Recommendations to Improve Large Information Technology Procurements: A Road Map for Success in California

Task Force on Reengineering IT Procurement for Success

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RECOMMENDATIONS TO IMPROVE LARGE INFORMATION TECHNOLOGY PROCUREMENTS: A ROAD MAP FOR SUCCESS IN CALIFORNIA

INTRODUCTION

Just as it has become almost impossible to imagine our own lives without technology, it has also become impossible to conceive of a well-functioning, efficient state that is not supported by effective technology. As citizens, we expect to file our tax returns, renew our driver's licenses, and compare our health insurance options — all online. Whether the service has a citizen-facing component or not, we expect well-designed software to help make the state more efficient, effective, and accountable.

And while we can see the effort and resources that go into a major public highway project, and perhaps appreciate the challenges and complexity at some level, the software that allows the state to function is largely out of public view. Yet the complexity, challenges, and scale of the resources expended are in many cases larger than the ones presented by more visible public-works projects. The state's software projects must execute highly complex and highly regulated business processes, often for a diverse group of stakeholders including citizens, business, nonprofits, local governments, and federal agencies. These projects often have life-cycle costs in the hundreds of millions of dollars and take years to complete. California alone currently has over $5 billion in large-scale information technology (IT) projects under way.

It would be difficult to articulate all the challenges the state faces in procuring, developing, and maintaining the software needed to function effectively. But experience bears out the reality of these challenges. In just the first few months of 2013, two major California IT projects with combined budgets of over $500 million have either been suspended or canceled after years of development. Many California state software-development projects exceed their cost and schedule estimates. These problems are by no means unique to California or the public sector; large-scale commercial companies frequently experience failed IT projects and even the most respected systems integrators and developers have regular project failures. Some observers put the failure rate for the large-scale projects above 60% (Simon:2010).

In light of these factors, California Governor Jerry Brown and Controller John Chiang commissioned this Task Force on Reengineering IT Procurement for Success to help the state identify how it can (1) hire the right vendors (2) at the best value, and (3) hold them accountable for their performance. While the primary focus of the Task Force was the procurement process, the recommendations extend into vendor management to address the risks presented in the entire project life cycle.

To arrive at these recommendations, the Task Force interviewed stakeholders in the vendor, state, and general procurement communities; reviewed relevant studies and past reports; and drew on the collective experience of its members. To ensure broad applicability, the Task Force did not conduct any case studies or otherwise attempt to specifically analyze past or current IT projects in the state.

Several recommendations are directed at the IT Procurement Authority, in light of ongoing discussion at the state level about where this authority should reside. The majority of the recommendations in this report are administrative in nature and can be implemented through administrative action; however, a few will require statutory or legislative changes, as identified below. There may be additional instances in which the state may need to identify conflicts and work with the Legislature to modify statutes that limit the state's ability to pursue the recommendations.

The Task Force has tried to ensure that the recommendations dovetail well with existing reform efforts, and that it recognizes where best practices already exist in one part of the state and should be extended to others.

While many of these recommendations are new, a few build on findings from previous Task Force reports and reviews that have addressed some of the same issues. Despite this, the Task Force is optimistic that with the current leadership and institutional commitment to reform, California's current and future IT projects can and will be more successful by implementing the recommendations of this report.

SECTION 1. PRE-SOLICITATION INFORMATION AND PLANNING

Challenge: Streamline the project-approval process while strengthening post-approval planning.

California uses a Feasibility Study Report (FSR) to approve IT projects. Over the years, several state entities have attempted to make the FSR a robust tool for project approval. Currently, the FSR requires state entities to detail extensive plans and analysis for budget, risk assessment, business cases, evaluation, procurement strategy, and requirements and schedule. While much of this planning is necessary for the eventual success of a project, the Task Force believes that large portions of it are premature as part of an initial approval process. Not only will much of the information be out of date once the project moves forward and begins implementation, but focus will be reduced on what should be the key aspects of a project's approval — a sound business case and organizational support and alignment. Moreover, crafting an FSR takes an enormous deployment of staff and contractor resources. One Task Force member commented that developing FSRs has created a cottage industry in Sacramento that reaps large returns with very little risk. In contrast, the oversight provided after the initial FSR is far less structured, relying mostly on informal interactions, unless the project triggers additional review and reactive oversight by significantly missing performance targets.

Recommendation 1. Department of General Services (DGS), California Technology Agency (CTA), and Department of Finance (a.k.a. Finance or DOF) should abandon the FSR and restructure the project-approval process to create two stages: (1) initial approval and (2) detailed planning approval.

As IT projects progress from concept to execution, increasingly reliable information becomes available and the risks that are of interest to controlling agencies change and mature. The project-approval process should reflect this reality, focusing on the right questions at the right times in the life cycle, rather than requiring a single large review early on, as is now done with an FSR. The Task Force recommends eliminating the current FSR process and redesigning the project-approval process to focus on the information and analysis available and important at key points in the project's life cycle. Specifically, the project-approval process should include an initial approval process substantially less resource-intensive than the current FSR, and which focuses on key aspects of an initial project approval. This phase should focus on the business case for the proposed project, including initial estimates of costs and benefits, discussion of project risks, and funding approaches. While some attention to the technical approach may be required to create the business case, the purpose of this phase is to analyze the business basis of the project, not its technical implementation.

Approved projects should then move into a more detailed planning stage that also requires approvals to move forward.[1] The detailed planning stage should consist of multiple iterations and

[1] This recommendation echoes one from the 2004 *California Performance Review*, which called for a milestone review process that created approval gateways at initial proposal; Milestone 1 with scope, economic analysis,

be designed to include the accurate, in-depth, and up-to-date procurement research, analyses, and planning needed to increase the project's chances of success. At a minimum, the detailed planning stage should include business process analysis (see Recommendation 2), market research (see Recommendation 4), an acquisition strategy and procurement plan, and budget and key project milestones. The Task Force recommends a thorough and full review of the existing FSR data elements to identify whether they are useful in the context of either of these review stages. Much of the current content seems to reflect an accretion of questions that address too broad a spectrum of concerns for project approval.

When restructuring the approval process, the DGS, CTA, and Finance should work to align it with the budget-approval timeline to minimize the overall project timeline.

The Task Force recommends that *State Administrative Manual* (SAM) 49.20 and 49.22 be revised to reflect the elimination of the FSR and the new multistep project-approval process.

Challenge: Understand business requirements and define a sound acquisition strategy before solicitation.

At the start of a major IT project, the state faces a continuum of choices in its acquisition strategy — from a custom-built system to a commercial off-the-shelf (COTS) product to a cloud-based solution. Regardless of the strategy, IT procurements tend to define requirements for the new system based on functionality of the known legacy system rather than using tools to perform business process modeling, analysis, and reengineering to modernize and standardize business practices. As a result, project requirements for the new system will at best reflect existing business processes. There is a strong impetus to maintain existing business practices, as inefficient as these may be, and adapt the technology to them. This tendency reduces the state's ability to take advantage of modern, standard solutions and the ability of vendors to design and implement efficient and effective solutions based on current best practices.

Whether a custom, COTS, or cloud approach is used, ill-defined requirements lead to extreme changes during contract performance that can raise cost, adversely affect schedule, and increase overall project risk. While the Financial Information System for California (FI$CAL) co-proposal system (with proposal stipends) is one approach to having vendors better understand the state's requirements before awarding a single contract for development or implementation, the approach may not be cost effective in all situations.

