are adding the most value and where they could be best used going forward.

To this end, the state technology workforce should be consolidated under the Office of the State CIO, with department and agency CIOs reporting to the state CIO, giving California's state CIO the same ability to direct resources as CIOs in such states as Virginia, Washington and Michigan.

Managing Technology in California State Government





Building Toward the Future

Witnesses cautioned the Commission that creating a new technological landscape cannot be an end onto itself. The massive upgrade needed for the state's technology program offers an opportunity to evaluate how data and technology can be used to shape performance and meet business needs. It requires creating new ways to be efficient instead of simply "paving over cow paths," according Department of General Services Director Will Bush. "It's about the information, not the blinking lights," Mr. Bush told Commission staff.[115]

Ken Miller, a government-efficiency expert, wrote in *We Don't Make Widgets* that processes have to be reinvented and that technology is simply a tool to help make those processes more efficient. "When technology becomes the initiative itself, it inevitably lets everyone down," he said. "The process is just as slow and unresponsive to customers as always, only now it's automated."[116]

This is an important lesson for California as it continues to shape the management of its computer systems for business and strategic needs. It requires an examination of what "IT" even means. The state's drive to improve "information technology" has long focused on the expensive technology aspect. As it moves forward, California must focus on the information side.

"The 'I' of 'IT' became the cobbler's children of the digital age," Paul Taylor, chief strategy officer of the Center for Digital Government, told the Commission.[117]

Even though new technologies have made it easier to collect and process data than ever before, smart managers recognize that the value is not in the data, it is in using the data. It is turning individual data points into information that can be organized and analyzed to help policy-makers and managers make decisions.

The state's data chief, P.K. Agarwal, director of the Department of Technology Services, noted, "We (already) have tons and tons of data and charts. You could spend weeks sifting through the data." Mr. Agarwal told Commission staff that adopting a data-driven approach to running the government represents a management challenge more than a technological challenge. It requires changing the management culture of the state.[118]

> ***"Collecting good data does not do anything, in and of itself, to improve government operations. What improves government operations are the questions, conversations, analyses and debates that are ignited, and then the actions that are pursued once the data start flowing in."***
>
> Jonathan Walters, in *Measuring Up 2.0*

Such a culture shift requires long-term support and sponsorship from the governor and state leaders, but the state CIO should be able to take an immediate lead on the technology side of a data-driven revolution.

The diffusion of IT authority has prevented the state from building a comprehensive strategy to gather and organize data, which would inevitably require building technology projects. Until that problem is fixed, the state is limited in its ability to harness its data in a way that allows it to measure the effectiveness of how it uses its resources.

The approach is known as performance measurement – the regular measurement of the results and efficiency of services and programs, summed up in the maxim: "You cannot improve what you cannot measure." Management experts consider the measuring of progress toward specific outcomes vital to improving government services.[119]

Choosing Performance Measures

Developing good performance measures is hard work, and requires that one really knows what is important about the service being measured. Unfortunately, performance measures are often chosen because of the ready availability of data or because a measure already has been developed. In choosing performance measures, it is important to have a mix of both process and outcome measures.

Performance measurement data has to be made available in a timely manner – i.e., in as close to real time as possible – if you want performance improvement to be timely. It does little good to provide only annual performance data to an organization unless you are willing to wait years for measurable improvement.

Performance measurement data has to be fed back to the front line – i.e., to those on the sharp end of the organization that actually execute the organization's mission.

Finally, nothing makes performance measures better than using them. With use, measures get refined and improved.

Source: Kenneth Kizer, M.D., MPH, former Director, California Department of Health Services and former Under Secretary for Health, U.S. Department of Veterans Affairs. Sacramento, CA. June 26, 2008. Testimony to the Commission.

Measuring performance can improve performance at the same time allowing the state to demonstrate value to taxpayers and earn legitimacy for how the state is spending their money.

Kenneth W. Kizer, described to the Commission the role of using data to measure performance played in the transformation of the health system of the U.S. Department of Veterans Affairs. As undersecretary for health at the department, Kizer and his management team found that the act of measuring and tracking performance on a combination of processes and outcomes had a positive effect on performance.

As the state continues to improve its technology operations, there is growing recognition that getting the most out of these tools requires a different kind of process. Likewise, the ability to both redesign the processes of government and harness new technology to produce information about those operations requires a new approach to the management of government operations.

The energy and commitment devoted to increasing California's technical capacity must be matched with an equal intensity to foster and encourage a culture of performance measurement and management. This is an important role for the governor and Legislature.

Over the years, California has tried unsuccessfully to

force, entice or cajole departments and agencies to use data to track program performance and drive improvement. Each department should have a performance measurement and quality improvement function incorporated into its basic management structure. It is worth noting that the state has a performance measurement requirement for departments – part of the Government Code since 1993.[120]

Over the course of its study, the Commission learned that many departments and agencies, even those with historically poor performance records, are taking the initiative to design and implement systems that connect budget, policy and management decisions with performance information. In some cases the efforts are modest, in others, quite ambitious.

The list is not comprehensive, but includes:

- Business, Transportation and Housing Agency.
- California State Teachers' Retirement System.
- Department of Corrections and Rehabilitation.
- Department of General Services.
- Department of Health Care Services.
- Department of Motor Vehicles.
- Department of Social Services.
- Department of Technology Services.
- Department of Toxic Substances Control.
- Department of Transportation.
- Employee Development Department.
- Franchise Tax Board.
- Water Resources Control Board.

The Department of Motor Vehicles stands out for embracing this approach. The DMV has reduced average field office wait times to 21 minutes from one hour, increased online driver license and vehicle registration renewals, reduced telephone busy signals by 95 percent and instituted a new online training program for entry-level staff.[121]

The DMV director plays a lead role by setting department priorities and holding deputies accountable

Business, Transportation & Housing Agency: A Performance Leader

To better manage its 13 departments, the Business, Transportation and Housing Agency introduced a performance improvement initiative in December 2003. Driven by the agency secretary following the California Performance Review, the initiative was designed to transition all departments to performance-based management and to improve transparency and accountability to the public. All of the departments within the agency have achieved efficiencies that stem from the initiative. The initiative included:

- A review of each department's strategic goals, objectives, strategies, performance measures and action plans.
- The creation of a template for departments to use in delivering performance reports to the agency.
- The creation of an agency-wide performance improvement council to assist in implementing agency-wide performance improvement efforts and serve as a forum for sharing best practices among the departments.
- The creation of a centralized data warehouse for all of the agency's departments to improve reporting mechanisms and develop more sophisticated analysis.
- A training seminar on performance-based management for all department directors and executive management teams.

Sources: Business, Transportation and Housing Agency. March 2006. "Performance Improvement Initiative Overview." Also, Michael Tritz, Deputy Secretary for Audits and Performance Improvement, Business, Transportation and Housing Agency. Sacramento, CA. July 1, 2008. Personal communication.

for their program performance and budgets through monthly and yearly reviews. The director created a new Strategic Planning Office to issue quarterly reports displaying data on the department's progress in meeting its strategic objectives.

Many policy-makers might be surprised – and pleased – that the California Department of Corrections and Rehabilitation, grappling with prison overcrowding and inmate medical care, is implementing multiple performance-measurement projects, some imposed from the outside, some generated from within.

Performance measurement is part of the U.S. District Court mandate that required California's court appointed prison health care receiver to develop a constitutionally adequate medical care system for the state's prison inmates.[122] The receiver, J. Clark Kelso, the former state CIO, has special expertise and interest in leveraging technology to track performance. As part of the court order, the receiver publishes quarterly reports with performance goals to form an objective basis to track progress in improving the prison health care system, such as its success at hiring and retaining clinicians.[123]

Champions Determine The Primary Use of a Performance Management System: Who Are They?

The champions of any performance management framework must define the purpose of a performance management system from the start. Defining a system that can change behaviors starts with what the users of the system want or need. These can vary or be at odds with each other. The role of leaders is to define what they expect. The primary use of a system will determine what components are most important.

