



# California Disconnect

A Critical Assessment of  
California's IT Strategic Plan

Vince Vasquez and Hance Haney



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## EXECUTIVE SUMMARY

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For decades, California government officials have struggled to manage effectively the state's massive information technology (IT) network, exposing public assets to potential abuse, financial waste, and criminal threats. Under the direction of Governor Arnold Schwarzenegger, a new government initiative began in 2007 to overhaul state IT infrastructure, increase accountability, and reduce the public's exposure to these major risks. That process is now underway, and a new analysis by the authors finds that critical policy reforms are missing from the equation, jeopardizing not only the integrity of state IT resources, but Silicon Valley as well.

Critical programs and legal safeguards to ensure cost reduction and maximum public transparency are noticeably absent from the IT reorganization plan. Evidence suggests that saving taxpayer dollars is not a priority for state IT officials. The first 16 IT projects approved under the new state strategic planning process include more than \$471 million in spending, yet these projects are expected to deliver only \$382 million in "financial benefits" over five years, making them net losers. The few cost savings that were identified from the IT reorganization effort are outweighed by not only the greater capital spending that has been approved, but also by the risk that is being unduly placed upon state residents by closing the door on competitive contracting for IT services.

Though Sacramento may have a grasp on public services and the needs of citizens, information technology is a dynamic, rapidly changing sector that requires continuous reinvestment and organizational flexibility, traits uncommon in government institutions. Rather than place unnecessary risks upon taxpayers by absorbing all IT functions under costly government operation, new safeguards must be developed to control capital spending, and a cooperative approach should be taken toward Silicon Valley, encouraging large-scale outsourcing and other public-private partnerships where they are deemed useful. Working together, IT vendors and government officials can not only build a public IT network that is cutting edge and accountable to the public, but sustainable for the benefit of future generations.



# INTRODUCTION

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Few state governments manage a portfolio of public information technology (IT) assets that is comparable to California's. As of 2009, the Golden State was spending \$3 billion on IT operating costs to support approximately 10,000 IT employees, 100 different e-mail systems, and 227,000 miles of cable.<sup>1</sup> Historically, the state's towering list of IT resources has been matched only by the complexity of its management structure. California employs 130 people serving as chief information officers (CIOs) across dozens of state boards, commissions, agencies, and departments. Too often, the sheer number of competing priorities and IT decision-makers in a decentralized system has caused statewide confusion, redundancy, and waste in meeting the public's needs.

As our state continues its relentless pace of population growth and Internet usage increases nationwide, demands for online or "e-government" services have increased. Unfortunately, due to political inertia and legal obstacles, state IT investments have fallen short of expectations. Fortunately, this abysmal state of affairs may soon end, as new government interest in consolidating IT management and resources has presented a key opportunity to wipe the slate clean from years of costly inefficiencies.

*Too often, the sheer number of competing priorities and IT decision-makers in a decentralized system has caused statewide confusion, redundancy, and waste in meeting the public's needs.*

In focus is the State of California's IT Strategic Plan, which provides the government's vision and strategies for improving citizen and business services through technology investments. Over the last few years, California has adopted a goal of consolidating government IT resources such as data centers, servers, and personnel to reduce redundancy and inefficiency while enhancing security. This, along with the goal of expanding state services accessible over the Internet, is to be achieved through a comprehensive strategic planning process (guided by the Strategic Plan) that will oversee hundreds of millions of dollars in new high-tech capital projects.

The values and policies chosen by IT officials to guide this monumental process should be of particular interest to state residents, who have been reeling under higher sales and income taxes, budget acrimony in Sacramento, and cuts to state services. Harnessing innovation that results in declining computing and communications costs offers a state like California a key opportunity to save taxpayer dollars, a goal which most state CIOs have prioritized. According to the latest annual CIO survey results from the National Association of State Chief Information Officers (NASCIO), budget and cost control ranked as the number one priority of state CIOs in 2009.<sup>2</sup> In a state where most government agencies are suffering a 10–15 percent vacancy rate, and estimates are that more than half (57 percent) of public IT personnel will retire over the next 10 years, there is simply no time to waste in pursuing long-term, sustainable staffing solutions. But to what extent are cost-cutting and innovation public priorities in the Strategic Plan?

This research paper assesses California's IT reorganization plan and its progress to date from the perspective of advancing sound public policy and economic growth. A key question is whether the consolidation and strategic planning initiatives presently underway are more likely to play a useful role in remedying California's fiscal challenges or to aggravate this condition. Does the Strategic Plan include cost reduction as a prime objective to guide the state's IT restructuring effort, quantifying actual savings from consolidation and standardization of servers and software? Other relevant concerns include whether the strategic planning process is sufficiently open to outsourcing service delivery in meeting its own IT objectives and whether it fully considers the relationship between its own procurement choices and the prosperity of one of the state's most dynamic home-grown industries.

Finally, this paper evaluates whether California's IT strategic planning process is succeeding in balancing the policy goals of making government more open and transparent to ordinary citizens while protecting privacy in an age when machines are being increasingly used to capture, store, and cross-reference vast amounts of personal data.

# CALIFORNIA'S IT STRATEGIC PLAN: AN OVERVIEW

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The IT Strategic Plan is only one component of a larger government initiative to overhaul the management of the state's public IT resources. To understand its importance and role for the future, one must first know how it interacts with other key IT system reforms, including the Office of the Chief Information Officer and the Statewide IT Capital Plan.

*Silo decision-making results in costly duplication and waste.*

Since the 1980s, the state has tried different IT management models, but none has been effective in overseeing the maintenance of complex IT infrastructure or the completion of large public works projects. Part of the problem has historically been the absence of a strong Chief Information Officer (CIO) in California, a position first developed in 2002.

As recently as 2006, the State CIO operated with no statutory authority or budget and was aided by only a handful of full-time staffers. With critical support from Governor Arnold Schwarzenegger and the state legislature emerging in 2007, the State CIO's powers expanded to include establishing and enforcing IT policy standards and enterprise architecture as well as approving IT projects.<sup>3</sup> Accountability for state IT decision-making now clearly rests with the CIO; the Governor's IT Reorganization Plan, approved in May 2009, consolidated the government's IT power structure in a common-sense way, positioning the CIO at the pinnacle of a pyramid-shaped federated governance model of state IT functions, oversight, and manpower.

Most relevant to this paper, the CIO is now required by law to produce an annual strategic plan for guiding IT acquisition, management, and use, a process which began formally in January 2009.<sup>4</sup> Whereas the Reorganization Plan addressed the long-standing question of who is responsible for making critical IT policy and procurement decisions, the Strategic Plan focuses on setting common guidelines for decision-making. The plan outlines the principles, values, and considerations that are to direct the 14 agency-level CIOs and the approximately 130 CIOs supporting government boards, bureaus, and departments across California.

