

***Supplemental Report
of the
2007 Budget Act
Item 0502-001-9730 1***

Office of the Chief Information Officer

Table of Contents

1.0– ROLE OF THE STATE CHIEF INFORMATION OFFICER	1
2.0 – MOVING TOWARD INTEGRATED IT GOVERNANCE	3
3.0 – IT PROJECT MANAGEMENT.....	9
4.0 – ADDRESSING THE CHALLENGES OF IMPLEMENTING LARGE IT PROJECTS	15
5.0 – LEVERAGING THE STATE'S INFORMATION RESOURCES TO ENHANCE GOVERNMENT SERVICES AND DECISION-MAKING.....	17
6.0 – DEVELOPING AND RETAINING KEY IT SKILLS.....	20
7.0 – SECURING IT ASSETS	23
8.0 – FROM PLANNING TO IMPLEMENTATION.....	25

1.0 – Role of the State Chief Information Officer

On July 1, 2002, the statutes establishing the Department of Information Technology (“DOIT”) sunsetted, as a result, decision-making processes in the Executive Branch for enterprise information technology issues fell to a handful of other agencies exercising discretion pursuant to existing delegations of authority. Decisions about information technology policy, project initiation, project oversight and security policy fell to the Department of Finance, largely on the basis of analytic work performed by the Office of Technology Review, Oversight and Security (OTROS). Information technology procurement policy and implementation became the responsibility of the Department of General Services.

Although DOIT sunsetted and its entire staff dissipated, the position of State CIO was retained. From July 2002 until the end of Fiscal Year 2006-2007, the State CIO operated with limited full-time staff support, and with no statutory authority or budget. The State CIO was charged with providing leadership on information technology policy and for working collaboratively with other information technology leaders throughout State government. Over time, a collaborative governance process evolved that drew upon business and IT leaders from all across government in setting overall IT strategy and policy.

Legislation was enacted during 2006 to reestablish in statute the Office of the State Chief Information Officer. SB 834 made the State CIO a member of the Governor’s cabinet, with the position appointed by the Governor subject to Senate confirmation. The bill largely codified the existing responsibilities of the State CIO, making the State CIO the nominal leader for the Executive Branch’s IT program. The 2007-2008 Budget and related legislation (2007 Cal. Stats., ch. 183; SB 90) substantially expanded on SB 834 bill enacted in 2006 and provides positions and an appropriation to reestablish the Office of the State CIO.

State Chief Information Officer (State CIO)

Consistent with Government Code § 11545 (2007 Cal. Stats., ch. 183; SB 90), the State Chief Information Officer (State CIO) and Office of the State Chief Information Officer have full responsibility and authority for statewide technology vision, strategic planning and coordination, technology policy and standards, data management policy and standards, and standards and streamlined technology project review and approval processes.

The State CIO’s specific responsibilities include the following:

- Advising the Governor on the strategic management and direction of the state’s information technology resources.
- Establishing and enforcing state information technology strategic plans, policies, standards and enterprise architecture.

**Supplemental Report of the
2007 Budget Act 0502-001-9730 1
Office of the Chief Information Officer**

- Minimizing overlap, redundancy and cost in state operations.
- Coordinating activities of agency information officers and the Director of Technology Services.
- Improving organizational maturity and capacity in the effective management of information technology.
- Establishing performance management and ensuring state information technology services are efficient and effective.
- Approving, suspending, terminating and reinstating information technology projects.

With the creation of the Office of the State Chief Information Officer (OCIO) the state has established the structure on which a strong information technology program can be built. The building blocks are in place. The opportunity is to build on that foundation by using information technology to create a more efficient and responsive state government.

2.0 – Moving Toward Integrated IT Governance

Integrated information technology governance is about leadership in effectively and efficiently managing an organization's use of technology to meet its business needs. It includes structures and processes for setting direction, establishing standards and principles, and prioritizing IT investments to leverage technology to improve business value and programmatic results. This framework is the mechanism for deciding who makes what decisions about technology use and creates an accountability framework that drives the desired application of technology solutions. Integrated IT governance also includes the processes by which key decisions are made about IT investments, and it depends on effective, ongoing communication across all levels of the organization.