Primary Use	*Required Components*
Internal Accountability	Creating vertical hierarchy, controls and checks are important to ensure integrity and reduce the gaming of data. Parallel reinforcing systems include performance budgets, performance contracts and performance pay.
External Accountability	Creating a high degree of transparency, providing raw data feeds to third parties and allowing external analyses will be important design features. Data drawn from non-state sources may also be important elements.
Performance Improvement and Decision-Making	Creating real-time, transparent information systems that allow broad, horizontal visibility of data will be important design features. In such an approach, data is used to correct deviations quickly, often through peer pressure. Parallel systems include real-time data that is widely available to users, common standards for collaboration and methods to manage ongoing course corrections.

Source: John Kamensky, Senior Fellow, IBM Center for The Business of Government. Sacramento, CA. August 27, 2008. Little Hoover Commission Advisory Committee Meeting.

The corrections agency continues to hone an in-house, comprehensive performance measurement system, modeled after the successful CompStat programs pioneered by the New York City Police Department and now used in modified forms by cities, school systems and even states. For the agency, CompStat serves as an early warning system, a process for monitoring issues and changes and a method to elevate issues to the agency secretary. Created in 2006, the program measures more than 450 elements in the state's 33 adult institutions – such as inmate assaults and sick leave and overtime for correctional officers – with plans to expand to other agency operations. CDCR leaders can call up the information through a Web-based portal and can monitor relevant measures through a dashboard that provides indicators depicting agency progress. A technologically sophisticated project, CompStat uses performance information automatically pooled from varied data-collection systems using existing software. A main feature of the program since July 2008 includes regular meetings at each adult facility with high-level department staff and institution leaders to identify and address areas of excellence and deficiency.[124]

CDCR's human resources division, which includes 1,000 employees whose duties include training programs to personnel processing, has developed a performance measurement system for its operations. Created by the deputy director of human resources in 2003, the staff engaged employees throughout the division to develop performance measures that looped back to the core functions and processes of each office. Staff then developed Excel spreadsheets to collect data on more than 100 measures relating to performance, such as customer satisfaction during and after training sessions or turn-around time for personnel paperwork. The office holds monthly meetings with the deputy director of human resources, division chiefs and managers to discuss and troubleshoot performance within the division.[125]

As with similar efforts underway in the Department of Social Services or Toxics Substances Control, the state must foster and promote this cultural shift. A key challenge will be how to encourage and sustain these efforts, yet avoid making the practice of collecting and using data into another compliance exercise. It should be an accepted and anticipated practice that ultimately, engages program managers, executive department and agency leaders, the Legislature and governor's office to look to data as a way to inform policy decisions and improve budgeting and programs.

Discussions revealed that government leaders and line staff share a sense that data needs to be collected for a purpose and it needs to be shared in order to improve government accountability and performance.

Measurement, Metrics and Leadership

In his work with state agencies, former California chief information officer J. Clark Kelso has encouraged government organizations to embrace strategic planning, budgeting based on that planning and subsequent performance measurement against that planning. They represent the three foundations upon which to build innovative, highly-productive and responsive public entities.

To lead or manage an organization using metrics and measurement, the leader must accomplish three difficult tasks:

- Convince the organization that the *act of measurement* is important (not everyone agrees with this premise);
- Decide on the *right things to measure* to reflect organizational goals (selecting the right goals and then aligning those goals with performance measures is a difficult executive-level decision); and,
- Use the *right metrics of measurement* so that the data analysis accurately reports relevant results (implementing metrics and measurement systems requires professional, technical expertise).

The Limits of Metrics and Measurement. Strategic leadership, whether in the public or private sector, is visionary and forward-looking and often contemplates doing things in fundamentally different, innovative ways. When strategic leadership is at work, insisting upon slavish adherence to existing metrics and measurement approaches is likely to be a barrier to innovation and improvement. The old metrics will not properly reflect new ways of doing business and new value systems, and since the new business processes and new value systems are not themselves fully developed, there is likely to be a period of time when the information and metrics available do not perfectly reflect the innovation that actually is happening. Metrics and measurement are necessary, but not always sufficient. Organizational development often requires leadership that breaks the existing molds in favor of alternative approaches. Good leaders need to have the flexibility and discretion to make bold moves forward, which may require abandoning old ways of measuring progress in favor of new and, at least initially, untested approaches.

Source: J. Clark Kelso, California Prison Health Care Receiver and former Chief Information Officer, State of California. Sacramento, CA. June 26, 2008. Testimony to the Commission.

This "grassroots" phenomenon ultimately needs a unifying strategy. Developing such a strategy must be a top priority for this administration and the next. It will require the cooperation and support of the Legislature as well. Executing this strategy will be fundamental to the state's ability to deliver a high level of services to its citizens in this challenging revenue climate.

Other states, such as Washington and Virginia, already leverage data to improve government. Their experiences offer many ideas that California policy-makers should consider to broaden the state's performance-management efforts into a statewide system to track, measure and improve performance.

Through Washington State's Government, Management, Accountability and Performance (GMAP) program, the governor holds regular public meetings with agency secretaries to review high-level performance data on state goals, devise action plans and follow-up on previous improvement efforts.[126]

For Washington, the proof is in measurable improvements: faster responses to calls about child abuse, clearing accidents more quickly on major transportation corridors, reducing workplace injuries and claims, and decreasing on-hold waiting time by more than 60 percent on Medicaid telephone hotlines.[127]

California also can borrow ideas from Virginia, which instituted an inclusive, statewide performance culture. The commonwealth broadcasts to the public an easy-to-read scorecard with arrows indicating progress on performance goals. The information generated from the scorecards is embedded into the governor's budget and planning process. The governor meets with agency heads to discuss quantifiable measures of agency objectives and the best ways to achieve them. Virginia's budget office also uses the performance data and objectives to drive funding decisions, and town hall meetings are held regularly to discuss the performance data in public forum.[128]

As part of the effort, Virginia launched a competitive, research-and-development grant program in 2007 to support technology projects that further the state's performance goals. Departments compete for grants or loans from a $3 million, self-generating Productivity Investment Fund. After two rounds of funding, Virginia has seen a 6-to-1 return on investment.[129]

Virginia Secretary of Technology Aneesh Chopra told the Commission that the approved projects are often simple ideas that would never survive the traditional state budget process. Virginia agencies have tapped into the fund to develop Web-based applications to reduce transaction times, including a one-stop to streamline the forms required to start a business or apply for veterans' benefits.[130]

This experience provides an important lesson as California designs a new technology roadmap. "Nothing would be more depressing than when a really great idea to improve social services comes forward from a Silicon Valley entrepreneur but you can't adopt that technology because your infrastructure is not sufficient to allow for it, which makes the cost of the program so high that you can't do it," Mr. Chopra said.[131]

California created a similar technology innovation fund in 2000. The Legislature set aside $10 million and the governor appointed members to an oversight board that assigned the task of evaluating grant proposals. The money, however, was reverted back to the General Fund in the 2001-02 budget, and the program was never implemented. The framework for California's technology fund still exists in statute. It should be re-established and operated through the state's IT Council.

Conclusion

Replacing the state's 30-year-old computer systems is a challenge that must not be an end to itself. This massive effort, already underway in many departments, offers California a chance to break away from the form-over-function legacy of department processes trapped in antiquated systems.

Today's challenges in state government require more than just building new systems. A new IT legacy must be established and passed on in which the state designs and uses technology that allows performance data to be tracked and analyzed, providing useful information to policy-makers, state managers and the public. This is the tradition that California – the birthplace of technology – deserves.

The state CIO stands at the center of this IT transformation, as much an information champion as a technology leader.

This potential – for technology to improve government services and public outcomes – is well known. The challenge, however, has been to act on that priority to make the vision possible.

California's effort to find the appropriate balance for governance and oversight for technology projects continues to evolve. The pieces of the framework for refurbishing California's technological landscape currently exist and can be reorganized for more coordination and better results. Given the immediate challenges facing the state, and the short window of opportunity available, attention must be focused on equipping the current state CIO, Teresa "Teri" Takai, with the authority and resources she needs. In her short tenure, Ms. Takai has impressed the Commission and many policy-makers with her quick understanding of California's technology needs and her enthusiastic dedication to improvement. She has earned an early vote of confidence.

Reorganizing the state's technology resources is the first step. Only then will the state be able to create a systematic strategy for using data to measure and improve performance. It is time to get started.

Recommendations

Recommendation 1: The Legislature must empower the state chief information officer with tools and resources to oversee a generational transformation of information technology in state government.