Recommendation 2. Understand, document, and validate business requirements and objectives before solicitation.

phasing, and proposed solution; Milestone 2 with project, acquisition, and risk management plans, etc. The Procurement Authority should review this recommendation when restructuring the approval process. See the *California Performance Review, Issues and Recommendations,* Chapter 7, *Statewide Operations,* A. *Information Technology,* SO 02 *Technology Governance: Strategically Leveraging the Power of Technology to Transform State Government, Recommendation J*. Retrieved from http://cpr.ca.gov/CPR_Report/Issues_and_Recommendations/pdf/chapter7.pdf.

The Task Force recommends that the state require entities planning a major IT system procurement to analyze and understand their existing business architecture, processes, and business objectives. By documenting and validating existing business processes before the IT solicitation, both vendor and state can better evaluate whether proposed IT system solutions will meet business objectives.

The Task Force recommends that the Procurement Authority implement this recommendation as a pre-project requirement and as part of its project-approval process. While the FSR does inquire about similar information for presolicitation, particularly in Sections 3.0-3.4 and 4.0, the project-approval process (Recommendation 1) should be revised to be more explicit about standards and methods used for business process modeling before solicitation.

Recommendation 3. Use business process reengineering to modernize and standardize state processes.

For large-scale IT procurements, the Task Force recommends that the state make full-scale business process reengineering a deliverable during contract performance if reengineering was not completed before issuance of the solicitation. IT projects should be as much about improving and redesigning government business practices as they are about technology. Where needed to ensure that reengineering reflects industry or government best practices, an independent entity should validate the resulting business models and requirements. The Task Force recognizes that the state will not always be able to reengineer processes to align with industry standards due to either unique legislative requirements or a lack of industry equivalents. But the decision not to reengineer should be contingent on approval from the CTA, justified by a risk analysis and strong supporting reasons for the decision (e.g., the process has recently been designed, reengineered, or otherwise shown to be effective). If unable to fully reengineer, the state should still strive to identify and leverage other states' best practices and use process reengineering to optimize any unique requirements.

While the Task Force did not study state internal capacity for business process modeling or reengineering, California will probably require some external expertise to model processes in advance of solicitations. Over time, it should also strive to develop process mapping and reengineering expertise in a central resource that will consult on agency projects across the state (see Recommendation 6).

The Task Force recommends that the requirement for business process reengineering be codified in statute, to ensure all relevant stakeholders recognize the importance of this activity to effective implementation and to implement it accordingly.

Recommendation 4. The Procurement Authority should strengthen the market research requirement in the project-approval process and provide detailed guidance on how to conduct market research, including the use of one-on-one meetings.

Prior to solicitation, market research will help the state learn about technological advances, expose alternative solutions, and test assumptions about the size and scope of the project. Market research also provides an early forum in which the state can improve the solicitation based on vendor feedback. Currently some, but not all, large IT project teams conduct such research, although the FSR asks the state entity to describe the extent and results of market research.

The Task Force endorses the state requirement that market research be conducted before a solicitation for a large-scale IT systems-integration project. But the Task Force further believes that the Procurement Authority must strengthen this requirement and set a standard for market research, with accompanying guidance. During the FSR approval process, the Procurement Authority should assess the state entity's market research against the state standard.

The Task Force understands that market research in the state typically consists of a Request for Information (RFI). While an RFI is one component of market research, it is insufficient for eliciting the type of information the state needs to improve its procurements. Market research should include one-on-one meetings with multiple vendors who provide relevant solutions. Having meetings with at least three vendors, for example, will minimize the perception that procurements are being steered toward a particular vendor. Moreover, by conducting one-on-one meetings prior to solicitation, the state can benefit from greater insight into vendor solutions — insight that vendors are hesitant to provide in an RFI, which is a public document. Market research should also serve as a key input into the state entity's assessment of alternative procurement approaches.

Historically, procurement officials have been reluctant to engage individual vendors prior to issuing a solicitation, presumably to avoid the perception of conflict of interest. The state can minimize conflict-of-interest risks by clearly establishing a date or event when informal market research will end. In addition, use of a draft Request for Proposal after market research (often transmitted by an RFI) can provide vendors who did not participate in market research an opportunity to comment on the state's procurement strategy, the contract type, information needs, evaluation methodology, past experience or prequalification requirements, intellectual property and liability allocation approaches, and other aspects of terms and conditions.[2]

Appendix A lists topics that market-research meetings should address. The Procurement Authority should review and, if necessary, adjust existing templates (e.g., the FSR or equivalent instructions) to incorporate these topics. These templates should be provided to agencies as guidance in conducting their market research.

[2] The state should consult NASPO's white paper, *Effective Communication between State Procurement and Industry*, for help developing guidance for market research and one-on-one meetings. Available at http://www.naspo.org/documents/1.Final_NASPO_EffectiveCommunicationWhitepaper_040512.pdf

SECTION 2. SENIOR LEADERSHIP AND GOVERNANCE

Challenge: Make timely and prudent decisions.

In California, decision-making in large IT projects tends to be shared across multiple entities within agencies, often resulting in unclear responsibilities and authority. Multi-agency projects magnify this effect, frequently leading to a failure to make critical decisions, including determining scope and prioritization of requirements, at all or in a timely manner. Delayed decision-making can adversely affect schedule and vendor costs. In addition, uncertainty in the state's decision-making process may cause vendors to build a risk premium into their bids, unnecessarily increasing project costs.

Recommendation 5. Require the acquisition strategy and procurement plans to describe the governance body for each project that includes a transparent, clear, timely, and robust decision-making process.

A transparent and timely governance process will reduce vendor uncertainty and ensure that decisions are made in a timely manner. A robust process with clearly defined decision rights, roles, and responsibilities should ensure that critical decisions are made responsibly and at the right level. This governance body and process should be defined early and communicated as part of the solicitation process and should include the names and titles of senior state members. Typically, governance bodies continue their role during contract performance, e.g., to review and approve change proposals. The Task Force recommends that a governance body and associated processes be established for all IT projects.

The Task Force further recommends that issue escalation be used for disagreements in an IT project and that issue escalation is addressed in the governance process. Issue escalation is a useful project tool to ensure that disagreements elevate above the immediate project team and contractor (both of whom may be heavily invested in prior decisions). While contracts often have a formal dispute process, issue escalation can help resolve project issues prior to a lengthier and more contentious formal dispute. The Task Force endorses DGS's current effort to strengthen a standard provision and process for problem or issue escalation in the Statement of Work.

The Task Force also believes that third-party contractor services, such as independent quality assurance and independent verification and validation services, should report to a governance body project executive and to the CTA in its oversight role. In the experience of some on the Task Force, third-party service providers can become aligned with the project team and reluctant to provide candid advice about troubled projects. Directly reporting to the project executive and the oversight entity will remove this problem by altering the reporting structure.

Appendix B lists what the Task Force finds to be the key components of a governance process and escalation process. Existing state templates may incorporate some or all of these components. In particular, the Task Force determined that having a single senior project executive — rather than several or a committee — in the state entity, who is responsible for the project from inception to completion, is key to project success.

SECTION 3. STATE STAFFING

Challenge: Staffing to support large-scale IT procurements

While the Task Force heard from state employees well versed in large-scale IT procurement, the overall number of staff with relevant experience is small and in some agencies non-existent. Lack of experience is magnified in small agencies that may never have conducted an IT project or do so rarely. Just as the state wants contractors to deliver their "A" team, the state needs to ensure it staffs all phases of the project with strong, well-trained staff.

The Task Force endorses both the CTA's ongoing efforts to train state staff on all aspects of complex IT projects and the DGS's efforts to train procurement staff. The Task Force recommends integrating both disciplines in overall IT project management. While training is essential to improve the management of complex IT projects, the Task Force also recognizes the value of a more central approach to develop a core strength in complex IT procurement management in order to capitalize on economies of scale, boost institutional knowledge, and lend support to small or inexperienced agencies.