By creating common goals and ideals for IT officials to pursue and aspire to, the Strategic Plan squarely confronts the "silo" mentality of many low-level IT managers who prioritize the needs of their agency or department rather than the greater "business" needs of serving citizens. Silo decision-making results in costly duplication and waste; a 2008 statewide survey of IT assets revealed that the government has more than 100 different e-mail systems to support approximately 180,000 mailboxes. As the 2009 plan notes:

Until recently, California state government has lacked an overarching business driven information technology strategy. Most information technology initiatives, even the most successful ones, were developed by departments without any internal or external consideration of other initiatives. The state's basic information technology infrastructure was also developed this way, dilating the financial and technical capability needed to perform the most fundamental information technology functions such as email, data sharing, and system redundancy. This has created a technology environment that makes it difficult to adequately manage the state's valuable resources and assets.<sup>5</sup>

In order to cultivate a greater appreciation for interagency coordination in the decentralized state IT bureaucracy, the Strategic Plan establishes six broad-based Strategic Concepts to guide the California IT planning process.<sup>6</sup> Each Strategic Concept is presented with a written description of the concept, a "bottom line" summary of the value of pursuing it, and multiple tactics to achieve it.<sup>7</sup>

## Six Strategic Concepts

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### 1. IT AS RELIABLE AS ELECTRICITY –

Allowing business decision-makers to focus on business operations with the expectation that their IT needs will be provided for by a professional IT organization.

### 2. FULFILLING TECHNOLOGY'S POTENTIAL TO TRANSFORM LIVES –

Open and accessible online government services ensure that the state is meeting the expectations of the people it governs.

### 3. SELF-GOVERNANCE IN THE DIGITAL AGE –

The greatest value from the state's use of IT is the ability to engage residents and businesses on their terms at a time and place of their choosing.

### 4. INFORMATION AS AN ASSET –

State agencies have a wealth of data and information that, if properly interpreted and mobilized, can be used better to inform the public.

### 5. ECONOMIC AND SUSTAINABLE –

By aligning the state's operations, agenda and goals to be relevant and applicable in perpetuity, we are able to balance the demands of today with the challenges of the future.

### 6. FACILITATING COLLABORATION THAT BREEDS BETTER SOLUTIONS –

No one entity has a monopoly on good ideas. Enabling communication between stakeholders, external and internal to government, is essential to open and accountable government.

The second edition of the Strategic Plan, published in January 2010, provides a progress report for the plan, listing 45 accomplishments by state IT professionals in 2009 that fulfill the six Strategic Concepts. The 2010 plan also introduced the new state IT operating framework, known as *One IT*, that will serve as the overall management platform to achieve the Strategic Concepts. With much of the preliminary work of *One IT* completed through the management consolidation overhaul of 2008–2009, state officials identify only two tasks remaining to activate *One IT*: infrastructure consolidation and resource control.

Whereas the Strategic Plan provides the blueprint for linking government services with technology solutions, a Statewide IT Capital Plan lists the actual proposed investments that will turn the planning process into a reality.<sup>8</sup> In October 2008, 85 state agencies submitted five-year IT capital plans to the CIO and the Department of Finance, integrating the six Strategic Concepts into the business and IT functions of state government. These documents comprise the basis of the Statewide Five-Year IT Capital Plan, which gives a clearer picture of not only the host of proposed government IT projects and investments, but also how technology is being used in the public sector. Capital project proposals are required to align with at least one Strategic Concept while advancing both the business needs of the state government and the program requirements of individual agencies.

## QUANTIFYING COST SAVINGS

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For legal and public policy reasons, it is important for the public to know whether taxpayer dollars will be saved throughout the IT overhaul process. First, the State CIO has a statutory duty in “minimizing overlap, redundancy, and cost in state operations by promoting the efficient and effective use of information technology,”<sup>9</sup> so if cost savings cannot be enumerated, the CIO is failing at her core mission. Second, as cost overruns and wasteful spending are always threats in large public works projects, the public deserves to know what safeguards are in place to prevent them from happening in the first place.

To assess the likelihood of cost savings in the IT reorganization, three major areas must be reviewed: the Office of the CIO, the Strategic Plan, and the Capital Plan.

### **Office of the CIO**

An analysis of public speeches and written statements finds that California CIO Teri Takai clearly recognizes her public mandate to improve government efficiency. She has particularly done so by building greater authority and executive power from her office, which are necessary for enforcing cost-reduction initiatives.

CIO Takai has prudently issued “IT policy letters,” official interagency memorandums to add and modify existing IT policies and procedures in state government.<sup>10</sup> In clarifying the rules that govern decision-making, policy letters are effectively standardizing the rules, a keen strategy to consolidate power in the Office of the CIO (OCIO) while reining in costs. As of this study’s publication, Takai’s office has published 11 policy letters on a wide variety of regulatory matters ranging from approving new computer room construction to encouraging agency managers to use Facebook, Twitter, and other social media sites to engage citizens. Though some critics may argue that these letters amount to unnecessary red tape, regulatory standardization achieves the objective of minimizing overlap and redundancy. The 2010 Strategic Plan also characterizes Takai’s policy letters as reducing government costs; still, it states that “these control mechanisms are tactical and are time and people intensive.”<sup>11</sup>

If the OCIO becomes an effective manager in reducing IT costs, it will likely be due in part to key support from the chief executive of California’s government. In February 2010, Governor Schwarzenegger signed a 15-point executive order that consolidates even more power under the OCIO while setting new timelines to expedite IT physical plant consolidation in state government.<sup>12</sup> Under the order, all cabinet-level agency CIO appointments must be approved by the OCIO, as well as all subsequent agency enterprise architecture developed by the agency CIOs. Agency CIOs are also now tasked with cutting the square footage used for public data centers in half by July 2011, as well as transitioning their existing network services and e-mail security systems to state-based solutions. To secure the cooperation of state agencies, the governor is requiring quarterly progress reports on agency consolidation efforts beginning in April 2010 and has authorized the OCIO to reduce the authority of agencies over their IT project development if they are not complying.<sup>13</sup>

Our analysis finds that one area where the OCIO has not placed adequate attention is the implementation of cost-benefit analysis (CBA) in capital project planning. Cost-benefit analyses are a common strategy used by government officials to assess whether a project’s benefits outweigh its costs. CBAs are often used in large public-works projects, which carry with them a significant amount of risk for taxpayers. Overseeing large systems-integration projects

requires significant experience and technical and management skills, which can curb the possibility of delays and cost overruns. As the Strategic Plan notes, “risk is inherent in all IT projects and the larger and more complex the project, the greater the risk.”<sup>14</sup> Though the state seeks to reduce risk by coupling projects with rigorous project management and interaction from public oversight agencies, our review of the Strategic Plan suggests this is not readily apparent.