- ❑ Consolidate resources.
  - ✓ Move the Department of Technology Services under the Office of the State Chief Information Officer (OCIO).
  - ✓ Move the information security component of the Office of Information Security and Privacy Protection under the OCIO.
  - ✓ Create a Geospatial Information Office within the OCIO.
- ❑ Take ownership of projects and strengthen the IT workforce.
  - ✓ Consolidate the state technology workforce under the OCIO.
  - ✓ Place the state CIO in charge of enterprise-wide efforts, such as Fi$Cal and the 21st Century Project.
  - ✓ Create a project management office under the state CIO. Move the Office of Systems Integration under the state CIO.
- ❑ Appoint the state CIO for a five-year term.

- ✓ Restructure the state CIO position to serve under a five-year contract that overlaps gubernatorial administrations. The position would remain a cabinet-level post.

Recommendation 2: State agencies must use public money for technology projects responsibly and with transparency in order to rebuild the confidence of the Legislature and the public.

- ❑ Expand the scope of the Information Technology Council. The state needs a powerful, but lean, technology board to create accountability for performance.
  - ✓ Fold the Enterprise Leadership Council and the Technology Services Board into the IT Council, reduce membership for efficiency.
  - ✓ Add legislative members to the IT Council.
  - ✓ Hold regular, open meetings to review the status of large technology projects.
- ❑ Post more information online. The state CIO must make budgets and progress reports for technology projects available on a Web site.

Recommendation 3: The state must use technology to track, measure and improve performance.

- ❑ Foster and encourage growth of existing performance management efforts. Numerous agencies and departments have implemented or are in the process of developing performance measurement systems, creating a groundswell of interest and support for this data-driven management strategy.
  - ✓ Re-establish the technology innovation fund. Lawmakers authorized a technology innovation fund in 2000 that is not being used. The Legislature should direct savings from a new aggregated IT budget to be used as seed money to support this effort.
  - ✓ Engage leadership in performance reviews. The governor must hold regular public meetings with agency heads to evaluate data on state goals, devise action plans and follow up on previous improvement efforts.
  - ✓ Establish a Performance Measurement Forum. To build on existing efforts, an outside party from the academic or non-profit sector should coordinate regular meetings with practitioners of performance management to share best practices.

The Commission's Study Process

The Commission previously examined the administration of state information technology in its 2000 study, *Better.Gov: Engineering Technology-Enhanced Government,* its 2004 study, *Historic Opportunities: Transforming California State Government* and most recently in its 2005 study, *Reconstructing Government: A Review of the Governor's Reorganization Plan to Create a Department of Technology Services*.

The Commission initiated this study in the summer of 2008 to review state information technology through the examination of the Office of the State Chief Information Officer and the newly-created cabinet-level state Chief Information Officer position. This study also served as an opportunity for the Commission to focus on the opportunities and challenges to using technology to drive informed decisions by policy-makers through better collection and tracking of data.

As part of the study, the Commission convened two public hearings. At the first public hearing, held in May 2008, the Commission heard from a number of experts on governance and oversight issues surrounding the implementation of the state's information technology systems. At the second hearing, in June 2008, the Commission discussed the opportunities and challenges of leveraging technology to improve government operations and public outcomes. Hearing witnesses are listed in Appendix A.

The Commission also convened two subcommittee meetings during the course of this study. Staff from the Department of Finance briefed Commissioners on the status of the Fi$Cal project in May 2008. At the second meeting, held in August 2008, Commissioners discussed the organization of the state's information technology resources. Commissioners heard from the director of the Department of Technology Services, the director of the Office of Information Security and Privacy Protection and a member of the California GIS Task Force.

The advisory group meeting, held in August 2008, brought together leaders from across state government to discuss opportunities and barriers to implementing a statewide performance measurement system. Participants shared with the Commission their departments' and agencies' efforts to use performance measurement and management

strategies. A list of experts who spoke at the Little Hoover Commission public meetings is included in Appendix B.

Commission staff received valuable feedback from a number of experts representing various components of California's information technology program as well as from experts in other states. The Commission greatly benefited from the contributions of all who shared their expertise, but the findings and recommendations in this report are the Commission's own.

All written testimony submitted electronically for each of the hearings, and this report is available online at the Commission Web site, www.lhc.ca.gov.

Appendices & Notes

- ✓ ***Public Hearing Witnesses***
- ✓ ***Little Hoover Commission Public Meetings***
- ✓ ***Past Little Hoover Commission Recommendations***
- ✓ ***Selected Acronyms***
- ✓ ***California's Child Support System***
- ✓ ***Grading the States***
- ✓ ***Technology Outsourcing***
- ✓ ***Notes***

Appendix A

Little Hoover Commission Public Hearing Witnesses

Witnesses Appearing at Little Hoover Commission Public Hearing on Data and Technology, May 22, 2008

Andrew J. Chang, former Deputy Director, California Department of General Services

John Thomas Flynn, former Chief Information Officer, State of California

Martin McGartland, President and Chief Executive Officer, Natoma Technologies, Inc.

Paul W. Taylor, Chief Strategy Officer, Center for Digital Government

Teresa "Teri" M. Takai, Chief Information Officer, State of California

Witnesses Appearing at Little Hoover Commission Public Hearing on Data and Technology, June 26, 2008

Joseph Archuleta, Analyst, Government Management Accountability and Performance, State of Washington

Aneesh Paul Chopra, Secretary of Technology, Commonwealth of Virginia

J. Clark Kelso, California Prison Health Care Receiver and former Chief Information Officer, State of California

Kenneth W. Kizer, former Undersecretary for Health, U.S. Department of Veterans Affairs and former Director, California Department of Health Services

Appendix B

Little Hoover Commission Public Meetings

Data and Technology Subcommittee Meeting – May 21, 2008
Fi$Cal Briefing

Titus Toyama, Project Executive, Department of Finance

Valerie Varzos, Project Manager, Department of Finance

Data and Technology Subcommittee Meeting – August 12, 2008
Governance of Information Technology in California State Government

P.K. Agarwal, Director, Department of Technology Services

Michael Byrne, Member, California GIS Task Force and eServices Policy Manager, Department of Public Health

Kathy Curtis, Principal Fiscal and Policy Analyst, Legislative Analyst's Office

Christy Quinlan, Chief Deputy Director of Information Technology Services, Office of the Chief Information Officer

Mark Weatherford, Director, Office of Information Security and Privacy Protection

Data and Technology Advisory Group Meeting – August 27, 2008
Performance Measurement

P.K. Agarwal, Director, Department of Technology Services

Will Bush, Director, Department of General Services

Richard Callahan, Associate Dean and Director of State Capital and Leadership Programs, University of Southern California

Cathy Cleek, Chief Information Officer, Franchise Tax Board

Kathy Curtis, Principal Fiscal and Policy Analyst, Legislative Analyst's Office

Tam Doduc, Chairwoman, Water Resources Control Board

Toby Ewing, Research Director, California Forward

Adrian Farley, Chief Deputy Director, Office of the Chief Information Officer

Michael Harris, Deputy Director, Policy and Strategic Planning, Department of Parks and Recreation

Pierre Imbert, Deputy Director, Program and Organizational Performance Management, Department of Social Services

John Kamensky, Associate Partner and Senior Fellow, IBM Center for the Business of Government

Debbie Mah, Chief, Office of Strategic Planning and Performance Measurement, Department of Transportation

Bob Martinez, Chief of Strategic Planning and Organizational Development, Department of Motor Vehicles

Rene Mollow, Associate Director for Health Policy, Department of Health Care Services

Matt Paulin, Deputy Director, Administrative Services Division, Department of Motor Vehicles

Christopher Perrone, Senior Program Officer, California Health Care Foundation

Calvin Rogers, Chief Information Officer, Department of Social Services

Sandra Shewry, Director, Department of Health Care Services

Michael Tritz, Deputy Secretary for Audits and Improvement, Business, Transportation and Housing Agency

John Wagner, Director, Department of Social Services

Denzil Verardo, Consultant, Department of Toxic Substances Control and Performance Budget Team Leader, California Performance Review

Appendix C

Past Little Hoover Commission Recommendations

Reconstructing Government: A Review of the Governor's Reorganization Plan to Create a Department of Technology Services

(Report #180, May 2005)