Recommendation 6. Under the authority and direction of the CTA, extend the Office of Systems Integration (OSI) model to the rest of the state for large-scale IT projects.

The California Office of Systems Integration (OSI), an office in the Health and Human Services (HHS) agency, was established in 2005 to manage procurement, contract negotiations, and contract management for large-scale IT projects within HHS. Under the OSI model, the OSI enters into an agreement with the state entity responsible for the IT project. The state entity initiating the project retains ownership over the project, business case, and governance process, while the OSI manages the balance of the project. See Appendix C for a more detailed explanation of the OSI as well as its best-practices Web site, which provides detailed templates and guidance that cover the project life cycle.

The Task Force recommends that the state extend the OSI model and create an entity within the CTA to serve all state agencies and departments that have large-scale IT procurements. In extending this model to all state agencies, it is important to have the state agency retain ownership for the business aspects of the project to prevent it from abdicating its responsibilities to the IT project. The Task Force recommends that the CTA be considered as the location of a central agency to offer full-scale IT procurement services. Locating the new central organization in the CTA would be a natural fit because the CTA already performs some of the functions of the OSI and has limited authority over large IT procurements statewide. The Task Force recommends that the state implement the necessary statutory changes to accomplish this recommendation.

Recommendation 7. The Procurement Authority should require a formal staffing plan as part of the project-approval process.

While Recommendation 5 will help address many of the state's staffing challenges, state entities will still need to ensure that they provide appropriate staffing for a project. The FSR requires state entities to identify expected staffing requirements, including training needs, for a large-scale IT procurement. The Task Force recommends that this requirement be revised and strengthened to

require a formal assessment of human-resources capacity, a plan to address any gaps in capacity, and a commitment to staff the project appropriately throughout the procurement. To help state entities develop a formal staffing plan, the Procurement Authority should develop a standard template or format, assess the staffing plan as part of the project-approval process, and continue to monitor staffing as part of ongoing project oversight to ensure the state meets its obligations to the project. Recommendation 19 below addresses the companion issue of ensuring the stability and quality of vendor staff.

SECTION 4. PROCUREMENT PROCESS

Challenge: Allow flexibility in the procurement process.

Most procurement is based on the use of competitive requests for proposals in response to a predefined solicitation, which assumes that requirements are knowable in advance and that the time to execute is predictable. However, in large IT projects, change happens. IT implementations across an enterprise involve enormous complexity.

A 2010 report by the Standish Group, the *CHAOS Manifesto*, found relationships between project complexity and successful IT implementations. Sadly, the report found only 32% of all projects succeeding on time, on budget, and with required features and functions. Cost overruns had increased from 47% of projects in 2006 to 79% in 2008. In its report, Standish found project cost overruns ranging from 45% in 2000 to 54% in 2006. Project size was a factor, with projects over $10 million having only a 2% chance of staying on schedule and on budget. California's award-winning OSI is a testament to the possibility that large projects can succeed in the state, but as the Standish report highlights, changes in project delivery, procurement, and even culture are needed in the rest of the state.

The Task Force believes that these failures often reveal the complexity of IT system implementations. In large-scale IT projects, it may be impossible to adequately specify exact requirements. There is considerable information uncertainty for both the state and vendors. Therefore, the state should allow itself greater flexibility throughout the life cycle of the procurement to address this uncertainty.

The Task Force recommendations below are complementary with increased use of Public Contract Code (PCC) 6611. PCC 6611 gives the state authority to negotiate in new and existing contracts for goods, services, IT, and telecommunications. It provides the state the authority to pursue a flexible approach to procurement. Given the problems inherent to large-scale IT projects, flexibility to negotiate or change requirements is key to a successful procurement.

The Task Force also notes that the DGS Procurement Division is making great strides in revising PCC 6611 guidance to improve its utility. The recommendations below serve to reinforce DGS efforts and fully leverage the inherent flexibility of PCC 6611.

Recommendation 8. The Procurement Authority should develop a cadre of procurement and legal staff well versed in the use of PCC 6611 and expand its use for IT projects.

Procurement and legal staff experts with knowledge of and experience in using PCC 6611 will help improve the state's ability to leverage the code effectively. The Task Force recommends that the Procurement Authority develop training on using PCC 6611 and provide it to legal and procurement staff at agencies. To enhance use of this code, the Procurement Authority should also develop training or outreach materials that educate senior-level staff at state entities on the merits of PCC 6611 and how to request and use it. This training could be developed and administered by the Procurement Authority using DGS and OSI staff who are the current experts in using PCC 6611. The training should include lessons-learned reviews from prior procurements using PCC 6611 negotiated

procurements (see Recommendation 12). The Task Force strongly endorses DGS's policy of recommending this code for projects above $20 million.[3] In addition, the Task Force recommends the use of PCC 6611 for projects under this threshold when the approach is suitable.

Recommendation 9. At the recommendation of the project executive, allow for a contingency contract dollar amount consistent with the size and complexity of the project.

In large IT projects, change happens. To accommodate this fact, the state tends to use a contingency budget that is 10% of the total budget, modeled after what is done in major construction projects. If a project exceeds this budget, it is often viewed unfavorably by the Legislature and agencies alike, creating a disincentive to course-correct it. But unlike major construction, where cost and time are predictable, IT projects vary in complexity, scope, and understanding of the optimal business solutions. This makes a one-size-fits-all contingency rule the wrong approach for IT projects. The Task Force recommends that the state allow large IT projects to determine contingency budgets appropriate to the project, based on size and complexity. This provides the state with funding flexibility to address inevitable project changes. The project executive should approve the contingency amount and overall strategy.

This contingency amount should supplement the existing 10% contractual line for unplanned tasks. Establishment of reserves should not only address scope changes identified by the project team — as done by the 10% unplanned-task line item — but also the reality that conditions will be discovered, resistance will be encountered, and unknowns may cause the contractor's costs to balloon beyond what was reasonably anticipated. Some of these additional costs should be reimbursable to the contractor. Appropriate recognition of this can prompt dialogue at senior state and contractor levels about expectations and change management before resorting to formal dispute mechanisms in state contracts.

For example, public construction has well-defined policies and practices for establishing and managing budget reserves. These policies commonly distinguish between new and existing construction. In Colorado, for example, a project reserve is usually 10% of the overall project budget for renovation of existing facilities. But the state architect's contingency management instructions note that some renovation project contingencies have exceeded 10% due to unknown conditions. The Task Force contacted the Colorado state architect and learned that historic renovation project contingencies can be as high as 15-20%. In construction parlance, replacing legacy IT systems might look more like "historic renovation," with budget contingencies of 15-20%. Not only do some construction projects allow for greater contingency amounts, but advanced

[3] PCC 6611 appears to adapt processes from states using the ABA Model Procurement Code (MPC). Unlike the standard practice in California, the MPC permits information exchange through clarifications and discussions after proposal submission and prior to award. The MPC, like PCC 6611, also permits proposal revisions prior to award. For large-scale IT projects, information exchange during the procurement is essential — it allows the state and competing companies to develop a common understanding of the state's requirements and how the proposals satisfy the objectives of achieving best value.

delivery methods in construction allow for additional reduction in cost risks (see Appendix D). As a result, construction, an area with knowable outcomes and fewer risks, has more tools at its disposable to manage change and risk than do complex IT projects.