## Strategic Plan

The goal of cost reduction receives scant mention in state IT planning documents. Although the Strategic Plan states a commitment to reduce outlays (e.g., “Acting on these goals will increase government efficiency and reduce costs”<sup>15</sup> and “information resources properly leveraged reduce costs”<sup>16</sup>), almost none of the Strategic Concepts, subsequent strategies, goals, or actions quantify any actual savings. Thus, it is unclear what role this statutory requirement plays in the strategic planning process and as a guide for the state’s IT community.

Consolidation of software contracts, office automation tools, data centers/computer rooms, servers, storage, and networks over the course of five years is estimated to save \$1.5 billion. The Strategic Plan observed that the CIO was in the process of advancing a server consolidation plan in early 2009 and leading efforts to consolidate state e-mail systems.<sup>17</sup> At that time, the state owned and operated more than 9,400 servers and 170,000 personal computers and maintained more than 100 different e-mail systems.<sup>18</sup> The CIO estimated that the total number of servers could be reduced by 50 percent without impacting system performance and service levels.<sup>19</sup> This remains an incomplete objective.

*Perhaps most alarming, the plan apparently assumes that IT is a static rather than a dynamic source of employment.*

The 2nd Edition Strategic Plan also claims that California has already realized more than \$490 million in cost savings and avoidances through the IT capital and acquisitions planning processes,<sup>20</sup> but it does not explain how these savings were achieved.<sup>21</sup>

Perhaps most alarming, the plan apparently assumes that IT is a static rather than a dynamic source of employment. The Strategic Plan points to the possibility that 57 percent of the state’s IT personnel could retire in the next 10 years, which “requires immediate and comprehensive succession planning,”<sup>22</sup> though no mention of private contracting is made. Instead, the plan proposes to resolve this issue by recruiting college students through targeted marketing and outreach programs to staff California’s centralized new IT bureaucracy.<sup>23</sup>

## Capital Plan

Overall, the IT projects in the current Capital Plan require an enormous investment that exceeds immediate projected financial benefits over five years. Their example demonstrates how cost-cutting opportunities can be squandered without a clear directive for cost reduction. Many of the projects quantify no actual savings, and the absence of comprehensive cost-benefit analyses is most glaring.

*Caltrans officials failed to commit to saving a single dollar when the project is fully implemented, and the project received full approval even though the feasibility study listed the projected financial savings as zero.*

Of the 210 IT project proposals submitted by California public agencies, 58 percent (122) were included in the Statewide IT Capital Plan. Most of the projects (56 percent) align with Strategic Concept number four (Information as an Asset), while the tenuously budget-focused Strategic Concept number five (Economic and Sustainable) tied for the least number of alignments (19). The IT projects presented in the Capital Plan include feasibility studies, some of which do attempt to measure “financial benefits.” But this is an elastic term, which can include actual savings (money the state planned to spend but will not have to), hypothetical savings (money the state might *or might not* choose to spend in the future), or new tax revenues. Most of the promised “financial benefits” in the current Capital Plan are not sustainable, long-term structural reforms but rather improvements in the effectiveness of state tax collection.

Sixteen Capital Plan projects have received final approval. They will cost \$471 million to implement while yielding only \$382 million in “financial benefits” over five years, nearly all of which (97 percent) is sourced from one project for the California Franchise Tax Board.<sup>24</sup> An approved project for updating the Franchise Tax Board’s IT capability is estimated to cost \$317 million and to ultimately yield up to \$370.7 million in financial benefits over the next five years and \$900 million in uncollected taxes annually, but these figures are speculative at best.<sup>25</sup>

Most projects do not list any projected savings, even where they could be realized. For example, the Capital Plan anticipates cost savings will result from implementing the Pavement Management System (Project No. 2660-423), which would enable Caltrans proactively to determine transportation project priorities.<sup>26</sup> Government documents identify the state of Arizona as having saved \$14 million in its first year of using the same technology, which projected an additional savings of \$101 million over the next five years. However, Caltrans officials failed to commit to saving a single dollar when the project is fully implemented, and the project received full approval even though the feasibility study listed the projected financial savings as zero.<sup>27</sup> Additionally, the Capital Plan states that Electronic Pay Card technology for beneficiaries of Health and Human Services Agency programs “would result in cost savings by reducing fraud and streamlining transactions.”<sup>28</sup> No attempt is made to quantify these anticipated savings in the feasibility study.

## APPROVED IT PROJECTS

STATEWIDE IT CAPITAL PLAN (2009)  
(In Thousands of Dollars)

Project	Total Projected Cost	Projected Financial Benefits (5 years)
Complaint Resolution Information Management System (Project No.1110-108)	\$4,534	\$0
Enterprise Data to Revenue (Project No. 1730-191)	\$317,670	\$370,746
Workload Growth (Project No. 1730-189)	\$6,914	\$0
Dept. of Corporations Quality Network (Project No. 2180-14)	\$9,554	\$3,672
Pavement Management System (Project No. 2660-423)	\$2,632	\$0
Statewide Automated Citation System (Project No. 2720-91)	\$22,999*	\$4,991
Healthcare Workforce Clearinghouse (Project No. 4140-22)	\$10,597	\$0
State HICAP <sup>†</sup> Automated Reporting (SHARP Project No. 4170-14)	\$246*	\$0
Statewide Immunization Information System (Project No. 4265-11)	\$2,817*	\$0
CalWORKS Business Analytics and Reporting System (Project No. 5180-155)	\$13,506	\$0
Wide Area Network Upgrade (Project No. 3540-36)	\$55,770	\$0
Disability and Effective Communication Accommodation Tracking System (DECATS Project No. 5225-126)	\$13,266	\$0
California Geographic Information System (Project No. 0502-1)	\$2,683*	\$0
Response Information Management System (Project No. 0690-20)	\$2,234*	\$79
Rail Safety and Security Information Management System (Project No. 8660-46)	\$4,274	\$0
Credential Web Interface Project (Project No. 6360-16)	\$1,854	\$2,360
<b>TOTAL</b>	<b>\$471,550</b>	<b>\$381,848</b>

\* Federal grant money is anticipated to offset some or all of the project cost.

<sup>†</sup> Health Insurance Counseling and Advocacy Program

An additional 106 project proposals received preliminary approval despite the absence of projected costs or savings. According to the Capital Plan, “it is premature to include cost estimates for IT Project Proposals because they still require further development.”<sup>29</sup> This is unfortunate, because the logical point for cost-benefit analysis is the stage at which a project or project proposal is reviewed by IT and finance professionals from outside the agency seeking approval for a particular initiative. Projects that are in the concept phase are to undergo a more thorough evaluation of “their business value, programmatic priority, resource requirements and the availability of funding.” Already, these concepts are not meeting the full expectations of state IT officials; the 2010 Strategic Plan characterized the proposed capital plans of state agencies and departments as “thoughtful,” however, “the timelines are not aggressive enough to meet consolidation goals.”