Recommendation 1: The Legislature should allow the reorganization plan to go into effect, but additional steps can help assure the new Department of Technology Services delivers the potential benefits. Specifically, policy-makers should:

- ***Ensure quality leadership.*** The Governor should appoint an accomplished technology leader with the proven ability to administer a major technology services center while consolidating the data center and telecommunication functions. This leader should be appointed quickly to properly prepare for reorganization, which will go into effect on July 10, 2005. The administration should ensure that the compensation is adequate to hire and retain the right director, and seek legislative concurrence if necessary. The compensation package should include performance incentives linked to the new department lowering costs and improving services.
- ***Enable success and accountability.*** The Technology Services Board should ensure the new department has the flexibility to react quickly and effectively to capture cost savings and improve performance. If needed, the TSB should seek rule waivers or legislation to give the department budget, hiring, executive compensation and procurement authority in exchange for greater accountability for outcomes.
- ***Ensure outside technological advice.*** The Governor and the Legislature should ensure that the Technology Services Board has adequate technology expertise and advice from outside of state government. One option would be to formally establish the Technology Advisory Peer Group to ensure the State is employing new technologies and best business practices.
- ***Benchmark performance.*** The Technology Services Board should benchmark the new department's costs and services and compare its performance with similar service providers. Comparisons should be made routinely and made available to the public.
- ***Review management of welfare-related projects.*** The Department of Finance should ensure that proper project management practices are in place after the Systems Integration Division is transferred to the Health and Human Services Agency. The CIO should independently assess the technology strategies employed by SID and validate that best practices are applied. The review should be conducted at least twice over the next two years.

Recommendation 2: Policy-makers should fortify the State's technology governance, beginning with the creation of a Chief Information Officer with the authority to ensure that technology throughout state government – including the new Department of Technology Services – is deployed in ways that accelerates efforts to improve the performance of state operations. The new governance structure should include:

- ***A strong Chief Information Officer.*** The CIO should have statutory authority and responsibility to provide enterprise-level leadership. The CIO's duties should include verifying that the Department of Technology Services meets performance standards necessary to support additional consolidation of technology functions.
- ***A technology governing board.*** The board should include representation from legislative and executive branches, state and local agencies, and the private sector. It should set technology policy, approve technology spending and create accountability for performance.
- ***Provide for a management information system.*** The CIO should examine the data collection practices of state agencies and determine how to ensure that managers and policy-makers have access to information necessary to make informed decisions and create accountability for outcomes.
- ***Ensure competition.*** The State should streamline the ability of state agencies to purchase commodity data center and telecommunication services for any capable service provider that can offer better value than DTS. To ensure that DTS is competitive, the State should explore the benefits of restructuring the department along the lines of a public corporation.

Historic Opportunities: Transforming California State Government

(Report #176, December 2004)

Information technology. In a number of studies, the Commission has found that the State is not capturing the value of new technologies to improve performance. In its November 2000 study of e-government, the Commission recommended strengthening the State's management of technology. Since that report was issued the structure for managing technology has been dismantled, leaving the State without a statutory framework for managing its enterprise technology.

The appropriate application of technology can increase productivity and performance across state departments. For the State to benefit from technological advances, it should develop the following management structures:

- A Chief Information Officer (CIO) with statutory authority to enhance technological capacity. The CIO should be a cabinet-level position. The CIO should facilitate the strategic use of technology to promote improvements in all government initiatives.
- An independent council. The council should be granted the authority to set enterprise-level policies, review and approve major technology initiatives, and independently validate and verify state technology initiatives. The council should include stakeholders with an interest in the success of technology investments. The CIO should serve on, but not control, the council.
- A technology agency headed by the CIO. The agency should manage the State's enterprise technology assets, including all data centers, networks, state Internet portals, and telecommunication systems.

The technology agency should compete with outside vendors to serve departments based on the value it offers. Departments should have the flexibility to purchase technology services from other vendors provided those vendors meet the enterprise requirements set by the technology policy body.

The CPR report recommended appointing a CIO to advise the Governor on technology strategy and a separate Chief Technology Officer to administer enterprise technology services. CIOs in other states recommended that a single executive be responsible for technology leadership and administering enterprise-wide services. They also recommend vesting technology policy and

fiscal oversight in an independent body with broad customer and stakeholder membership to eliminate conflicts between internal policy-setting and service delivery functions.

Enhancing the capacity of the State to harness technology will permit dramatic improvements in performance. Many of the recommendations in the CPR report are premised on the ability to use information technology – such as using performance measures and performance-based budgeting. Additionally, smart investments in technology create opportunities for the State to redefine its partnerships with local governments to improve services to the public.

Better.Gov: Engineering Technology-Enhanced Government

(Report #156, November 2000)

Recommendation 1: The Governor and Legislature should establish a vision for the State to be a leader in technology-enhanced government that reduces costs, improves public service and supports California's success in the new economy. To implement technology-enhanced government, the Governor should provide executive leadership to develop and bring together e-government, process reengineering and technology management.

- ***Enterprise Vision.*** Beginning with the Governor's executive order, the state policy-makers need to define a vision for continuously improving performance by using the technology and knowledge that characterize the information economy. The vision should direct and inspire state programs to understand and respond to changing public needs and to continuously improve customer service.
- ***Executive Leadership.*** Within the Governor's office there should be leadership dedicated full-time to ensuring departments are actively assessing their operations and applying technology to improve performance. This effort must be supported by talent skilled in e-government, process reengineering and technology management, as described in the Recommendations 2, 3 and 4. Working at the cabinet level, the Governor's office should resolve obstacles – in budgeting, procurement, personnel and elsewhere – to using technology to improve customer service. This leadership must keep key participants focused on their goals and policy-makers informed about progress.
- ***Rigorous Citizen Oversight.*** A commission composed of private and public leaders should oversee initiatives to use technology to improve government operations. The Governor, Senate and Assembly should appoint members. The commission should exert continuous pressure for aggressive improvement measured against the success of comparable organizations. The commission should meet in public and issue public reports at least annually to the Governor and the Legislature.
- ***Most Qualified Personnel.*** The State must tap the most qualified personnel – civil servants as well as talent outside of state service to implement technology-enhanced government. Leadership appointees, in particular, must have demonstrated experience in the field, preferably in the public and private sectors. The Governor should rely on the business advisory council established in his executive order to assess and comment on candidates for key management positions. And the State, when appropriate, should explore authorities and other public and private partnerships to acquire the expertise it needs.

Recommendation 2: The Governor and the Legislature should create an infrastructure for developing state-of-the-art electronic-government services. The legislation should incorporate the following elements:

- ***An E-government Director.*** The Governor and the Legislature should vest in the e-government director the authority and responsibility for ensuring the success of e-government initiatives. The e-government director will need to coordinate the efforts of administrative agencies and line departments to improve the State's capacity to use technology to improve performance. To ensure accountability, the State's e-government director should report annually to the Governor and Legislature on progress implementing e-government.
- ***An Executive Steering Committee.*** An executive steering committee should be established, composed of the e-government director and the directors of the departments of Information Technology, Finance, General Services, Personnel Administration and the State Personnel Board. These directors need to be personally involved in the committee. The Governor should appoint the chairman of the committee.
- ***Public-Private Partnerships.*** To develop e-government applications, the State should develop a variety of public-private partnerships – including public authorities where valuable – to tap the expertise of the best technology experts, cutting-edge businesses, leading universities and other public institutions. These partnerships should be used to conceive, develop, operate and evaluate e-government applications.
- ***Comprehensive Training.*** The e-government director, in cooperation with department leaders, should develop a training program that gives managers and rank-and-file workers the skills to transform organizations and employ technology to improve public services.
- ***A Voice for Customers.*** The State should rely on advisory bodies of technology users and consumers to identify measures of success and to evaluate major e-government initiatives. These bodies can ensure public concerns over privacy and the digital divide are addressed. The Governor and Legislature should appoint members who reflect the diversity of citizens impacted by e-government efforts.
- ***Attention to the Digital Divide.*** E-government initiatives should recognize the different levels of access that consumers have to technology and should ensure e-government initiatives enhance access and service for all Californians. The e-government director should provide plans for bridging the "digital divide." E-government initiatives should not diminish the quality of service offered consumers without electronic access and should not be financed at their expense.
- ***Service Delivery Across Programs.*** The State's e-government director should help state agencies continuously eliminate wasteful administrative practices and propose legislation to eliminate statutory obstacles to e-government initiatives. The e-government director should compare the performance of state programs with those of other public and private organizations to identify and recommend opportunities for improved performance.