Given the complexity of large IT projects, the Task Force recommends that the state allow the project executive to determine a contingency budget appropriate to the project, based on size, complexity, and risk of a project. One expert has noted, "[a] large, multi-year project could have a contingency of as much as 25%. Shorter, smaller projects would have less."[4] However, the Task Force recognizes the valid role played by the Legislature and other oversight bodies in overseeing large IT projects and associated contingency budgets. To balance the increase in contingency flexibility with accountability, state reporting mechanisms should allow visibility into contingency decisions. The Task Force recommends that the reporting mechanism be similar to capital construction reporting: perhaps an information report aligned with a percentage of the project executive's risk trigger and a more rigorous reporting when the project executive's contingency was reached. And in one final return to IT's project cousin, construction, we recommend treating large legacy system replacements like historical renovations — but where lurking risks are even greater.

The Task Force recommends that the *State Administrative Manual* be modified to reflect this approach to contingency management in large IT projects.

Recommendation 10. The Procurement Authority should study and annually report on the viability and utility of using alternative contracting vehicles.

Technology and organizational change are constants in the business of state government. Government must keep pace with innovation and change in contracting methods to ensure timely, effective, and efficient IT contracting outcomes. California's large IT procurements have generally required that a single vendor be responsible for the project, including project management, subcontracting, and implementation — the "one-throat-to-choke" model. This places most of the responsibility and risk on the single vendor, but also reduces price-transparency for the various activities, preventing the state from picking and choosing vendors for different components of the project. It may also inappropriately reduce the state entity's responsibility to prioritize and generally manage the project throughout its life cycle. Historically, this large, monolithic approach has proved susceptible to budget overruns, projects years behind schedule, and compromised functionality.

To improve IT contracting outcomes, the state must continually assess, incubate, and deploy contracting models more likely to meet the business and technology challenges of today and of the future. The Task Force recommends that the state evaluate and pilot a number of alternative contract vehicles or models.

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[4] David R. Laube, "Should You Plan for Failure?", from Laube and Raymond Zammuto, ed., *Business Driven Technology: Answers to 100 Critical Questions for Every Manager* (Stanford: Stanford Business Books, 2003).

Of particular interest is a contracting model that the federal Office of Management and Budget implemented in June 2012.[5] Known as Modular Development, this method allows a more nimble approach to IT contracting. With well-understood system requirements and known system architecture, contracts can be broken down into more manageable chunks. Smaller contracts can be delivered using agile project methods, where orders are placed against contracts as the need arises. Discrete business requirements can be delivered sequentially or in parallel, using single or multiple contractors. Overall system acquisition is simplified through this iterative process. Modular and interoperable business solutions are delivered quickly, with reduced project risk.

A similar approach that complements Modular Development is the use of more pilot demonstrations that test-drive specific business solutions. Each pilot, after successful test, can be put into production with other pilots, leading to an incremental construction of the final system. This method results in near-term business solutions that are tested through pilots to ensure business objectives are met.

The Task Force recommends that the Modular Development contracting vehicle be considered and piloted if appropriate. Appendix E describes a number of additional alternative contract vehicles that the state should also consider.

Challenge: Make the procurement process timely and effective.

Many of the state's processes are intended to promote fairness and reduce the risk of conflict of interest. However, these processes are often complex, burdensome, and may actually decrease fairness by limiting the pool of viable vendors to those who understand or can finance the process. These processes also extend the procurement process considerably, making the state susceptible to acquiring dated technology because by the time a project has begun, the technology selected may no longer be appropriate. Vendors may also lose interest. Because vendors must assign expensive resources to pursue large-scale contracts that have lengthy timelines, they often choose not to participate. And an excessively long procurement process almost certainly guarantees that even when the vendor pledges its best staff to a project, these staff may not be available when the project finally gets under way.

Recommendation 11. The Procurement Authority should develop and publish a model procurement task plan that establishes the goal of a 10-month maximum timeline from RFP issuance to contract execution.

While the Task Force did not conduct a micro-level, in-depth analysis of the procurement process, it did find that the procurement process, from RFP release to contract execution, is complex and lengthy. Some of this complexity and time delay is due to legitimate legal and business needs; other parts of it may not be. The Task Force recommends that the state engage experts in business process reengineering to evaluate and redesign the procurement process to eliminate waste and

[5] June 14, 2012, Office of Management and Budget Memorandum on Contracting Guidance to Support Modular Development, from Joseph G. Jordan, Administrator for Federal Procurement Policy, and Steven VanRoekel, Federal Chief Information Officer

simplify the process. As part of this effort, the state should identify statutory requirements (or interpretations of requirements) that add unnecessary time to the procurement process but do not promote efficient, modern, and equitable procurement.

In the immediate term, the Task Force recommends the following to reduce complexity and duration of the procurement process:

a. *Prescreen vendors.* The DGS should develop criteria that allow agencies to prescreen vendors. Using criteria that are fair and promote competition, agencies should be able to prescreen vendors, helping to decrease the total time for procuring IT. Where prescreening is unnecessary, guidelines should be developed for definitive eligibility criteria (using specific numbers of projects, size or nature, and recent experience) to clearly inform industry about the minimum requirements to be considered responsive on a procurement.
b. *Embed DGS and legal staff on the project team before the procurement process begins.* Embedding staff from DGS with the authority to make decisions or advise on risks early in the project life cycle — typically after the project business case or feasibility study has been approved — will reduce the number of iterations in reviews and the overall review cycle and help integrate procurement planning into the overall project plan.
c. *Develop a library of standard procurement elements.* This library should include provisions and terms; statements of work clauses and procedures; and terms for warranty, maintenance, and acceptance. Large system integration projects are rare for many agencies and they are inexperienced in developing procurement language for large IT contracts. A library will help streamline the procurement process by reducing the learning curve.
d. *Use a solicitation library.* During solicitation development, a library of documents should be available to vendors to help them fully understand the business processes, technical interfaces, technical history, and other elements of requirements. Base the contents of this library on market research.
e. *Governance body approval and reporting of project schedule.* Require the governing body to approve the procurement schedule and include procurement schedule status in all communications with stakeholders, including the Legislature. Persons detailed to the project team should be told that the project is their highest priority.
f. *Use parallel processing where possible.* Required processes and tasks should be conducted in parallel wherever possible to reduce the time between RFP issuance and contract execution. Some examples (and other effective procurement practices) are given in Appendix F.

Recommendation 12. The Procurement Authority should conduct formal post-project evaluation of major procurements, with annual reporting on lessons learned and needed improvements.

The state has begun to use alternative procurement methods, e.g., two-phase procurements. These procurements often include post-award evaluations, such as lessons learned or vendor debriefs, but in many other procurements there are no post-award evaluations or feedback to vendors or state

entities. This limits the vendor's ability to improve on how to deliver proposals. More importantly, it limits the state's ability to continuously improve how it conducts major procurements, including identifying what procurement processes are most effective for large-scale IT.

The Task Force recommends that the Procurement Authority require post-project evaluations of all major IT projects that are at or above a certain criteria (e.g., budget and/or timeline). Unlike the existing Post-Implementation Evaluation Report (PIER) conducted by the CTA, the focus of this evaluation should be on the performance of the procurement and contract-management approaches. The evaluation format should draw on that used for the FI$Cal project. To help identify which procurement methods lead to better outcomes, the Procurement Authority should follow up and compare contract outcomes with procurement methods. The state should then summarize the results of post-award evaluations at least annually and report the results to the Legislature. The report should identify what procurement methods are associated with successful vs. failed projects, what statutory barriers exist regarding successful procurement methods, and areas for additional research or experimentation.

The Task Force recommends that the *State Administrative Manual* be update to require this type of post-project review.

SECTION 5. PROPOSAL EVALUATION

Challenge: Implement evaluation criteria that foster best value selection.