The Legislative Analyst's Office (LAO), the Little Hoover Commission and others have correctly observed that for technology governance to be valuable it must be an integrated element of an organization's business governance. Integrated IT governance requires a set of clearly articulated goals that reflect an organization's strategic business goals, the full participation and support from business leadership, and a clearly defined set of processes. The Legislative Analyst's Office (LAO) has correctly defined the key objectives for IT governance as leadership, oversight and accountability.

At the outset, it is important to note the primary goals of an integrated IT governance model:

- Decisions are transparent and timely.
- Enterprise technology opportunities are leveraged for improved government services and cost savings.
- Information security and stakeholder privacy is increased.
- Fiscal accountability is a high priority and budget requests are supported by project planning.
- IT infrastructure is consistent.
- IT investments produce measurable returns.

Key Deliverables

2.1 Develop Integrated Business and IT Planning Process

California state government needs an overarching business driven information technology strategy. Technology initiatives are developed and implemented in a piecemeal fashion, dissipating the financial and technical capacity on disparate infrastructures. Implementing modern, strategically focused technology governance will ensure the strategic use of technology and drive accountability, affordability and accessibility.

Successful technology governance depends on having a statewide planning process that integrates business and technology strategic planning. Without business-driven goals and objectives, technology leaders cannot be sure that their initiatives address the most important business issues of the state. Strategic business planning and strategic technology planning must be integrated and focused on the same goals and objectives.

To forge the necessary integration of the business and IT functions in California state government, beginning in Fiscal Year 2008-09 state Cabinet Agencies will be required to prepare and submit a Five Year IT Capital Plan (IT Capital Plan)¹ to the Office of the Chief Information Officer (OCIO) and the Department of Finance which will serve to inform the Statewide Five Year IT Capital Plan which will be released concurrently with the Governor's Fiscal Year 2009-10 Budget in January. The Agency IT Capital Plans will:

- Ensure that IT investments support state and agency priorities and business direction.
- Promote the alignment of IT investments with the Agency's enterprise architecture (Technology, Standards, and Infrastructure).
- Enhance and promote enterprise data sharing through IT investments.
- Facilitate consideration and conceptual approval to pursue selected IT investments.

The scope of the Agency IT Capital Plans will include:

- All projects or IT investments (including infrastructure changes) that are proposed for initiation during a five year period; and
- The documentation necessary for OCIO to provide conceptual approval;

The Agency IT Capital Plans will be updated annually or more frequently as needed and do not eliminate the requirement for a detailed business case for conceptually approved projects.

¹ Agency Five-Year Capital Plans will be informed by the Five-Year Capital Plans developed by the boards, commissions, departments and offices that comprise the Agency.

Agency IT Capital Plans will be composed of the following elements:

- The identification of guiding objectives, including, but limited to:
 - Supporting new services for Californians and businesses;
 - Enhancing information and IT security;
 - Reducing state operational costs (e.g. leveraging, consolidation, new technology, etc.);
 - Improving the reliability and performance of IT infrastructure;
 - Enhancing human capital management; and
 - Supporting state and agency priorities and business direction.
- A description of each proposed IT investment.
- Alignment of proposed investments with State and Agency Enterprise Architecture and Portfolio Management Strategy.
- Agency IT workforce development and succession plans.

The Statewide IT Capital Plan will represent the Administration's plan for strategic IT investments and will be supported by the Governor's Budget, the CIO's Statewide IT Strategic Plan, Budget Change Proposals and Investment Justification Proposals (IJPs - Feasibility Study Reports). Like Agency IT Capital Plans, the Statewide IT Capital Plan will be updated on an annual basis.