Recommendation 3: The Governor and the Legislature should enact legislation to require business process reengineering as a precursor to initiating major technology projects and provide departments with appropriate resources to accomplish this task. Reengineering should incorporate the following elements:

- ***An Office of Reengineering.*** The State needs to develop the capacity to assess and improve its business operations by creating an office of reengineering. The office should be provided whatever public or private resources are needed to help state departments continuously assess their performance and put the best processes and technologies to work.

- ***Reengineering Standards.*** Protocols for business reengineering should be established and administrators should be provided with the necessary training and support to redesign their operations. Administrators should compare the performance of their programs against similar organizations and focus on improving weaknesses. Departments should identify internal barriers – such as those between administrative and program units – that thwart comprehensive improvements. Special attention should be paid to developing partnerships between technology experts and program managers.
- ***Labor-Management Collaboration.*** Program administrators should create labor-management teams to help identify business problems, evaluate solutions and integrate technology into operations. Departments – along with taxpayers and the General Fund – should share the savings generated and be able to reinvest the savings to finance additional improvements.
- ***The Voice of Consumers.*** Consumers should be relied upon to shape how public services are delivered and empowered to critique the performance of e-government services. Where appropriate, strong consumer advisory bodies should be established to champion improved services.
- ***Accountable Implementation.*** Department leaders should implement reengineering steps that are within their authority and seek legislative approval or resources when necessary. As part of the budget building and approval process, department leaders should report on the progress of reengineering efforts and identify priorities for the coming year.

Recommendation 4: The Governor and the Legislature should hold the CIO and state agencies accountable for their role in building a competent IT workforce, procuring technology goods and services and deploying new technology projects. Specifically:

- ***Hold CIO Accountable for Technology Performance.*** So that the CIO can be held accountable, the Governor and Legislature should provide to the CIO the authority and the political support necessary to streamline procedures and make other improvements needed to successfully develop technology projects.
- ***Develop Standards and Strategies.*** The CIO should craft a new strategy for building the technology necessary for e-governance, including common architectures, data sharing protocols, and privacy and security standards.
- ***Assess Performance and Set Goals.*** The CIO should continuously benchmark the performance of state agencies against similar organizations. The CIO should establish baseline performance levels for such factors as personnel compensation, IT training, development time frames, and project management proficiency. Based on the assessment, the CIO should set goals for improvement, annually report on progress toward those goals, and identify issues or agencies that are preventing the State from reaching those goals.
- ***Continuously Improve Procurement Tools.*** The CIO should continuously assess the ability of procurement tools to efficiently provide departments with cutting edge technologies. One potential reform would be to streamline or eliminate the involvement of the departments of Finance and General Services in individual purchases. The CIO, however, could work with those departments to enable agencies to capture the benefits of on-line purchasing. And the CIO should re-examine the process for piloting new products to ensure that state agencies can reasonably try out new technologies that have the potential of significantly improving public services.

- ***Provide Citizen Oversight.*** The citizen oversight commission advocated in Recommendation 1 should be charged with rigorously assessing progress toward the goals established by the CIO. The commission should assess the efforts of all participating state agencies to bring about meaningful reforms to the management of technology, and annually issue reports and recommendations to the Governor and the Legislature. All state agencies should be directed to supply the commission with the information necessary to perform this function.
- ***Better Technology Information.*** To provide accountability for individual projects, the CIO should develop a Web-based inventory that provides accurate and comprehensive information about technology projects. This tool should allow policy-makers and the public to compare performance against project goals and explain variances. Project goals should be expressed in terms of improved customer service levels.
- ***Comprehensive Training Program.*** The CIO should develop a strategy for training and certifying a cadre of expert project managers adequate to meet state needs. The CIO also should ensure technical and non-technical staff receives the training needed to effectively utilize technology in their work sites.

Appendix D

Selected Acronyms

BT&H: Business Transportation and Housing Agency

CalPERS: California Public Employees Retirement System

CalSTRS: California State Teachers' Retirement System

Caltrans: California Department of Transportation

CDCR: California Department of Corrections and Rehabilitation

CIO: Chief Information Officer

COMPSTAT: Comparative Statistics

CPR: California Performance Review

DHCS: Department of Health Care Services

DMV: Department of Motor Vehicles

DOIT: Department of Information Technology

DTS: Department of Technology Services

Fi$Cal: Financial Information System for California

GIO: Geospatial Information Office

GIS: Geospatial Information Systems

GMAP: Washington State's Government, Management and Accountability Performance program

HR Modernization: Human Resources Modernization Project or 21st Century Project

IT: Information Technology

LAO: Legislative Analyst's Office

OCIO: Office of the State Chief Information Officer

OISPP: Office of Information Security and Privacy Protection

OIT: Office of Information Technology

OTROS: Office of Technology Review, Oversight and Security

TIRU: Technology Investment and Review Unit

Appendix E

California's Child Support System

In 1988, Congress required states to implement an automated child support enforcement system by October 1, 1995, or face steep financial penalties.[132]

California's response fell short, and the fines started mounting – about $200 million a year. In 1998, the California State Auditor found that a "cascade of events" contributed to the system's failure. Some of these problems included unrealistic timelines and requirements imposed by the federal government, a flawed system design by computer contractors and missteps in management by the state Department of Social Services.[133] The project also suffered from fragmented leadership – the state's child support "system" at the time was comprised of 58 separate systems, each run by the county's district attorney and together devoid of statewide coordination and standardization.

Much was at stake with the automation project beyond the fines. Federal welfare reform in the 1990s magnified the importance of child support payments as a safety net for families. With the growing number of child support cases and the increased costs of child support enforcement, states needed to more efficiently administer payments. A uniform automation system would therefore allow caseworkers to process routine cases more quickly and reach into electronic records to find absent parents, seize assets and attach wages.[134]

After years of false starts, California enacted legislation to establish a new California Department of Child Support Services (DCSS) on July 1, 2000 and to transfer local programs from district attorneys to county departments of child support services.[135] The DCSS became responsible for project oversight, including developing and maintaining the operation of the automation project in all counties. Separating the child support office from the Department of Social Services was intended to create a more coordinated approach and provide "a high level of visibility and accountability" toward improving the enforcement of child support payments.[136]

In a unique move, the Franchise Tax Board also took over project management of the automation system because of its successful track record with other large technology projects.[137] Over a period of eight years, from 1998 to 2006, the state worked with local child support agencies and the private sector to merge all 58 systems into one single, standardized automated system to manage the state's 1.6 million child support cases.[138]

The project is now in compliance with federal mandates that require states to implement a single statewide automated child support system and a single location for processing all child support collections and disbursements.[139] As part of the federal requirement, the state uses reliable data to measure the efficiency and effectiveness of its child support collection efforts, with common metrics for all states, such as paternity establishment rates and percentages of support collected versus what is owed.[140]

The Franchise Tax Board used a performance-based procurement and developed project scorecards that tied vendor bonuses to the project's success. The scorecard approach created room for ongoing discussion and evaluation of ideas with the vendors, which focused decisions and established a shared knowledge base and shared goals. Additionally, the project scorecards were shared with the state chief information officer and agency staff to regularly communicate with state leaders on the project's status.[141]

The certification was celebrated as an historic day and marked the end of accumulating penalties paid by the state for non-compliance with federal regulations.[142] At a press conference, a federal child support commissioner said the success was particularly remarkable because "California's child support program is the nation's largest child support program and arguably one of the most complex."[143]

Although the project was not always a model of success – its failures picked apart by state auditors, legislative committees and the Little Hoover Commission – its turnaround also deserves attention.[144] Gerald Goldberg, former executive director of the Franchise Tax Board, said: "It ought to be studied for years as a best practice."[145]

Appendix F

Grading the States

Information Performance Grades By State
National Average = B-

A	A-	B+	B	B-	C+	C	C-	D+
Michigan Missouri Utah Virginia Washington	Texas	Georgia Iowa Louisiana	Kansas Kentucky Minnesota New Mexico Pennsylvania Tennessee	Alaska Arizona Connecticut Delaware Florida Indiana Maryland Nebraska Nevada North Carolina Ohio Oregon Southern Carolina	California Idaho Illinois Montana New York North Dakota Wisconsin Wyoming	Alabama Colorado Maine Massachusetts Mississippi Oklahoma Rhode Island West Virginia	Arkansas Hawaii New Jersey Vermont	New Hampshire South Dakota

The Pew Center on the States, in partnership with Governing Magazine, recently assessed the quality of management in each of the 50 states in terms of money, people, infrastructure and information. The information performance grades assess how effectively states apply data and technology to measure the effectiveness of services, make decisions and communicate with the public. Pew measured each state's information performance based on a number of criteria including: strategic direction, budgeting for performance, managing for performance, performance auditing and evaluation and online services and information.