*If no financial benefits are quantified in the feasibility analysis, the public cannot monitor or fully participate in the process.*

The process by which IT projects receive final approval is the last opportunity for making sure that IT projects will in fact minimize redundancy and cost in state operations. It is also an opportunity to create new incentives to prioritize and fast track projects with the greatest potential benefits. If no financial benefits are quantified in the feasibility analysis, the public cannot monitor or fully participate in the process. In other words, the process is not transparent, and state officials are therefore not accountable.

From our analysis, we conclude that California taxpayers have few guarantees in the Capital Plan and Strategic Plan that cost savings will be a priority throughout the IT reorganization process. Moving forward, the OCIO and other IT officials should focus their energies on five major policy concepts that need further refinement in future Strategic Plan updates, bringing the outcome closer to cost savings. These concepts include server modernization, cloud computing, outsourcing, performance measures, and an assessment of open source software.

## Modernizing Computer Servers

A key source of potential cost savings lies in replacing the aging, scattered collection of government servers in California through “consolidating” and “virtualizing” servers. *Consolidation* refers to the replacement of a number of small servers with larger ones, making it possible to centralize servers in fewer locations where they are easier to maintain. *Virtualization* is an application which makes it possible to house multiple “virtual” servers inside a single machine.<sup>30</sup> Their utility is recognized by the OCIO, who estimates it is possible to reduce by half the 9,494 servers owned by the state without impacting performance or service levels.

These concepts are nothing new to industry experts.<sup>31</sup> The alternative is referred to as the problem of server “sprawl,” where neglected, underutilized servers tend to accumulate in the far-flung corners of an enterprise. Such is the case with the State of California’s server inventory, which consumes approximately 409,000 square feet of floor space in 405 locations.<sup>32</sup> Server sprawl, according to industry analysts, is becoming a thing of the past. “The plummeting cost and increased power of today’s server components has moved the real cost of modern computing from hardware to people, processes, power and space,”<sup>33</sup> according to noted SQL server consultant Rod Colledge. “As such, in a never ending quest to minimize operating costs, businesses have embraced consolidation and virtualization techniques, the major goals of which are to avoid server sprawl and minimize costs.”<sup>34</sup>

Virtualization is a particularly useful solution for California’s IT overhaul, as it attacks the problem of server underutilization. Virtual servers can dynamically share excess capacity.<sup>35</sup> So, for example, if many state agencies require minimal server capacity on the day before a tax filing deadline when the Franchise Tax Board experiences peak

loads, spare capacity can be made available for the Franchise Tax Board. The rest of the time, the same spare capacity can be available for use by other state agencies. Alternatively, every state agency needs single-purpose servers large enough to accommodate the peak loads each might expect to experience, even if only on rare occasions. These servers are otherwise hopelessly underutilized, wasting taxpayer dollars in not only excess equipment purchases but also supporting costs for maintenance, electricity and physical plant.

Consolidation and virtualization are prudently stated policies to improve efficiency. There is much more the state can do, however.

*The state still has no official strategy for realizing the further savings through this model.*

## Cloud Computing

Another innovative and potentially cost-saving method for state IT officials to consider is cloud computing. Generally speaking, cloud computing is the model of Internet-based computing whereby computers and other technology applications share resources and information, and services are sold on demand.

According to tech industry analyst and cloud computing expert Nicholas Carr, a new paradigm is at hand in which different components that used to be isolated in the closed box of the PC—the hard drive for storing information, the microchip for processing information, the applications for manipulating information—can now be “dispersed throughout the world, integrated through the Internet, and shared by anyone.”<sup>36</sup>

The client-server computing model—in which personal computers are wired to shared servers housed in data centers at the local or enterprise level—is woefully inefficient, according to Carr. A study of six corporate data centers revealed that most of their 1,000 servers were using less than a quarter of their available processing power and other studies have revealed that the capacity utilization of data storage systems averages between 25 and 50 percent.<sup>37</sup> What enterprises once had to supply themselves they can now “purchase as a service for a simple fee,”<sup>38</sup> creating vast new efficiencies as enterprises no longer have to invest in their own hardware, software, and employees.

Others make the case for cloud computing. “The major driver of cloud computing has been the recognition that large data centers have thousands of servers that generally do not operate at full capacity, creating a surplus of computing resources,” notes a recent white paper by networking company Cisco Systems.<sup>39</sup> It projects that cloud computing will be “widely used in government in the future.”<sup>40</sup>

The strategic value of cloud computing for government institutions was first demonstrated by the first federal chief information officer, Vivek Kundra.<sup>41</sup> When Kundra took over as CIO for the District of Columbia in 2007, he shifted the work of 38,000 employees and more than 80 municipal agencies to cloud computing by moving the government’s e-mail to Google’s Gmail service and encouraging the use of Google Apps.<sup>42</sup> Carr writes that “no corporate system, not even those operated by very large businesses, can match the efficiency, speed, and flexibility of Google’s system.”<sup>43</sup> He cites one estimate that Google can carry out a computing task for one-tenth of what it would cost a typical company.<sup>44</sup> Another expert concludes that high-scale cloud services provide economies of scale of five to 10 over small-scale deployments.<sup>45</sup> Other public agencies throughout the country, such as the Utah and Michigan state governments are now undertaking similar initiatives in order to save costs and improve efficiencies.<sup>46</sup>

Although California now has a strategy for harnessing the potential efficiencies from a private or community cloud, the state still has no official strategy for realizing the further savings through this model.

## Outsourcing

Outsourcing, the process by which a service is contracted out to a third party, has so far not been publicly discussed as a viable cost-saving alternative in California's strategic planning process. Though outsourcing is often a source of controversy in the political arena, signing contractual agreements with outside private vendors to provide government services is a proven way to save significant amounts of taxpayer money and has been used by the state of California and by hundreds of municipal governments.

With regard to outsourcing government IT functions, studies have shown that taxpayers save an average of 10–20 percent with private-sector service delivery.<sup>47</sup> Documented public benefits include increased customer satisfaction, access to higher-skilled workers, improvement of core business functions, and more program flexibility.<sup>48</sup> Outsourcing frees agencies from the continuous challenge of upgrading systems and the constant risk of making significant investments in hardware and software that will soon be outdated by rapidly changing technology. If funding is not available, agencies are stuck with obsolescing technology. In the private sector, competitors must offer the latest technology at the best price to attract and retain customers. They have no alternative but to write off unrecoverable investments in obsolete facilities and replace them.

The absence of any analysis of large-scale IT outsourcing is symbolic of a lack of focus on cost reduction throughout the strategic planning process. The Plan urges policies that promote the use of the State Data Center (a consolidated repository for government data processing and IT storage services) by state agencies and departments,<sup>49</sup> while providing no evaluation of the pros and cons of outsourcing the management of large IT assets. To the extent that California chooses to consolidate and standardize its own data centers and other IT programs as state functions, IT becomes a competitor for scarce state resources. If the funding it desires for investment in new equipment and personnel is not available, the state could be deprived of the most advanced and efficient computing and communications technologies, which are otherwise available as a fee-based private sector service.