The state confronts a key challenge in constructing evaluation criteria: It must ensure best value while maintaining a fair process. It strives for fairness in its evaluation by focusing on objectively comparable evidence. This stage of procurements often taps into the "fear of bid protests" that the Task Force found. Still, evaluation and the ultimate award decision are business judgments that involve subjectivity. The state cannot avoid it.

"Objective" criteria often come at the expense of not evaluating more general but useful information that could discriminate between proposals. For example, evaluators do not interview key vendor staff as part of scoring a proposal because one cannot "objectively" score an interview. This reluctance to use qualitative considerations limits the ability of the state to gain valuable information about a vendor and for the vendor to obtain valuable insights into the entity's processes and its requirements — both of which are key elements in developing a better solution.

Instead, the response is to develop a long list of quantitative and/or easily determinable criteria that are not important to the evaluation. This proliferation of factors in numerical spreadsheets relegates important factors to a miniscule part of the numerical assessment. The Task Force heard from vendors that these evaluation approaches ultimately lead to price being perceived as the differentiator and that "best value" is really "lowest cost."

Recommendation 13. Use a combination of quantitative and qualitative criteria to evaluate proposals.

To ensure best value — not lowest cost — the Task Force recommends that the state require entities to develop an evaluation plan that incorporates qualitative criteria[6] that reflect the needs of complex IT projects and the success factors identified in project planning, and value them appropriately during proposal evaluation. While the state does call for IT procurements to use "value effective criteria" for evaluating vendors (see Appendix G for more details), it also encourages state entities to weigh cost as 50% of the evaluation. A best-value evaluation should be most advantageous to the state: costs *considered*, not emphasized.

Qualitative criteria should have generic descriptions that distinguish between poor, fair, good, and excellent technical and management approaches. Five-point scales with appropriate definitions relating to understanding the requirement, soundness of approach, and risk have been found to be meaningful discriminators among proposals. This is in contrast to the state's current approach of using three grades (meets, exceeds, fails), which fails to distinguish between proposals, leading to cost being the predominant discriminator. Similar evaluation criteria can be defined with respect to past experience and demonstrated capability.

[6] Qualitative evaluation criteria could include cultural fit, usability, business needs, interviews, user testing, fit gap analysis, proposed methods of performance measurement (e.g., service-level agreements), risk in the context of the project delivery strategy, and partnership potential.

The project executive must review and approve the evaluation plan, which should summarize the evaluation approach and criteria used.

SECTION 6. CULTURAL FACTORS

Challenge: Develop institutional support for change and course correction.

Once a Request for Proposal (RFP) is issued, pressure to stay on time and budget may discourage staff from making important requirement or schedule changes. Change addenda are time-consuming and may be perceived as a signal that the solicitation is not well managed. This can lead to a lack of transparency into projects that may need assistance.

Training on the use of change throughout the project life cycle can better support iterative project-delivery approaches, which are now widely used. These recommendations address procurement changes to address that reality.

Recommendation 14. The CTA as the state's technology leader must set an expectation that IT procurements are iterative and that staff should expect and plan for change.

The Task Force recommends that the CTA, in coordination with state agencies, communicate and set the expectation with the Legislature that IT procurements will require change addenda. The state should communicate this expectation within agencies by incorporating it into the project-management training that it requires prior to a major solicitation. Large IT procurements should include information on the change addenda process that does not cast its use as a failure or mismanaged procurement.

Recommendation 15. The Procurement Authority should develop and publish a standard, streamlined framework for the addendum process.

To prepare for larger numbers of change addenda and to minimize schedule deviations, the Task Force recommends that the Procurement Authority make the change addenda process as efficient as possible. External experts in business-process analysis and reengineering can be used to streamline and standardize the process. The Procurement Authority can also train personnel on how standard change provisions can be used most efficiently and effectively for making adjustments to project delivery and pricing.

SECTION 7. VENDOR MANAGEMENT

Challenge: Hold vendors accountable for their performance.

After a contract is awarded, the state must ensure that the project is managed effectively. General project management is beyond the scope of this Task Force. But to hold vendors accountable, the contract and vendor management portions of the overall project-management approach are essential. Contract management extends beyond project management — it addresses contract monitoring, inspection and acceptance, changes, and dispute resolution. The procuring agency is typically responsible for contract management. However, to the extent that contract management is a distinct skill from project management or an important subcomponent, it is not adequately or consistently provided by the procuring agency. Personnel responsible for project management may not have the incentive to adequately enforce contract terms due to fear of project delays or perception of mismanagement. This inhibits the state's ability to appropriately leverage contract mechanisms to hold vendors accountable during a solicitation.

The state also struggles to incorporate past vendor performance into evaluations and may not effectively share information across its multiple entities responsible for large IT procurements.

Recommendation 16. The Procurement Authority should require a contract-management office for large-scale IT projects and should assess the need for a central contract management office.

The statewide implementation of the OSI model (Recommendation 6) should include a dedicated contract management office (or vendor management office), with personnel trained in leveraging contract terms to manage vendors. While the Task Force endorses the CTA plan to include contract and vendor management training as part of its Project Management Academy, the Task Force believes that large-scale IT projects require a dedicated office to ensure adequate personnel. This office should also be a facilitator between independent verification & validation (IV&V) services and reports and the project executive to ensure that key deliverables are met on time and are of high quality.

Multiple groups told the Task Force that lack of statutory authority for contract management might be a constraint to having a central office. The Procurement Authority should assess the relative merits of offering or even requiring use of a central contract-management office, and if necessary, identify and pursue necessary statutory changes. In addition, the Task Force has identified important elements of contract-management training in Appendix H.

Recommendation 17: Develop and use contract incentive provisions to reward excellent performance and address underperforming projects.

The Task Force recognizes that it is important for the state to have additional procurement and contract-management tools to incentivize vendors to meet and exceed expectations and project requirements. We recommend that the project executive be given authority to develop procurement and contract provisions to enable the state to use a contingency contract dollar amount as financial incentive for vendors. The incentive would affect those vendors who complete projects on schedule, ahead of schedule, under budget, or who exceed other crucial effectiveness

targets. This management tool would be in addition to traditional contract provisions such as liquidated damages, indemnification, and termination provisions. While the latter provisions help the state to terminate a significantly subperforming project, this new provision represents a contractual tool to advance the project with the current vendor. It could be structured either as a contingency "hold-back" of a portion of the contract amount or as an additional amount over and above the contract award amount for vendor performance that exceeds time, scope, or effectiveness requirements.

This provision could be modeled after PCC Section 10226, which stipulates a Bonus for Completion in construction projects. Such an incentive contingency dollar amount would be included in the budget and finance assessments of the procurement and not considered a cost overrun. In either event, as a hold-back or extra incentive, the contract provision should be drafted such that it gives the state unilateral judgment on whether the vendor has met project requirements. The provision should be separate and distinct from existing breach provisions and should not require the traditional Notice for Breach contractual terms and conditions. Complete discretion should be left to the state. The use of this provision and award of the amounts would require robust standards and guidelines.

The Task Force recommends that the state pursue the appropriate statutory changes to permit the use of incentive fees in this manner.

Recommendation 18. The CTA should identify methods to collect vendor performance data and incorporate it into prescreening of vendors for future procurements.

All large IT systems should incorporate meaningful evaluation of past experience into new awards and evaluation of vendor performance during and after contract performance. Poor performance will be deterred if vendors know the state collects and considers meaningful performance information. More important, the good performance of solid vendors would be considered and in some cases rewarded.