Source: The PEW Center on the States. Government Performance Project, Information Performance Grades. http://www.pewcenteronthestates.org/uploadedFiles/Information%20Performance.pdf. Accessed October 10, 2008.

Appendix G

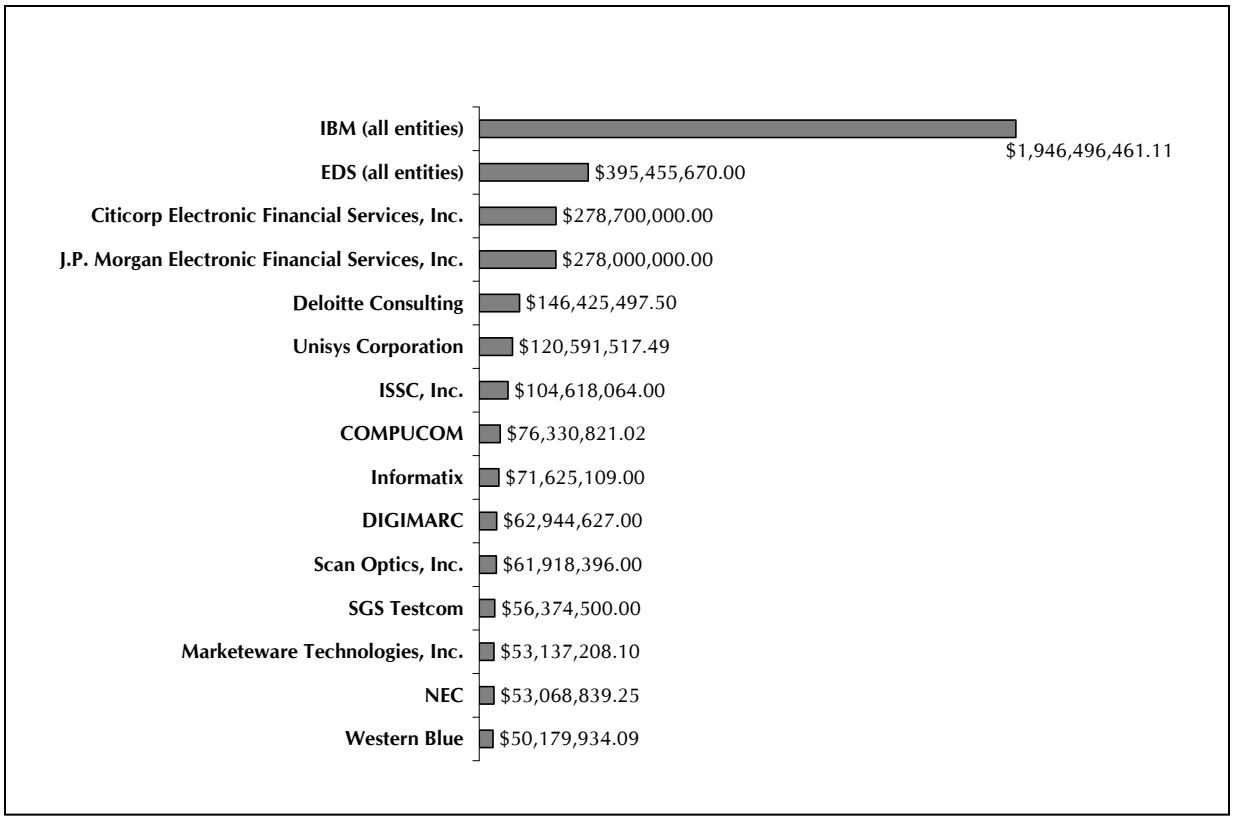
Technology Outsourcing

Number of Contracts by Contract Value

Contract Count	Contract Value
2	> $100,000,000
1	$50,000,000 - $99,999,999
3	$25,000,000 - $49,999,999
7	$10,000,000 - $24,999,999
10	$5,000,000 - $9,999,999
19	$2,500,000 - $4,999,999
44	$1,000,000 - $2,499,999
89	$500,000 - $999,999
323	$250,000 - $499,999
922	$100,000 - $249,999
10,957	< $100,000

Source: J. Clark Kelso, Chief Information Officer, State of California. November 8, 2007. "Annual Report on the Executive Branch's Information Technology Program — 2006-07." Page 25. Sacramento, CA. Office of the State Chief Information Officer.

Top 15 IT Suppliers
July 1, 2003 to April 11, 2008



Source: Adrian Farley, Interim Deputy Director, Procurement Division, Department of General Services. Sacramento, CA. April 15, 2008. Written communication.

Notes

1. Legislative Analyst's Office. December 2006. "Cal Facts: California's Economy and Budget in Perspective." Page 57. Sacramento, CA.
2. Kevin Yamamura. June 28, 2008. "Feds certify child-support computer system." The Sacramento Bee.
3. Kevin Yamamura. See endnote 2.
4. Gerry Goldberg, former executive director, Franchise Tax Board. Gold River, California. June 24, 2008. Personal communication.
5. Teresa "Teri" Takai, Chief Information Officer, State of California. Sacramento, CA. May 22, 2008. Little Hoover Commission hearing. Written testimony.
6. Teresa "Teri" Takai. See endnote 5.
7. Teresa "Teri" Takai. See endnote 5.
8. J. Clark Kelso, Chief Information Officer, State of California. Sacramento, CA. November 8, 2007. "Annual Report on the Executive Branch's Information Technology Program – 2006-2007." Pages 21-22.
9. Christy Quinlan, Chief Deputy Director, Office of the State Chief Information Officer. Sacramento, CA. August 12, 2008. Little Hoover Commission. Subcommittee meeting.
10. George Valverde, Director, Department of Motor Vehicles. Sacramento, CA. July 9, 2008. Personal communication. Also, Adrian Farley, Interim Deputy Director, Procurement Division, Department of General Services. Sacramento, CA. April 15, 2008. Written communication.
11. Daniel Weintraub. "Another software fiasco costs us millions." March 2, 2008. The Sacramento Bee.
12. Daniel Weintraub. See endnote 11.
13. Jon Dickinson, Director of Governmental Affairs, Office of the State Chief Information Officer. Sacramento, CA. October 15, 2008. Written communication.
14. J. Clark Kelso. See endnote 8. Pages 21-22.
15. J. Clark Kelso. See endnote 8. Pages 21-22.
16. Christy Quinlan. See endnote 9.
17. J. Clark Kelso. See endnote 8. Pages 21-22.
18. J. Clark Kelso. See endnote 8. Pages 21-22.
19. Teresa "Teri" Takai, Chief Information Officer, State of California. Sacramento, CA. March 21, 2008. Personal communication.
20. Richard Callahan, Associate Dean, School of Policy, Planning, and Development, University of Southern California. Sacramento, CA. April, 29, 2008. Personal communication.
21. Little Hoover Commission. November 2000. "Better.Gov: Engineering Technology-Enhanced Government." Sacramento, CA. Also, Little Hoover Commission. December 2004. "Historic Opportunities: Transforming California State Government." Sacramento, CA. Also, Little Hoover Commission. May 2005. "Reconstructing

Government: A Review of the Governor's Reorganization Plan to Create a Department of Technology Services." Sacramento, CA.

22. J. Clark Kelso, Chief Information Officer, State of California. Sacramento, CA. July 19, 2007. "State Information Technology for the Next Generation."

23. J. Clark Kelso, Chief Information Officer, State of California. Sacramento, CA. November 2006. "California State Information Technology Strategic Plan Update.