<u>Milestone</u>	<u>Date</u>
Publish IT Capital Plan (ITCP) Template and Instructions	Q4, FY 07-08
Issue Management Memo establishing ITCP process	Q4, FY 07-08
Departments submit ITCPs for Agency review	Q1, FY 08-09
Agencies submit ITCPs for OCIO/DOF review	Q2, FY 08-09
OCIO/DOF submit Statewide ITCP to Legislature	Q3, FY 08-09
OCIO/DOF submit IJPs/BCPs to Legislature	Q3, FY 08-09
Review of ITCP process	Q3, FY 08-09
As-needed revisions to ITCP process, template	Q3, FY 08-09
Departments submit ITCPs for Agency review	Q1, FY 09-10
Agencies submit ITCPs for OCIO/DOF review	Q2, FY 09-10
OCIO/DOF submit Statewide ITCP to Legislature	Q3, FY 09-10
OCIO/DOF submit IJPs/BCPs to Legislature	Q3, FY 09-10
Departments submit ITCPs for Agency review	Q1, FY 10-11
Agencies submit ITCPs for OCIO/DOF review	Q2, FY 10-11
OCIO/DOF submit Statewide ITCP to Legislature	Q3, FY 10-11
OCIO/DOF submit IJPs/BCPs to Legislature	Q3, FY 10-11
Review of ITCP process; revise as necessary	Q3, FY 10-11
Departments submit ITCPs for Agency review	Q1, FY 11-12

Agencies submit ITCPs for OCIO/DOF review	Q2, FY 11-12
OCIO/DOF submit Statewide ITCP to Legislature	Q3, FY 11-12
OCIO/DOF submit IJPs/BCPs to Legislature	Q3, FY 11-12
Departments submit ITCPs for Agency review	Q1, FY 12-13
Agencies submit ITCPs for OCIO/DOF review	Q2, FY 12-13
OCIO/DOF submit Statewide ITCP to Legislature	Q3, FY 12-13
OCIO/DOF submit IJPs/BCPs to Legislature	Q3, FY 12-13
Review of ITCP process, revise as necessary	Q3, FY 12-13

2.2 Define IT Governance Roles and Responsibilities

With the role of the State CIO defined in statute, there is a need to define the roles, responsibilities and reporting structure for agency and departmental CIOs through changes to the State Administrative Manual and the State Information Management.

Agency Chief Information Officers (AIO)

Agency Chief Information Officers (Agency CIOs) will be responsible for overseeing the management of assets, projects, data systems, and IT services, through the oversight of departmental CIO's. Each Agency CIO shall develop an Agency Enterprise Architecture to rationalize and standardize the IT infrastructure, data, and procedures for all departments within the Agency.

Department Chief Information Officers (CIO)

Department Chief Information Officers (CIOs) will be directly responsible for all IT activities within the department and accountable to the State CIO through the Agency CIO for purposes of reporting departmental IT performance. All departmental employees in IT classifications and all IT systems, assets, projects, purchases, and contracts will be accountable to the Department CIO, who will ensure departmental conformity with the Agency Enterprise Architecture.

Department CIOs will also be responsible for:

1. Portfolio management of the department's technology initiatives;
2. Operational oversight of consolidated technology functions, personnel and operations, including:
 - Web and application development;
 - Application and database management;
 - Security administration;
 - Project planning, consulting and management; and
 - Help desk and customer service management.

As California state government transitions from a period of interim IT governance to stable leadership, best practice indicates that California should move forward

with the development and implementation of an Integrated IT governance structure.

<u>Milestone</u>	<u>Date</u>
Update SAM to define roles of AIOs and CIOs	Q1, FY 08-09
Conduct organizational assessment	Q1, FY 08-09
Issue recommendations based on assessment/best practice	Q2, FY 08-09
Conduct organizational assessment	Q1, FY 10-11
Conduct organizational assessment	Q1, FY 12-13

2.3 Enterprise Architecture: Aligning IT Investments with Business Needs

Enterprise Architecture establishes the statewide roadmap to achieve the state's mission and goals through improving the performance of its core business processes within an efficient information technology (IT) environment. Simply stated, Enterprise Architecture is a "blueprint" for systematically and completely defining the state's current (baseline) or desired (target) technology environment. Enterprise Architecture is essential for evolving information systems and developing new systems to optimize mission value. If defined, maintained, and implemented effectively, Enterprise Architecture assists in optimizing the interdependencies and interrelationships among the state's business operations and the underlying IT that support operations.