Part of the challenge lies in legal and political obstacles that hinder new public-private partnerships. In the legal case *Professional Engineers in California Government v. Department of Transportation*, the California Supreme Court recognized an implied civil service “mandate” within Article VII of the state constitution, limiting state agencies from using private-sector contracting to perform work that the state has historically and customarily performed and can perform “adequately and competently.”<sup>50</sup> However, a closer look reveals two major exceptions to this rule.

The first alternative is to bypass civil-service restrictions by participating in a tedious contract procurement process that is highly scrutinized by political opponents to outsourcing. California State Code Section 19130(a) permits state agencies to conduct “personal services contracting” when the contracting agency can clearly demonstrate that it will provide cost savings.<sup>51</sup> However, it must also guarantee that the contractor will comply with 13 onerous labor and contract provisions, such as including in its total bid costs the potential public costs of contract oversight. Under state law, California agencies must also notify the State Personnel Board of their intent to enter into a contract, which in turn must also notify all affected public employee unions, who have a vested political interest in uniformly challenging all outsourcing efforts. Labor unions have 10 days after notification to ask for a review of the contract by the Board, which can approve or reject the contract, or refer it to additional legal remediation. This public policy distortion tilts the entire contracting process in the favor of retaining service delivery with public employees.

Contracting agencies can also use a second legal route for outsourcing state services: bypassing the automatic State Personnel Board notification by claiming that unique circumstances exist. California State Code Section 19130(b) provides 10 conditions that must be met to enter personal services contracts with the private sector, including these four:

- ☞ the functions are exempt from civil service
- ☞ the contract is for a new state function
- ☞ the services are not available within civil service, or are of such a high specialization or technical skill that the civil service system is unable to provide them
- ☞ the services are of such an urgent or temporary nature that implementing them through the civil service system would “frustrate their very purpose”

Examining the outsourcing experiences of government institutions offers valuable insight about the challenges and rewards of outsourcing, including the importance of prudent cost analysis and carefully crafted contracts.<sup>52</sup>

### *Pennsylvania*

Pennsylvania was among the first states successfully to consolidate and outsource most of its mission-critical data center operations through an initiative known as the Pennsylvania Data PowerHouse (DPH).<sup>53</sup> Established in 1999, the DPH is a consolidated data center that successfully curbed operational costs by eliminating redundancies of 14 state agencies, saving the state more than \$317 million through staff consolidation, including natural attrition, and consolidation and virtualization.<sup>54</sup> After completing an extensive and competitive evaluation process, the state of Pennsylvania selected Unisys to manage the DPH under a contract worth approximately \$525 million over eight years, including extensions.<sup>55</sup>

Pennsylvania was able to negotiate an extension of its contract with Unisys in 2008 to provide the same services at about 70 percent of the cost of the original agreement, while also allowing state agencies to choose service levels at different price points.<sup>56</sup> The new contract frees up much-needed resources that IT officials can allocate to other public programs and can accommodate changes in demand from individual agencies without the state having to make additional technology investments.<sup>57</sup>

### *Georgia*

An outside audit of Georgia’s IT operations in 2007 documented serious and chronic problems throughout state government, including aging infrastructure, inability to meet minimum industry standards, lack of processes and skills, little coordination of spending, and deficiencies in disaster recovery.<sup>58</sup>

Seeking to smooth the transition, Georgia incorporated lessons learned from other states.<sup>59</sup> For example, Georgia leaders understood they needed a service-management organization fully operational on the first day IBM employees walked in the door.<sup>60</sup>

“Technology management is not a state core competency, and our best option for a sustainable solution is in the marketplace,” commented Georgia CIO Patrick Moore. “Throughout the procurement process, we were clear about the problems we are solving and what we need.”<sup>61</sup>

Georgia partnered with IBM to consolidate and outsource IT operations.<sup>62</sup> As Governor Sonny Perdue explained, “Georgia’s [prior] technology investments have not resulted in a reliable, recoverable and secure system that ensures data is protected and needs are being met.” Georgia also divested itself from the telecom business by contracting with AT&T for managed network services.<sup>63</sup>

Despite the clear benefits and positive experiences of outsourcing IT government services, some critics may be concerned with the possibility of “pay to play” politics injecting themselves into IT procurement, which has previously occurred in California. In early 2002, it was revealed that Oracle Corporation won a questionable no-bid, gold-plated \$95 million database software contract from the state, requested by the incumbent governor and orchestrated in part by an Oracle employee who moonlighted as a lobbyist and sales consultant.<sup>64</sup> Governor Gray Davis received a \$25,000

check from Oracle Corp. for his reelection campaign just days after the contract was finalized. The state auditor later identified the contract as \$41 million more than it was worth and providing software to eight times more employees than were likely to use it.

*Full transparency of basic government decision-making, such as publishing all state contracts on the Internet, could curb gold-plated agreements such as the Oracle contract in the future.*

Though the contract was later cancelled, the damage had been done. It’s important for outsourcing critics to recognize that bad management is not exclusive to the public sector, nor to the private sector. Full transparency

of basic government decision-making, such as publishing all state contracts on the Internet, could curb gold-plated agreements such as the Oracle contract in the future. Furthermore, having a formal request for proposal process and an open, competitive bidding for IT services can reveal the true costs of service. Public IT professionals are a monopoly institution, and may be too costly and inefficient to provide state services. Expanded use of third parties and public-private partnerships could be the right solution for California’s aging and retiring IT workforce.

## Performance Measures

Performance measures are another cost-saving public policy concept that needs greater attention from the OCIO. Performance measures are year-to-year metrics of government services and departments used to determine cost-effectiveness and productivity. Typically very user-friendly and easy to understand, they evaluate the inputs, outcomes, and efficiencies of traditional government services. This concept can be instrumental to controlling costs in the IT network, as it is a simple, non-controversial, and inexpensive solution that uses transparency to keep government workers and department managers accountable for their actions.

From the number of volunteer hours given to our state parks and recreation centers each year, to the number of vehicles in the state government’s auto fleet, performance measures provide vital transparency into how taxpayer dollars are spent by state departments. Minor methodological changes in how performance measures are calculated may have some impact, but with enough data, year-to-year trends can be identified and analyzed for greater public use.

Performance measures are useful in outsourcing. One of the most crucial elements is to establish a set of acceptable performance metrics and to measure and monitor the success of an outsourced contract post-implementation. Without clear performance goals, it is difficult to communicate and conduct comparisons to identify the bid that provides the best value. It is also difficult to ensure that either the contractor or the state agency is meeting expectations. Performance measures also create more accountability in state agencies by measuring the cost per service. Demanding high-quality performance measures can keep the budgeting process from straying to extreme “solutions” to budget-balancing and advance a fair compromise that protects the interests of taxpayers as well as public employees.