24. J. Clark Kelso, Chief Information Officer, State of California. Sacramento, CA. December 28, 2007. "California Service-Oriented Architecture: General Outline of Overall Program."

25. Stuart McKee, National Technology Officer, Microsoft. Redmond, WA. April 23, 2008. Personal communication. Also, Paul W. Taylor, Chief Strategy Officer, Center for Digital Government. Olympia, WA. March 7, 2008. Personal communication.

26. Center for Digital Government. "2008 Digital States Survey Winners!" Folsom, CA. http://centerdigitalgov.com/story.php?id=107861. Accessed September 17, 2008. Also, Office of the State Chief Information Officer. "California Ranks Fifth in National Digital Government Competition." Sacramento, CA. http://www.cio.ca.gov/Public/Newsletters/technology_update091708.html. Accessed September 17, 2008.

27. Darrell M. West. 2008. "State and Federal Electronic Government in the United States, 2008." Page. 11. Washington, D.C. The Brookings Institution. Also, Office of the State Chief Information Officer. August 28, 2008. "California Ranks 4th in Annual Brookings Institution Technology Study." Sacramento, CA. http://www.cio.ca.gov/Public/Newsletters/technology_update082808.html. Accessed September 3, 2008.

28. Pew Center on the States. March 2008. "Government Performance Project: California: Grading the States 2008." Washington, D.C. http://www.pewcenteronthestates.org/uploadedFiles/PEW_WebGuides_CA.pdf. Accessed March 2008.

29. Teresa "Teri" Takai. See endnote 5.

30. Legislative Analyst's Office. "2007-08 Analysis. General Government: Office of the Chief Information Officer (0502)." Pages F-28 – F-33. Sacramento, CA. Legislative Analyst's Office.

31. Pew Center on the States. March 2008. "Government Performance Project: Information Performance Grades." Washington, D.C. http://www.pewcenteronthestates.org/uploadedFiles/Information%20Performance.pdf. Accessed March 2008.

32. J. Clark Kelso. See endnote 8. Page 3.

33. Office of the State Chief Information Officer. April 2007. "Key Roles Managing the California IT Program (The California Federated Model)." Sacramento, CA. http://www.cio.ca.gov/stateIT/governance/roles.html. Accessed May 2, 2008. Also, Department of Finance. March 14, 2008. "Budget Letter 08-06." Page 2. Sacramento, CA. Also, Department of Finance. "State IT Policy." Sacramento, CA. http://www.dof.ca.gov/state_it. Accessed May 2, 2008.

34. Office of the State Chief Information Officer. See endnote 33.

35. Office of the State Chief Information Officer. See endnote 33.

36. Department of Finance. "State IT Policy." Sacramento, CA. See endnote 33.

37. Office of the State Chief Information Officer. See endnote 33.

38. Office of the State Chief Information Officer. See endnote 33.

39. Department of Finance. "State IT Policy." See endnote 33. Also, Department of Finance. "Budget Letter 08-06." See endnote 33. Page 2.

40. RAND. 2003. "Effective Use of Information Technology: Lessons about State Governance Structures and Processes." Pages 7-17. Prepared for Bureau of State Audits. Sacramento, CA.

41. RAND. See endnote 40.

42. Gary Webb. April 26, 1994. "DMV admits it lost $44.3 million on computer work." The Press-Enterprise.

43. RAND. See endnote 40.

44. Assembly Committee on Consumer Protection, Government Efficiency and Economic Development. July 11, 1995. "SB 1 Senate Bill – Bill Analysis." Sacramento, CA. Office of Legislative Counsel. http://leginfo.ca.gov. Accessed July 23, 2008.

45. Assembly Committee on Consumer Protection, Government Efficiency and Economic Development. See endnote 44.

46. Assembly Committee on Consumer Protection, Government Efficiency and Economic Development. See endnote 44.

47. RAND. See endnote 40. Page 12.

48. Office of the State Chief Information Officer. "Collaborative Governance." Sacramento, CA. http://www.cio.ca.gov/stateIT/governance/collaborative.html. Accessed May 2, 2008.

49. Department of Finance. Undated. "Information Technology Project Oversight Framework." Pages 1-14. Sacramento, CA

50. Debra Calevro, Director, California Procurement, AeA. Sacramento, CA. March 27, 2008. Personal communication. Also, Martin McGartland, President and Chief Executive Officer, Natoma Technologies, Inc. Sacramento, CA. May 22, 2008. Testimony to the Commission.

51. J. Clark Kelso. See endnote 8. Pages 23-24. Also, Adrian Farley, Interim Deputy Director, Procurement Division, Department of General Services. May 2, 2008. Personal communication.

52. Teresa "Teri" Takai. See endnote 19.

53. Pew Center on the States. March 2008. "Government Performance: Promising Practices: Information." Washington, D.C. http://www.pewcenteronthestates.org/template_page.aspx?id=39384. Accessed June 2, 2008.

54. Pew Center on the States. See endnote 53.

55. Aneesh Paul Chopra, Secretary of Technology, Commonwealth of Virginia. Richmond, VA. June 26, 2008. Written testimony to the Commission.

56. Aneesh Paul Chopra. See endnote 55.

57. Aneesh Paul Chopra, Secretary of Technology, Commonwealth of Virginia. Sacramento, CA. June 26, 2008. Testimony to the Commission.

58. Teresa "Teri" Takai. See endnote 5.

59. Little Hoover Commission. May 2005. "Reconstructing Government: A Review of the Governor's Reorganization Plan to Create a Department of Technology Services." Page 14. Sacramento, CA.

60. California State Auditor, Bureau of State Audits. May 2007. "High Risk: The California State Auditor's Initial Assessment of High-Risk Issues the State and Select State Agencies Face." Pages 14-15. Sacramento, CA.

61. John Thomas Flynn, former Chief Information Officer, State of California. Sacramento, CA. May 22, 2008. Testimony to the Commission.

62. Department of Finance. Sacramento, CA. May 21, 2008. Presentation by department staff on Fi$Cal. Little Hoover Commission. Subcommittee meeting.

63. California State Senate. Budget Conference Committee. June 19, 2008. Sacramento, CA.

64. Deloitte Touche Tohmatsu. February 2004. "CIO 2.0: The changing role of the Chief Information Office in government – and why it matter to leaders in the public sector." Pages 2, 12. New York, NY.

65. Deloitte Touche Tohmatsu. See endnote 64. Page 4.

66. Paul W. Taylor. See endnote 25.

67. Pew Center on the States. See endnote 31.

68. Pew Center on the States. See endnote 31.

69. Pew Center on the States. See endnote 31.

70. Pew Center on the States. See endnote 28.

71. California Performance Review. 2004. "A Government for the People for a Change." Page 1467. Sacramento, CA.

72. Pew Center on the States. See endnote 28.

73. John Thomas Flynn. See endnote 61.

74. SB (1298), Chapter 561, Statutes of 2008.

75. J. Clark Kelso. See endnote 8. Page 9.

76. J. Clark Kelso. See endnote 22. Page 15.

77. J. Clark Kelso. See endnote 8. Page 15.

78. Kevin Yamamura. August 5, 2008. "Computers may doom pay cut plan." The Sacramento Bee.

79. Little Hoover Commission. November 2000. "Better.Gov: Engineering Technology-Enhanced Government." Pages 54-55. Sacramento, CA.

80. Office of the State Chief Information Officer. June 2008. "Summary of Required Information Technology Reports and Activities." Pages 1-3. Sacramento, CA.

81. John Thomas Flynn. See endnote 61.

82. Legislative Analyst's Office. See endnote 30. Pages F-28 – F-33.

83. Legislative Analyst's Office. See endnote 30. Pages F-28 – F-33.

84. Little Hoover Commission. See endnote 79. Pages 54-55.

85. Richard Gillihan, Chief, Information Technology Operations and Consulting, Department of Finance. Sacramento, CA. October 7, 2008. Personal communication.

86. John Thomas Flynn. See endnote 61.

87. Little Hoover Commission. See endnote 59. Pages 17-20.

88. John Thomas Flynn. See endnote 61.

89. J. Clark Kelso, California Prison Health Care Receiver and former Chief Information Officer, State of California. Sacramento, CA. June 26, 2008. Testimony to the Commission.

90. Legislative Analyst's Office. See endnote 30. Pages F-28 – F-33. Also, Mark Weatherford, Director, Office of Information Security and Privacy Protection. Sacramento, CA. July 25, 2008. Personal communication.