Established in 2005, the California Enterprise Architecture Program ("CEAP") is charged with developing a comprehensive Enterprise Architecture for the Executive Branch's IT program. Since its inception, CEAP has released a series of Enterprise Architecture publications.² The first and most important document is the California Enterprise Architecture Framework (July 15, 2005), which defines an end-to-end process to initiate, implement, and sustain an enterprise architecture program (see Appendix E). It is the roadmap for the Executive Branch's enterprise architecture efforts. CEAP has also published a series of papers on "Service Oriented Architecture" that provide the key information needed to design and build shared services in a federated web environment. Technical Reference Model (TRM) documents were produced classifying technology into seven domains along with guidelines, templates, and process details to ensure technology is defined in a consistent way across the state enterprise. In 2007, the state began work on a Business Reference Model that will serve as the foundation for defining state government business functions and the delivery of services. The Business Reference Model is a high-level representation of the vision, mission, goals and objectives that comprise the strategic business of government (see Appendix F).

² See www.cio.ca.gov/stateIT/enterpriseArch.html.

**Supplemental Report of the
2007 Budget Act 0502-001-9730 1
Office of the Chief Information Officer**

As California state government moves toward higher levels of system aggregation and reduces redundancy by stressing the commonalities of similar lines of business, this model will drive value-effective IT investment decisions and will enhance the ability for state agencies to share information. To further this goal, the OCIO will hire a Deputy Director for Enterprise Architecture who will be responsible for the refresh of the California Enterprise Architecture and establishing standards for the development of Agency-level Enterprise Architecture.

<u>Milestone</u>	<u>Date</u>
Hire Deputy Director for Enterprise Architecture	Q4, FY 07-08
Refine California Enterprise Architecture Framework	Q1, FY 08-09
Establish Service Oriented Architecture funding model	Q1, FY 08-09
Agencies submit Enterprise Architecture proposals to OCIO	Q4, FY 08-09
OCIO approves Agency-level Enterprise Architecture	Q4, FY 08-09
Refine California Enterprise Architecture Framework	Q1, FY 09-10
Refine Service Oriented Architecture funding model	Q1, FY 09-10
Refine California Enterprise Architecture Framework	Q1, FY 10-11
Refine Service Oriented Architecture funding model	Q1, FY 10-11
Refine California Enterprise Architecture Framework	Q1, FY 11-12
Refine Service Oriented Architecture funding model	Q1, FY 11-12
Refine California Enterprise Architecture Framework	Q1, FY 12-13
Refine Service Oriented Architecture funding model	Q1, FY 12-13

3.0 – IT Project Management

Best management practices call for strong project management capabilities to achieve greater management accountability and improved IT investment results in the public sector. To maximize the quality and productivity of a technology effort, while minimizing risks it is necessary to apply project management practices to IT projects. This is particularly true given that the technologies being used in IT projects today are becoming more complex, and many projects require integrating multiple technologies and business processes.

Given the current environment, the state has a well defined need for an enterprise project management capability to ensure that the necessary skills are available when needed and to ensure smooth transitions in the modernization of legacy systems and processes. This is especially true as the state is experiencing a loss of qualified and certified project managers due to retirements. This project plan sets out a strategy to leverage the state's existing project management capability and strengthen it through standardization, improved governance and project management training and certification.

Key Deliverables

3.1 Establish Enterprise Program Management Office

Establish a program management office (PMO) within the Office of the Chief Information Officer to provide primary support for program and project planning, economic analysis, project management and to provide the technical resources (systems engineering) needed to support enterprise projects or to support agency projects when needed or requested.

The PMO will implement state IT policies, standards and procedures for project development and management and provides statewide orientation and training on these subjects.

The PMO will ensure standardization in project management processes and project performance metrics so that effective project management is assured and so that project performance can be uniformly assessed. It will also coordinate and affect the implementation of project remediation actions that may be directed by the CIO. The PMO will have two tiers of operation:

1. Program Management – develops operational guidelines, policies and practices for all state technology projects and coordinates those activities on an ongoing basis. This is the function of project management standards setting and the integration of projects and project portfolios to prevent conflict and/or duplication.

2. Project Management – provides the execution leadership for specific initiatives, to include the responsibility for the change management components of initiatives, such as communications about objectives, roles and responsibilities, status and direction.

The PMO will be a center of project management practice excellence for the state. It will define the standard, templates and methodologies and lead by example through the implementation and integration of leading practices in project management, budgeting, technology acquisitions (procurement), contract management and risk management.