Performance measures are a relevant policy issue, as the OCIO has a statutory duty to provide IT performance measures for state agencies and to post online their progress toward achieving the targets.<sup>65</sup> However, this information cannot be readily found on the OCIO’s website. The last page of the 2010 Strategic Plan, which can be found on the OCIO’s website in PDF format,<sup>66</sup> does provide 17 “performance metrics,” including IT performance measures for “percentage of projects delivered on time and within budget,” as well as megawatts of energy used per year by state agencies. However, these metrics are disappointing as they are limited in scope and not very useful for the purposes of advancing cost efficiency. Performance measures are clearly not a priority, despite their usefulness for reducing costs and increasing government transparency.

*Government preferences for OSS (or any other product or service) would negatively impact the spirit of growth and entrepreneurship in our local technology community.*

## Assessing Open Source Software

The term “open source software” refers to software which is distributed according to criteria provided by the Open Source Initiative,<sup>67</sup> which allows anyone to modify and redistribute the software. In January 2010, California CIO Takai published IT Policy Letter ITPL 10-01, formally establishing the use of open source software (OSS) in state government as an acceptable practice.<sup>68</sup> The policy letter states that future statements on open source licensing, procurement, and copyright will be made from the OCIO, suggesting that state agencies will have wide discretion in incorporating OSS in their technology plans. Regrettably, the CIO has provided no guidance for state agencies to evaluate whether OSS is actually cost-effective.

Government agencies are initially attracted to OSS because it is typically available for free or at a very low up-front cost.<sup>69</sup> “Software that is ‘free’ removes the license fee from the sales equation,” note analysts Braden Cox and Nora von Ingersleben.<sup>70</sup> Therefore, they caution, “companies must charge customers in other ways.”<sup>71</sup> It is important for CIOs to understand that there are several costs associated with acquiring and using software that agencies should consider. These include not only license fees, but also costs associated with integration, training, maintenance, support, and updates.

Some evidence suggests that IT decision-makers value “reduced dependence on software vendors” as the most important advantage of OSS.<sup>72</sup> Dependence includes reliance on the vendor for maintenance and support and the necessity for the buyer to accept version upgrades.<sup>73</sup>

The second place ranking for ‘lower cost’ indicates that IT decision makers recognize that open source software is not really free. With most types of software, administration and support costs overshadow initial software license cost and annual maintenance fees—the costs that are minimized by open source. Therefore, software buyers do not see the low or zero initial cost of open source as its most important advantage.<sup>74</sup>

Open source software is also problematic for state IT planning. OSS advocates would like to see government at all levels commit to open source software; therefore, there is a risk that politicization will lead to mandates or preferences for a particular software development model. This would skew market forces and future investment in the private sector, as future product development would be encouraged in part by governmental preferences, much in the same way that government subsidies for solar power and photo voltaic systems have induced industry interest and growth in solar power despite its high inefficiency rates and high costs.<sup>75</sup> With California as one of the world’s largest consumers of IT services, it is not out of the question that government preferences for OSS (or any other product or service) would negatively impact the spirit of growth and entrepreneurship in our local technology community.

Government procurement of OSS is a political goal that has been pursued at the highest level. For example, a letter by executives of several leading open source software firms urges President Obama to make it mandatory for federal agencies to consider the “source of an application solution (open or closed) as part of the government’s technology acquisition process.”<sup>76</sup> They write:

Mr. President, we believe the open-source industry is changing the world of software development in many of the ways you have promised to change American politics. The values of open source mirror those you promoted in your campaign: hope, change, and openness. We, the undersigned, sincerely hope that you will make the use of open-source software a key component of every new technology initiative the United States government enters into during your presidency.<sup>77</sup>

To uncover the true life-cycle cost of a software product, many private and public agencies use a methodology known as Total Cost of Ownership.<sup>78</sup> Total cost of ownership analysis takes into account the initial sales price of the software plus the costs of implementation, management, maintenance, technical support, and staff training across the life of the product.<sup>79</sup>

*The free-enterprise power of Silicon Valley is negatively impacted when government entities pick winners and losers in the marketplace.*

Advancing policy reforms such as Total Cost of Ownership are of immense value to entrepreneurs and businesses in Silicon Valley. Consider that the free-enterprise power of Silicon Valley is negatively impacted when government entities pick winners and losers in the marketplace. As recently as 2010, regional business leaders identified Sacramento as a primary hindrance in achieving greater economic growth and prosperity:

Silicon Valley is being slammed by forces outside the region and beyond our direct control, most notably, the malaise in our state government. California’s budget crisis and the political dysfunction in Sacramento has direct and debilitating effects on our ability to prepare our workforce, provide crucial infrastructure, maintain our quality of life, and keep pace in the talent race with other regions.<sup>80</sup>

Procurement policies that establish software preferences or technology standards are bad public policy, as they arbitrarily force product uniformity and vendor lock-in, making agencies dependent on a sole or reduced number of providers of IT products and services. Research and development investment is discouraged, and choices are limited that prevent agencies from procuring the best solution. Lost innovation has proven to reduce job creation and economic productivity that directly benefits the state.

For example, the advancements in plasma screen technology have made a lasting positive impact on numerous sectors, including medical service providers, government, and the entertainment industry. However, the California Energy Commission in late 2009 passed new arbitrary limits on television electricity usage which would effectively phase out new purchases of energy-hungry large plasma screen televisions by 2011. A study sponsored by the Consumer Electronics Association, which represents 2,000 manufacturers, retailers and suppliers, found that the new restrictions will cost the state of California approximately \$50 million in lost state tax revenue each year, and eliminate more than 4,600 jobs that are connected to television sales, distribution and installation.<sup>81</sup> Critics of the so-called green energy rules also note that if the electricity restrictions were in place a decade ago, it is unlikely that the technology would have ever been developed in the first place.

As significant purchasers of IT products and services, governments have a substantial impact on the direction of innovation in the IT marketplace, and the economic opportunities in Silicon Valley. Thus, it is important that their purchasing decisions are not based on political considerations or ancillary policy considerations, but rather on the desire to provide the best value for residents at the best price.

# BALANCING TRANSPARENCY AND SECURITY

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Understanding whether the goals of government transparency and data security are appropriately balanced should be of keen importance to the public. Identity theft and hacking are all too common in the Golden State; according to the most recent data from the Federal Trade Commission, the state of California ranks second in the nation for the highest proportion of identity theft complaints per resident.<sup>82</sup> Over the last few decades, sensitive government data depositories have been hacked, stolen, and misplaced numerous times, jeopardizing the privacy of everyday citizens. At the same time, the public demands an open government and a culture of transparency that would appear to be in conflict with a high degree of security. As the advancement of technology continues to allow more data to be stored on the Internet as well as mobile, portable devices, all eyes will be on state IT planning documents and their handling of these delicate issues.