91. Office of the State Chief Information Officer. See endnote 48. J. Clark Kelso. See endnote 8. Page 32.

92. Office of the State Chief Information Officer. See endnote 48. Also, J. Clark Kelso. See endnote 8. Page 33.

93. Office of the State Chief Information Officer. See endnote 48. Also, J. Clark Kelso. See endnote 8. Page 34.

94. Teresa "Teri" Takai, Chief Information Officer, State of California. Sacramento, CA. May 22, 2008. Testimony to the Commission.

95. Teresa "Teri" Takai. See endnote 94.

96. John Thomas Flynn. See endnote 61.

97. National Association of State Chief Information Officers. September 2008. "Office of Systems Integration: Large Project Management," NASCIO Recognition Awards 2008. http://www.nascio.org/awards/nominations2008/2008/2008CA7-Enterprise%20IT%20Management%20Intiatives%20-%20Office%20of%20Systems%20Integration-%20Large%20Project%20Management%20.pdf. Accessed September 24, 2008.

98. Paul Benedetto, Acting Director, Office of Systems Integration, Health and Human Services Agency. Sacramento, CA. October 6, 2008. Personal communication.

99. Government Code 12803.3. Also, Office of the State Chief Information Officer. "List of Approved State Projects." Sacramento, CA. http://www.cio.ca.gov/Business/projects.html. Accessed October 23, 2008.

100. J. Clark Kelso. See endnote 8. Page 30.

101. J. Clark Kelso. See endnote 8. Pages 30-31.

102. Little Hoover Commission. See endnote 79. Pages 55-58. Also, J. Clark Kelso. See endnote 8. Pages 30-31.

103. J. Clark Kelso. See endnote 8. Page 26.

104. Martin McGartland, President and Chief Executive Officer, Natoma Technologies, Inc. Sacramento, CA. May 22, 2008. Written testimony to the Commission.

105. Teresa "Teri" Takai. See endnote 94.

106. Senate Committee on Governmental Organization. "AB 2603 Assembly Bill – Bill Analysis." June 24, 2008. Sacramento, CA. Office of Legislative Counsel. http://www.leginfo.ca.gov. Accessed on August 12, 2008.

107. Service Employees International Union Local 1000. April 2008. "IT Contracts with the State of California: Too Many, Too Costly, Too Little Oversight." Page 6. Sacramento, CA.

108. Alicia Bugarin. November 2006. "The State's Information Technology Hiring Process: Suggested Reforms." Pages 3-4. Sacramento, CA. California Research Bureau.

109. Office of the Governor. July 16, 2008. "Governor Schwarzenegger Launches 'School Finder' Web Site for California Parents and Children." Sacramento, CA. http://gov.ca.gov/press-release/10204. Accessed October 28, 2008.

110. Michael Byrne, Member, California GIS Task Force and eServices Policy Manager, Department of Public Health. Sacramento, CA. August 12, 2008. Little Hoover Commission. Subcommittee meeting. Also, Christy Quinlan. See endnote 9.

111. Office of the State Chief Information Officer. July 3, 2008. "California CIO Announces Members of Geospatial Information Systems Task Force." Sacramento, CA. http://www.cio.ca.gov/Public/Press_Releases/PR08-07.03GISMembers.html. Accessed July 30, 2008.

112. John Thomas Flynn. See endnote 61.

113. Eric Chabrow. January 23, 2004. "Virginia CIO Returns to Changed Landscape." InformationWeek.

114. Aneesh Paul Chopra. See endnote 57.

115. Will Bush, Director, Department of General Services. Sacramento, CA. March 12, 2008. Personal communication.

116. Ken Miller. 2006. "We Don't Make Widgets: Overcoming the Myths That Keep Government from Radically Improving." Pages 23-24. Washington, D.C. Governing Books.

117. Paul W. Taylor, Chief Strategy Officer, Center for Digital Government. Folsom, CA. May 22, 2008. Written testimony to the Commission.

118. P.K. Agarwal, Director, Department of Technology Services. Sacramento, CA. May 19, 2008. Personal communication.

119. Harry P. Hatry. 2006. "Performance Measurement. Getting Results (2nd Ed)." Page 3. The Urban Institute Press. Washington, D.C.

120. California Government Code Section 11800-11801. The Performance and Results Act of 1993.

121. Robert P. Martinez, Chief of Strategic Planning and Organizational Development, Department of Motor Vehicles. August 26, 2008. "Memorandum: Quarterly Performance Objectives Progress Report for Apr. 1 – June 30, 2008." Sacramento, CA. Also, Department of Motor Vehicles. "DMV Strategic Plan 2008." Sacramento, CA. http://www.dmv.ca.gov/pubs/pubs.htm. Accessed September 5, 2008. Also, Business, Transportation and Housing Agency. "Department Accomplishments: Department of Motor Vehicles." Sacramento, CA. http://www.bth.ca.gov/pii/dmv.asp. Accessed August 8, 2008. Also, George Valverde. See endnote 10.

122. J. Clark Kelso, California Prison Health Care Receiver. Sacramento, CA. May 19, 2008. Personal communication.

123. California Prison Health Care Services. "Receiver's Reports." Sacramento, CA. http://cphcs.ca.gov/receiver.aspx. Accessed September 3, 2008.

124. Carol Avansino, Chief, CompStat, California Department of Corrections and Rehabilitation. Sacramento, CA. September 19, 2008. Personal communication.

125. Tina Campbell, Chief, Office of Executive Recruitment and Program Performance, California Department of Corrections and Rehabilitation. Sacramento, CA. September 9, 2008. Personal communication.

126. Joseph Archuleta, Analyst, Government Management Accountability and Performance, State of Washington. Sacramento, CA. June 26, 2008. Testimony to the Commission.

127. Joseph Archuleta, Analyst, Government Management Accountability and Performance, State of Washington. Olympia, WA. June 26, 2008. Written testimony to the Commission.

128. Aneesh Paul Chopra, Secretary of Technology, Commonwealth of Virginia. Richmond, VA. June 26, 2008. Written testimony to the Commission.

129. Aneesh Paul Chopra. See endnote 55.

130. Aneesh Paul Chopra. See endnote 55.

131. Aneesh Paul Chopra. See endnote 57.

132. California State Auditor, Bureau of State Audits. March 1998. "Health and Welfare Agency: Lockheed Martin Information Management Systems Failed to Deliver and the State Poorly Managed the Statewide Automated Child Support System." Pages 1-4.

133. California State Auditor, Bureau of State Audits. See endnote 132. Pages S-2 – S-3.

134. Little Hoover Commission. Sacramento, CA. May 1997. "Enforcing Child Support: Parental Duty, Public Priority." Page 79.

135. Cathy Cleek, Chief Information Officer, Franchise Tax Board. Rancho Cordova, CA. July 22, 2008. Personal communication. Also, AB 196 (Kuehl), Chapter 478, Statutes of 1999.

136. AB 196 (Kuehl), Chapter 478, Statutes of 1999. Bill analysis. March 11, 1999.

137. AB 150 (Aroner), Chapter 479, Statutes of 1999. Also, Cathy Cleek, Chief Information Officer, Franchise Tax Board. July 28, 2008. Written communication. On file.

138. California Department of Child Support Services. "California Child Support Automation System (CCSAS) Quick Facts – Spring 2008."

139. California Department of Child Support Services. January 17, 2007. "Federal Certification Process Begins for State's Child Support Computer System." Also, California Department of Child Support Services. See endnote 138. Also, Legislative Analyst's Office. 2007. "Analysis of the 2007-08 Budget Bill: Health and Social Services. Department of Child Support Services." http://www.lao.ca.gov/analysis_2007/health_ss/hss_09_5175_anl07.aspx. Accessed October 24, 2008.

140. California Department of Child Support Services. February 4, 2008. "Did You Know…Federal Performance Measures in a Nutshell." Sacramento, CA.

141. Cathy Cleek. See endnote 135.

142. California Department of Child Support Services. June 27, 2008. "Press Release: California officials accept $193 million federal rebate for success in building statewide child support system."

143. California Department of Child Support Services. See endnote 142.

144. Christy Quinlan. See endnote 9.

145. Gerry Goldberg. See endnote 4.