The Task Force recommends that the CTA identify methods to collect vendor performance data and incorporate it into the proposal evaluation. Given the multiyear time frame of large-scale IT projects, the CTA should identify key points in the project life cycle when staff must evaluate and file reports on vendor performance.

The CTA's existing Project Status Reports may provide a basis to implement this recommendation as part of a balanced scorecard. These status reports include key indicators such as Milestone Hit Rate and Deliverable Hit Rate, both defined as percent on time; and Actual vs. Planned Resources from the vendor, with percent assigned and available. The state could enhance these indicators to better hold the vendor accountable. For example, deliverables should be "on time and accepted," which would indicate whether the vendor consistently delivers *high-quality* products on time. The information could be extrapolated from the Project Status Reports and made available to state staff when evaluating vendor proposals. Sharing this information with future procurement projects during their initial screening of potential vendors will allow them to benefit from recent and ongoing vendor performance.

The state could also make the data publicly available, helping to increase vendor accountability. To ensure fairness, the CTA should include a process that allows the vendor to respond to the evaluations. The state should also notify vendors as part of standard solicitation language that it will be collecting and publishing this data and using it as part of future proposal evaluations. The essential elements of a solicitation provision are included in Appendix I.

Recommendation 19: Reduce and track vendor changes of key personnel and subcontractors.

The award of a contract is based — at the least in part — on the key personnel and subcontractor that the supplier proposed. On balance, these resources were judged to have the best skills and abilities to successfully complete the contract deliverables. When new key personnel or subcontractors with lesser skills and knowledge are substituted for those originally proposed, the risk to the contract and the project is increased. Reducing change of key personnel and subcontractors during contract management will reduce project execution risks.
The Task Force recommends that the state strengthen the key personnel clauses in the contracts and track key personnel changes as vendor performance data for use in future evaluations.

Currently, state IT contracts include a clause provided by the DGS, requiring that changes in key personnel or subcontractors be approved by the Procurement Authority. The Task Force recommends that this clause be reviewed and strengthened to require a standard of quality for any replacement that is substantially equivalent or exceeds that proposed for the original key personnel or subcontractors, in the sole judgment of the Procurement Authority. The clause should require the contractor to provide documentation, information, and interviews as deemed necessary by the Procurement Authority. This puts the decision to approve any change in the proposed team with the Procurement Authority.

Vendors interviewed told the Task Force that reputation is important. An objective assessment of how frequently a contractor changes resources and the reasons for the changes will help both the Procurement Authority and contractors better manage this contract risk in the future. The Task Force recommends that all changes to key personnel or subcontractors be tracked and reported as a part of Recommendation 18. The reports should identify each change and the reason for the change. This information should be considered when evaluating future proposals by the vendor.

Challenge: Foster communication and trust between the state and vendors.

Misunderstanding or even distrust between the state and vendors may drive behaviors that hamper the procurement and award process. On the state side, this can drive the quest for more detailed information; on the vendor side, skepticism and uncertainty can arise regarding the procurement process, resulting in fewer vendors competing and, therefore, fewer qualified bidders, often at higher costs. Ideally, a partnership develops between the state and the vendor with both incentivized to meet or exceed contract expectations.

The fear that an award may be protested may also contribute to staff reluctance to communicate with vendors, given uncertainty about what information is “fair” to be shared and would not lead to a protest. For example, although PCC 6611 provides broad authority to use negotiation and increase communication during the procurement process, the state may use this authority narrowly. This

limits a vendor's ability to improve its proposal throughout because the vendor is unable to interactively negotiate with state entities and make revisions before an award, based on state identification of weaknesses or deficiencies in the proposals.

Recommendation 20. The Procurement Authority should develop an ongoing forum for vendors and state staff to meet outside of the pressure of solicitations.

Better communication between vendors and the state will allow both parties to find ways to continuously improve the procurement process or troubleshoot concerns outside of a single solicitation. It could also provide an opportunity for both groups to gain insight into the other's processes, constraints, and perspectives. To be successful and increase mutual trust, the state should show a commitment to act on vendor feedback, where appropriate. Ideally, an ongoing forum will help foster a joint learning community, while reducing areas of misunderstanding and distrust.

The Task Force recommends establishing a forum — outside the solicitation process — for vendors and the state to meet and foster better communications and build mutual trust. The state has already established a regular forum to revisit the state's standard terms and conditions. This occurs approximately every five years, and this time frame is probably appropriate for reviewing standard terms and conditions. The forum recommended here should address all aspects of procurement, including ongoing or iterative changes, and as a result, the Task Force recommends quarterly or biannual meetings.

Recommendation 21. The CTA should review the procurement life cycle to identify opportunities to increase effective and fair communication between the state and vendors.

While Recommendation 20 provides an opportunity to foster communication outside of individual solicitations, the CTA should examine the life cycle of a procurement to identify where it can include more opportunities for open, fair, and effective communication during a solicitation, award, and project execution. The Task Force recommends that the CTA develop guidance on how to maintain a fair process while increasing communication throughout the life of the procurement. Recommendation 4 highlights market research as one opportunity to increase communication. The Task Force believes that additional opportunities exist, such as providing feedback on interim deliverables, increasing the number of and length of confidential meetings during solicitations, and effective use of project kickoff meetings (with executive sponsor participation). Recommendation 5 provides the contractual foundation for better communication during contract administration. Collectively, the Task Force believes that relationship and expectation management, beginning with the procurement process, is critical for project success.

The Task Force recommends that the *State Administrative Manual* be revised to enable and require these kinds of communications wherever possible.

APPENDICES

Appendix A. Topics to Address during Market Research

Topics that market research meetings can best address include:

- Solicitations that vendors consider progressive and why;
- The key pricing issues for them in the specific implementation, e.g., number of customized screens, number of reports;
- The types on information they would need to see in a bidder library;
- Intellectual property rights concerns in the context of the state's standard IP rights;
- Liability allocation issues of particular concern in the specific implementation, e.g., data-breach issues, and their suggested solutions;
- The types of evaluation factors they think differentiate among providers;
- The flexibility they need in a proposal to provide solutions they consider of best value to the state, and examples where solicitation language has unnecessarily impeded their innovation;
- Examples that other public entities have used to address these issues.

Appendix B. Essential Components of the Governance Process

At a minimum, the governance process should:

- Clearly define roles and responsibilities of project participants and decisions made by each, whether to approve, review, or consult. Several tools can clearly define how decisions are made in complex projects. The state should draw on any number of these to define a standard for large IT project decision rights and roles.
- Designate a senior project executive in the state agency to be accountable for the project from inception to completion and define that person's responsibilities and authority in project charters. The authority must be commensurate with responsibilities. Consider giving the project executive authority to approve feasibility and business case proposals, changes, and final acceptance. Consider having the project executive approve the state employees working on the project and any proposed changes to project personnel.
- Designate a lead agency for multi-agency projects.
- Define clear time restrictions for reaching decisions and include those target times in the solicitation and contract.
- Define an issue-escalation process and include provisions for it in solicitations and contracts. The process should:
    - Allow for either the state project manager or contractor to initiate issue elevation with the governance body and senior contractor executives;
    - Include a meet and confer obligation for the governance body and senior contractor executives; and

- Include issue status as a part of project status meetings with the governance body, including a provision to invite senior contractor executives to attend meetings where issues are discussed.
- Clearly define project and procurement success factors.

Appendix C. California's Office of Systems Integration

The California Office of Systems Integration (OSI) is an office in the Health and Human Services agency. The office consists of teams of personnel who manage large IT system implementations. OSI's mission is to procure, manage, and deliver technology systems that support the delivery of health and human services to Californians. OSI IT projects include an unemployment insurance modernization system, a case-management payroll system, an electronic benefits transfer project, the state's automated welfare and child welfare services case management, and the statewide automated welfare system.