In the pre-computer era, “public records” were largely private because they were hard to access and use. As a result, sensitive information was not generally shared, and that acted as a de facto layer of privacy protection. According to information policy consultant Robert Gellman, “Those wanting to see drivers’ records, for example, usually had to go to the state capitol where paper records could be searched by hand. Privacy protections were inherent in the technology of paper, which made it difficult to exploit fully personal details.”<sup>83</sup> However, as the cost of data storage and processing has declined, data mining is not out of reach for states.

As states computerize records, the technological protections inherent in paper and decentralized, non-interoperable databases begin to evaporate. Records that can be read and processed by machines are more valuable to more people, and some states have decided to exploit their records by selling the information to marketers and others.<sup>84</sup> California IT officials have acknowledged these challenges, and have authored a new blueprint to avoid them.

The California Information Security Strategic Plan was published in October 2009, focusing on cyber security and privacy.<sup>85</sup> Among other things, it proposes to construct a new, state-of-the-art, world-class security operations center and to establish a new high-level position in state government for a chief privacy officer who will ensure that technologies “sustain, and do not erode, privacy protections relating to the use, collection, and disclosure of personal information.”<sup>86</sup> It also notes that the Office of Information Security (OIS) located in the OCIO will work to develop appropriate enterprise policies, standards, and guidance that build security and privacy into the IT infrastructure.<sup>87</sup>

The plan correctly points out that IT security is an enormous challenge for the state to undertake on its own, saying that “Government systems have increasingly become a target for identity theft by criminal organizations due to the inherently sensitive nature of the information contained in these systems. It is well recognized that government’s aging IT infrastructure struggles to maintain the high levels of security required for the millions of sensitive transactions that occur on a daily basis.”<sup>88</sup> The Plan exhorts policymakers to make strategic investments, such as establishing a state-of-the-art IT security operations center,<sup>89</sup> although it is unclear how this will be achievable in our current era of economic turmoil and budget constraints.

The Strategic Plan also mentions important privacy and security issues inherent in IT decision-making. However, some important issues are left out of the discussion.

## **Strategic Plan**

The strategic plan proposes to “coordinate and leverage existing state investments in data and information sources,”<sup>90</sup> “eliminate institutional barriers to the sharing of data and information,”<sup>91</sup> and establish collaborative and cooperative

relationships with public and private sector organizations to invest strategically in data and information assets and promote reusability.”<sup>92</sup> With regard to future data sharing usage, the strategic plan is silent on their methods and purposes, although it does propose to establish a new high-level position for a chief privacy officer who will ensure that technologies “sustain, and do not erode, privacy protections relating to the use, collection, and disclosure of personal information.”<sup>93</sup> Furthermore, the Plan promises the OIS will work to develop appropriate enterprise policies, standards, and guidance that build security and privacy into the IT infrastructure (e.g., data de-identification solutions, encryption solutions, enterprise rights management solutions, and other tools to enhance online privacy and prevent unauthorized access to data).<sup>94</sup>

*The Strategic Plan needs greater discussion and refinement on three major issues: data mining, data sharing, and cybercrime.*

Although the plan includes a strategy for making government more transparent and a goal of ensuring that “transparency is the de facto business model for state business,”<sup>95</sup> it lacks a clear definition of transparency as well as methods for achieving it.

Having the Strategic Plan state a commitment to balance security and privacy is key because the desire to leverage personal data often conflicts with privacy, according to Dr. Sarah Spiekerman, Chair of the Institute for Management Information Systems at Vienna University, and Lorrie Faith Cranor, director of Carnegie Mellon Univ. Usable Privacy and Security Laboratory.<sup>96</sup> “The more personally identifiable data that exists about a person, the less she is able to control access to information about herself, and the greater the risk of unauthorized use, disclosure, or exposure of her personal data.”<sup>97</sup> They note that little consensus has been reached in the privacy research community regarding how much privacy should be built into a system that can be called privacy protective or privacy enhancing.<sup>98</sup>

In summary, more work is needed from state IT officials to draw clear, bright lines on the balance of transparency and security. To reduce security and privacy risks in future IT policy settings, the Strategic Plan needs greater discussion and refinement on three major issues: data mining, data sharing, and cybercrime.

## **Data Mining and Data Sharing**

Data mining is the identification of patterns and relationships in data sets, while data sharing is the ability to share a data resource with multiple users or applications. Both are powerful technology tools that are increasingly being used by other states and jurisdictions to achieve public goals. From gaining a better understanding of data mining and sharing, we may better appreciate our privacy rights and how they must play a heightened role in future annual editions of the IT Strategic Plan.

When government agencies leverage data, it can mean selling data to third parties or mining data for purposes other than for which the data was collected. Other states have worked with private data management companies to assign taxpayers the equivalent of a credit score, which is used to target who gets audited.<sup>99</sup> One way these programs work is to compare tax returns between similarly sized businesses in the same trade in the same area.<sup>100</sup>

Data sharing between government agencies and with third parties is exactly what is included in the approved capital project “Enterprise Data to Revenue” (Project No. 1730-191). According to Plan documents, the project will enable the Franchise Tax Board to increase tax revenue by up to \$900 million annually by re-engineering tax return processing, imaging all returns, expanding data capture, and providing enterprise services to enhance functionality. But according to a separate 147-page feasibility study, the project in fact is designed in part to improve the audit division’s capacity to identify candidates for audit through the acquisition and analysis of return and third-party data

sources, including private databases, such as private employers, Experian, and the Super Pages website.<sup>101</sup> “Third-party data sources include information from industry, other state and federal agencies.”<sup>102</sup>

In California, the Franchise Tax Board uses separate systems to store tax return and third-party data for each of the respective audit programs, according to the aforementioned feasibility study.<sup>103</sup> “Audit’s non-integrated technology environment limits the pursuit of revenue producing business opportunities. These opportunities are specific to data and improving audit modeling and candidate selection. Currently, a need exists to improve data quality, data timeliness, acquisition of new data sources and ability to share data.”<sup>104</sup>

Another potentially sensitive issue is whether the state should be able routinely to search bank and credit-card databases. In California, an IT project proposal titled “Financial Institutions Record Match” has been conceptually approved.<sup>105</sup> The project will enable the Franchise Tax Board to “generate an enhanced debtor file and use a vendor to match debtor information with financial institutions for the purpose of identifying delinquent debtors against accounts resulting in increased tax revenue.”

*A full and informed public dialogue should occur before the state makes investment decisions favoring infrastructure that permits robust data sharing.*

Current levels of privacy protection can be maintained by keeping data where it is—in separate databases. Meanwhile, further transparency is needed. What are the types of data sharing that are being considered? A full and informed public dialogue should occur before the state makes investment decisions favoring infrastructure that permits robust data sharing.