The Center for Digital Government (CDG) and the National Association of Chief Information Officers (NASCIO) have recognized OSI for developing a unique, Web-based best-practices framework for project management and acquisition services. This framework provides a structured methodology using standardized and repeatable processes throughout the project life cycle. The CDG awarded the OSI the nationally recognized Digital Government Achievement Award for its management of large IT projects in the government-to-government category. Additionally, NASCIO announced the OSI as a finalist in the Enterprise IT Management Initiatives category, for deployment and use of its unique brand of project-management tools and processes through the Best Practices Web site.

OSI's Best Practices Web page includes:

- Visual depictions and descriptions of the project-management life cycle — initiating, planning, executing, and closing — as well as the system development life cycle, from requirements definition through system decommission;
- A model project charter with instructions;
- Model governance structures with roles defined for various project teams and personnel: e.g., executive steering committee, project sponsor, project director, project manager, acquisition specialist, procurement team, contract manager, organization change manager, and independent project oversight and independent verification and validation (IV&V) contractors;
- Visual depictions and descriptions of the acquisition life cycle — acquisition planning, contracting, product acceptance — including templates (with instructions) for IT procurement, evaluation and selection planning, and state contracting manual; and templates for quality management, deliverable management, and overall contract management;
- Measurements and metrics for assessing project management and contract performance;
- A contract-management plan used to manage contractors and consultants on projects. It describes how deliverables are reviewed and approved, how contract deficiencies are

addressed, and how contract amendments are processed; a lessons-learned template for performing project assessment;

- A risk-management template with instructions;
- A knowledge management data item description for use in solicitations that requires the contractor to develop a knowledge transfer and training plan having prescribed elements;
- A variety of other alphabetically organized documents for use in IT projects.

Appendix D. Comparison of IT and Construction Projects

Not only do some construction projects allow for greater contingency amounts, but advanced delivery methods in construction allow for additional reduction in cost risk.

For example, in design-build contracting or advanced construction manager/general contractor delivery systems, the initial project price can be established as a guaranteed maximum price (GMP) that contains some amount of contingency to account for contractor risk. Often, design is concurrent with contract performance, posing some risk to the contractor, but the unique structure of the construction industry allows governments to reduce that risk premium. Successive trades — such as concrete (foundation), mechanical, framing, roofing, etc. — often are required to be bid competitively during contract performance in order to use competition to progressively reduce the contract value (payable by the government) below the guaranteed maximum price. Value-engineering clauses can be used to further provide incentives (through sharing in cost savings) to the contractor to find innovative ways to meet the government's requirements.

Significantly higher risks are present in IT projects. Except perhaps in value engineering, the nature of the IT industry does not accommodate this innovative method of managing contract performance. IT projects are less amenable to a prime contractor's separating out discrete work packages and leveraging competition to reduce costs below a GMP as the project proceeds. Moreover, unlike the construction industry, with its transparent pricing guidelines for estimating costs and prices based on the size and quantity of materials and work to be performed (like Means Construction Costs Estimating Guides), IT projects largely are driven by labor-hour best-guess estimates. Such estimates may attend resistance by state agency personnel due to differences between bidder library information, actual interfaces, practices and circumstances on the ground, variations between sample report requirements and the actual report needs of individual agencies, in addition to the delay that sometimes attends oversight committee and project executive decisions during contract performance. In short, in construction, one can see and measure the cost drivers; in IT projects, one cannot.

Appendix E. Alternative Contract Models

Examples of alternative contract models that the state could evaluate include but are not limited to:

- *Iterative or phased-development contracts.* For some projects, the technical and business outcome cannot be known during the initial contract execution. Iterative or phased-development contracts require decision gates throughout the contract to move forward. This type of contract requires a different methodology to determine the appropriate

compensation for additional development. This contract should include the use of anticipated amendments to authorize additional work within the scope of the project.

- *Award fee contract.* The federal government has long used the award fee contract for major systems and services acquisition. Offerors are asked to propose an amount of award fee (practically it comes out of their profit) that is allocated to an award fee pool. The contract has an appendix that defines the process for awarding the fee. The fee is not payable for performance judged to be merely satisfactory. At intervals, commonly every six months, the project team briefs the governing body or other designated team on identified elements of performance, e.g., schedule, communications, adaptability to change, problem solving, etc. Based on that evaluation, the governing body determines an award based on defined categories for satisfactory, good, and excellent performance. The contractor is permitted to make a similar presentation, and senior contractor executives often participate. Under the contract clause, the amount is not subject to challenge by dispute. Although significant resources are devoted to the award fee determination, for major projects it can be a useful adjunct to other contract administration tools for increasing the quality of communication.
- *Incentive-based contract.* One vendor described a contract model structured to incentivize the business owner to prioritize business requirements. The project had a budget of $30 million, with $27 million as fixed and $3 million for changes. The business owner was allowed to keep any excess not used for changes. Not only did this push the business owner to prioritize changes, it also pushed that owner to optimize the use of the fixed dollars.
- *Bid-design-build contracts.* Under a design-build model, the state would select a vendor to both design and build the system. The state could negotiate service rates (e.g., project manager, business analyst, programmer, etc.) under a fixed budget. The potential value of a design-build model in IT is that it helps the state leverage the vendor's expertise in requirements development and design and forces prioritization under the fixed budget, in contrast to the design-bid-build model. It also increases pricing transparency as the state is paying for service rates.
- *Performance information procurement systems*. Arizona State University's Performance-Based Studies Research Group (PBSRG) has developed a best-value Performance Information Procurement System (PIPS) that proved extremely successful in construction projects. The state of Idaho, for one, has adapted PIPS for IT projects. The PIPS methodology uses two key differentiators in vendor selection: past performance and risk. The proposals tend to be much shorter, and the initial evaluation is conducted "blind." PIPS is characterized by the use during evaluation of "dominant information": e.g., past performance and abbreviated risk-minimization plans. Proposals are fewer than 30 pages, as opposed to hundreds of pages often filled with information that is less useful in selecting vendors. More evaluator time is spent in interviews, contract risk minimization, preplanning, and validation of contractor-provided materials. Evaluators spend considerably less time wading through proposal content that does not represent a true differentiator. Moreover, the selected vendor is able to understand more about the state program's needs before contracts are finally executed. There are varying opinions about the utility of PIPS in IT. However, the approach at a minimum has identified true evaluation differentiators, and the Task Force recommends that the state evaluate the process to see what might be learned.

Appendix F. Short-term Process Improvements

While the Task Force did not conduct an in-depth process review of procurements, it noted a few opportunities to streamline the process via parallel processing:

- Provide functional and technical overviews in parallel, since the vendor business and technical staffs typically do not overlap. Also, distribute the briefing materials before oral presentations to drive informed vendor questions and leverage technology, e.g., video, to reduce travel expenses.
- While scheduling oral presentation/negotiations sessions, use sub-evaluation teams to conduct reference checks and price analysis and to provide relevant technical information, e.g., numbers of labor hours for key tasks, to the technical team. Make weaknesses or uncertainties discovered during those evaluations part of oral presentations and/or discussions.
- Continue to conduct contract terms and conditions negotiations contemporaneous with technical discussions.
- Use nonvoting advisors for the evaluation committee to limit schedule slippage from unavailability. Caveat: Ensure there is cross-representation on these teams and the evaluation committee so that all members know what information is being provided and solicited.

Appendix G. Best Value Criteria

California's *State Contracting Manual*, Volume 3, describes "best value" criteria as follows:

- The price of the product or service;
- The operational cost that the state would incur if the offer is accepted;
- The quality of the product or service, or its technical competency;
- The reliability of delivery and implementation schedules;
- Small Business/Disabled Veteran Business Enterprise (SB/DVBE) participation as prime or subcontractor (advertising and DVBE forms not required for Leveraged Procurement Agreements) to meet department goals;
- The maximum facilitation of data exchange and system integration;
- The warranties, guarantees, and return policy;
- The supplier's financial stability;
- The consistency of the proposed solution with the state's planning documents and announced strategic program direction;
- The quality and effectiveness of the business solution and approach;
- The industry and program experience;
- The prior record of supplier performance;
- The supplier expertise with engagements of similar scope and complexity;

- The extent and quality of the proposed participation and acceptance by all user groups;
- The proven development and methodologies and tools;
- The innovative use of current technologies and quality results.

Appendix H. Contract Management Training

The term "contract management" has different meanings, even among procurement professionals. For the purposes of this Appendix, we refer to the post-award aspects of contract management, sometimes called "contract administration."

Both the DGS and OSI have guidance on contract management. The challenge nationally has been to take well-known practices and tools and develop the tacit knowledge necessary to use them effectively. For example, most contract managers will tell you there are change clauses in their contracts. However, fewer professionals have negotiated a potential contract claim and used the change clause as the vehicle for a contract amendment that made agreed adjustments to scope, schedule, and/or price. This Appendix outlines some tacit knowledge and associated skills that the Task Force considers especially important.

An important caveat: These topics are not only for training of contract managers. Elsewhere in this report, we have emphasized the need for the project executive to be personally involved in briefing about acquisition strategy and schedule, evaluation plans, and staffing plans. Moreover, the project executive should be involved in issue escalation involving significant project issues that are not yet formal legal disputes. That escalation may involve assessment of options that include use of negotiated change orders or settlement of potential disputes. Consequently, project executives should be integrated appropriately into this training so they also can learn with procurement professionals, contract management personnel, project managers, procurement experts, and legal counsel. So should vendors, who can provide invaluable perspective, and seasoned counsel (from the private bar as well) who have experience in disputes and litigation.

We also recommend that curriculum-development experts be used to integrate adult learning principles into this training. The Virginia Institute of Procurement (VIP), for example, uses small group strategies and course guides in its procurement training that leverage adult learning principles. VIP's approach to training helps build a community of practice for procurement professionals. Its course guides later serve as job aids for course attendees when they return to work.

During contract management training, attendees can also benefit from conversations with other professionals who have experience with IT contracting. The lessons learned in this training would help inform improvements to market research practices, planning, solicitations, and contracts needed to provide the tools for effective contract management. We have noted below the kinds of guided experience by experts that might be useful in a training program.

The Task Force suggests the following post-award topics be included in a contract management training program:

- The elements of an effective contract-management plan. Ask OSI to help train on this topic.

- The effective use of post-award kick-off meetings, with early involvement by the project executive to set the tone for the upcoming contractual relationship.
- The doctrine of waiver of requirements, where forbearance in exercising rights regarding a milestone or requirement, with contractor reliance on state acts encouraging further performance, can legally operate as a waiver of the schedule or requirement. Consider using counsel to discuss the doctrine, how it may arise, and how a schedule can be reestablished.
- How to approach the decision to let the contractor work a problem vs. spring-loaded elevation of issues to a project executive. Have a project executive involved in that discussion, along with a seasoned contract manager.
- A comprehensive look at change clauses and related clauses granting equitable adjustment, with case studies that illustrate the life cycle of a potential dispute from first identification through resolution with a contract amendment. Use delay in decisions by the governance body as an example. Discuss the pitfalls of informal scope tradeoffs to handle disputes.
- The other aspect of change clauses: the "scope" issue from the perspective of competition requirements. Relate this topic to the state's noncompetitive procurement (NCP) process.
- An approach to a contractor's request for staff substitutions; involve professionals who have an effective approach.
- The flexibility in the use of contract options and renewals, e.g., evaluation of the cost reasonableness of option exercises, and the authority to renegotiate option provisions prior to exercise.
- How vendors price proposals. Contract managers and procurement professionals need to understand how companies price, so they can understand the relationship between labor hours, direct costs, indirect costs, overhead, and profit. Discuss the effect of delay on costs.
- Familiarity with schedule relationships to cost and scope. Include a discussion of critical path analysis. Discuss Brooks's law that "adding manpower to a late software project makes it later" and relate it to state IT implementation projects.
- The relationship with subcontractors.
- Essential planning considerations for follow-on procurements. Often the contract manager is not a procurement professional attuned to the steps required for the follow-on procurement.
- The differences between terminations for default and convenience, and their use in resolving controversies.
- The contract breach doctrine of "substantial performance" and how that relates to defects in software. Consider involving industry in discussions about the definition of software defects; they also face these issues.
- Contract interpretation guidelines. Use counsel here. Explore a case study involving potential conflicts between RFP language, proposal language or conditions/assumptions, and final contract language that doesn't harmonize the differences. Include examples of the distinction between "will" and "shall" language that sometimes arises out of performance-based contracts where the vendor is proposing against general statements of the state's requirements.

- Negotiation and influence/persuasion strategies, in the context both of contract management and communications with stakeholders, project executives, other oversight agencies, and legislative staff.
- Trade secrets and their protection. Some procurements permit segregated submission of confidential and proprietary information.
- Basic conflict avoidance and management, including the pros and cons of alternative dispute mechanisms.
- The role of sureties (performance bonds) when disputes arise. Involve counsel here.
- The considerations involved in settlement of disputes from both a program and attorney perspective. Involve professionals and counsel who have handled disputes. Describe what happens in contract litigation from a cost, time, and evidence perspective.
- The effect of judicial Rules of Evidence on documentation practices, e.g., the need for regular business practices, the relationship between the effect of "admissions" and business practices, and the attorney-client privilege. Discuss the value and use of project progress meeting reports in the context of later litigation.
- How to implement the Vendor Performance Data system, if used (Recommendation 18 and Appendix I).
- Get a vendor perspective. Attorneys and industry should be able to participate in a limited way in a discussion about their perspectives on these issues. Vendors have troubled projects also.

Appendix I. Vendor Performance Data

Recommendation 18 refers to a collection of vendor performance data and its use for prescreening or as an aid to evaluation of vendors in future procurements. For this to be effective and to advise vendors that some effort will be required, a provision should be included in the solicitation and any resulting contract. The Task Force envisions the essential elements of such a solicitation provision to include:

- A solicitation/contract requirement that the successful vendor participate in the state of California's Vendor Scorecard, an online database showing ratings of vendor performance on state IT projects.
- The rationale behind the scorecard, e.g., the scorecard will permit public visibility into the state's IT projects and highlight vendors with a track record of outstanding performance.
- The dimensions in which the vendor will be evaluated, e.g., milestone hit rate (rate of achievement as planned), deliverable hit rate (rate of production as planned), actual versus planned vendor resources, and actual cost versus planned cost to date.
- That all dimensions would be evaluated based on events within the contractor's control (or consistent with risks assumed by the vendor under the contract).
- The milestones at which the evaluation would occur, including a final evaluation at project completion.

- An assessment in the final evaluation of the extent to which the contractor brought additional value to the state in terms of cost, unexpectedly valuable technical enhancements, project implementation strategies that significantly decreased expected risk or anticipated state resources during contract administration, or other contributions to improving the state's efficiency and effectiveness.
- Notice to the contractor before publication of the scorecard, with a meet-and-confer obligation about the scorecard that can be triggered by either party.
- A contractor's right to have comments published on the Web site with the scorecard.