For one thing, sensitive data can be lost or stolen regardless of where it is stored. “History has taught us that it is almost impossible to control the flow of information, despite even the best safeguards,” according to West Point computer science professor Dr. Greg Conti.<sup>106</sup> There have been several instances where sensitive personal information has been accidentally lost or stolen despite the best efforts of large corporations or other organizations, such as the stolen Veteran’s Administration laptop containing 26.5 million veterans’ Social Security numbers.<sup>107</sup> Despite the best efforts to mitigate security threats, “large databases containing sensitive information are exposed with disturbing regularity,” he notes.<sup>108</sup> Creating larger databases through consolidation and standardization just means that more data could be lost or stolen.

## Cybercrime

Computer crime, also known as cybercrime, is a form of crime committed using computers or the Internet as a medium. From hacking to phishing, cybercrime has become a routine danger in the everyday consumer world; the Federal Bureau of Investigation’s Internet Crime Complaint Center received 336,655 cybercrime complaints in 2009.<sup>109</sup> As California looks to upgrade its IT infrastructure, it must consider our safety and how changes, particularly e-government services and internal systems can be quickly compromised to our detriment.

Larger, less-secure databases offer bigger potential rewards for hackers and criminals. According to antivirus maker F-Secure Security Labs, Adobe Reader is the world’s most exploited software in 2010.<sup>110</sup> This wasn’t always the case; Microsoft Windows used to be the most frequent target as recently as 2009. However, over the last eight years, Microsoft has invested heavily in security.<sup>111</sup> On January 15, 2002, Microsoft Chairman Bill Gates issued a new directive to halt all Windows development, and directed the company’s complete focus on improving product security.<sup>112</sup> This drastic measure has contributed to the shifting of cyberattacks onto the Adobe Reader software,

which has only recently begun a quarterly update schedule for safety patches.<sup>113</sup> Thus, California IT officials would be wise to view the massive state IT network as a future cyber-target that will likely be attacked as soon as larger private-sector targets develop sufficient safeguards to reduce windows of opportunity for hackers.

*The strategic plan proposes that California spend scarce taxpayer dollars to duplicate the efforts of private industry.*

One view is that it is “easier to secure [information technology] when you concentrate things than when you distribute them across the government.”<sup>114</sup> This is the approach California is taking, consolidating and standardizing all of its servers in one multipurpose data center and only a handful of smaller data centers. The contrary view is that it’s also more complicated for hackers and criminals to mount a successful cyberattack against non-interoperable computers and servers running

different software, operating on separate networks, utilizing different security protections, and employing different policies. When an organization relies on homogenous hardware and software to create economies of scale, its risk is more severe because a single vulnerability exposes more sensitive data to theft or loss.

Professionally managed data centers are also potential targets for hackers. For instance, Google is investigating recent attacks that may have succeeded in penetrating elaborate computer security systems and obtaining crucial corporate data and software source codes.<sup>115</sup> Other technology companies, including Intel, are also impacted.<sup>116</sup> While it is almost impossible to provide “impervious protection” against attack, the difference is that Google is spending private capital on cyber security, whereas the strategic plan proposes that California spend scarce taxpayer dollars to duplicate the efforts of private industry.

“Storing information on servers run by Amazon or Google could prove to be safer than storing it on government-owned databases,” said Peter Mell of the National Institute of Standards and Technology, which advises federal officials on technology.<sup>117</sup> “Large providers typically have more resources to ward off security threats because their business depends on it. Agencies, on the other hand, often can’t afford to hire as many employees to keep watch over the servers.”<sup>118</sup>

The state’s Chief Information Security Officer concedes that safeguarding information from hackers and criminals will be “a Perpetual Arms Race” requiring total commitment—“it’s all or nothing.”<sup>119</sup> Exactly how the State of California could sustain such a strategy in this era of fiscal constraints remains to be seen.

# POLICY RECOMMENDATIONS

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In order to advance sound public policy reform in California's IT strategic planning process, the authors put forth the following policy recommendations:

## 📁 Outsourcing

- ☞ The strategic planning process should include a state study to evaluate whether outsourcing could eliminate costly investments while still meeting the needs of state agencies and departments.
- ☞ Rather than propose, in effect, to spend whatever it takes on state-of-the-art facilities, personnel, and training, the strategic plan should identify security as a compelling reason to outsource IT.
- ☞ California should leave a greater share of IT personnel and acquisition matters to the private sector and position state government as an immediate beneficiary of the private sector's latest technological progress without the need for continuing state investments in new hardware, software, and IT professionals. The OCIO can work with state legislators to ensure that the bidding process is fair and open, and that service contracts have high measures of accountability and incentives for good performance.

## 📁 Transparency

- ☞ Instead of inviting agencies to identify data and information collected and maintained by the state that better IT could make available to California residents, the strategic planning process should establish mechanisms for forcing this to happen and for soliciting public input.

## 📁 Performance Measures

- ☞ To improve the power of performance measures in the upcoming budget review process, the OCIO should consult the Department of Finance and other state CIOs to identify best practices and the most useful performance measures for IT functions.
- ☞ Putting all performance measures online and making them searchable in a user-friendly format is a good way to build public trust and further increase transparency in our state government.

## 📁 Cost Reductions

- ☞ Include the requirement to minimize overlap, redundancy, and costs not just at the last step of the process when capital projects are approved, but at every stage of the strategic planning process, ensuring that efficiency and cost-reduction principles guide in the establishment or approval of Strategic Concepts, strategies, goals, actions, and capital projects.
- ☞ The Strategic Plan should include cost reduction as a seventh Strategic Concept to guide the state's IT community and to guide policy makers, quantifying actual savings from consolidation and standardization of servers and software.

## ☒ Open Source Software

- ☒ The OCIO should consider an outright banning of agency preferences for OSS. Mandates or biases for a particular brand, vendor, or development model are anathema to an open public process and should be carefully avoided by rooting strategic planning and procurement in the full use of cost-benefit analysis and transparency.
- ☒ If state agencies are going to consider OSS, a cost-benefit methodology such as Total Cost of Ownership—which measures the overall life cycle costs of a particular software product—should be highly encouraged by the OCIO.<sup>120</sup>

## CONCLUSION: Changing the Organizational Culture of Government

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Considering that information technology costs are steadily declining as a result of the pace of innovation, it should not be difficult for California to reduce what it must spend on computing and communications liabilities. The biggest challenge to realizing these gains is changing the organizational culture of government from an institution that prioritizes its own parochial needs to one that is customer-oriented, service-based, and open to partnering with the private sector. We are cautiously optimistic that, with enough changes in the Strategic Plan and enough political capital spent by the OICO and the governor's office, California taxpayers may soon have access to more 24/7 state services and more transparency in how their dollars are spent. The values incorporated into the strategic planning process will have repercussions that go far beyond the limits of government services; the success of Silicon Valley and all of California's IT vendors is based in part on a strong economic climate and favorable regulatory conditions. All eyes will be on California IT officials to see whether market forces and innovation win the day in Sacramento.



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