Other functions of the PMO will include:

1. Supporting the development of initiative proposals to include: opportunity evaluation, scope definition, schedule and cost analysis, risk analysis, life cycle support analysis, technology selection and overall project planning.
2. Providing training, consulting services and advocacy for statewide capability maturity development in project management and related skills.
3. Providing expert project managers and project technical and support resources from internal resources, coordinating to obtain them from external resources (other agencies) or obtaining them from consultant contracts.
4. Managing the project oversight framework and oversight processes.
5. Providing overall tracking of portfolios and integration of portfolios and projects across the state and prepare dashboard reports and project health indicator notices.
6. Identifying project issues and developing project interventions.
7. Maintaining project status reports and communicating this information to the Governor, the Legislature and other interested parties on a quarterly basis, or more often if necessary, through on the OCIO's website.
8. Developing a database that tracks performance metrics such as earned value³ to monitor and assess project performance.
9. Providing direct support to portfolio managers when they submit initiative proposals to the OCIO.
10. Maintaining the library of project documentation and developing a repository for lessons learned, best practices, analysis and research.

³ Earned Value Management (EVM) – is a management methodology for integrating scope, schedule, and resources, and for objectively measuring project performance and progress. Performance is measured by determining the budgeted cost of work performed (i.e., earned value) and comparing it to the actual cost of work performed (i.e., actual cost). Progress is measured by comparing the earned value to the planned value.

<u>Milestone</u>	<u>Date</u>
Establish and staff PMO	Q4, FY 07-08
Establish standardized reporting protocols	Q1, FY 08-09
Coordinate IT projects throughout life-cycle (ongoing)	Q1, FY 08-09
Establish inventory of skilled project managers	Q1, FY 08-09
Establish project management mentoring group	Q1, FY 08-09
Review project oversight framework and practices	Q2, FY 08-09
Publish standardized project reports (ongoing)	Q2, FY 08-09
Deploy project performance and assessment database	Q3, FY 08-09
Issue revisions to project oversight framework and practices	Q3, FY 08-09
Review standardized reporting protocols	Q1, FY 10-11
Review project oversight framework and practices	Q2, FY 10-11
Review standardized reporting protocols	Q1, FY 12-13
Review project oversight framework and practices	Q2, FY 12-13

3.2.1 Refresh the California Project Management Methodology

California Project Management Methodology, as published in the State Information Management Manual (Section 200), was last updated in January 1997. While many of the elements of the CA-PMM remain good practices, to ensure consistency with leading project management practices, the OCIO - PMO will conduct a review of leading project management organizations and publish a best practices guide for project management. The best practices guide, the Office of Systems Integration's *Policy on Project Management* (See Appendix A) and the Project Management Institute's (PMI®) *Project Management Body of Knowledge (PMBOK® Guide)* Third Edition will serve as the foundation for the Revised California Project Management Methodology. The California Project Management Methodology (CA-PMM) will provide a framework that covers the entire project life-cycle from project initiation through project closeout.

<u>Milestone</u>	<u>Date</u>
Publish <i>Best Practices Guide on Project Management</i>	Q1, FY 08-09
Revise SIMM and Publish CA-PMM	Q1, FY 08-09
Review CA-PMM and Revise as Necessary	Q1, FY 10-11
Review CA-PMM and Revise as Necessary	Q1, FY 12-13

3.2.2 Establish California Project Management Methodology as Project Management Standard

While California has had a project management methodology in place for more than a decade, it has been provided as a resource rather than a required element for IT projects. Given the importance of a consistent and rigorous project

management methodology to project success, the Revised CA-PMM will serve as California's IT project management standard.

<u>Milestone</u>	<u>Date</u>
Revise the SIMM to require the use of the CA-PMM	Q1, FY 08-09

3.3 Establish Project Governance Structure

Project management organizational structure plays a significant role in project success and the effectiveness of project staff. In recognition of the need to further integrate business (programmatic) and IT organizations within state government and ensure project success and greater accountability, IT projects initiated with the approval of the OCIO will utilize a matrix organization⁴ (see Appendix B for depiction). Under the California matrix model the key roles and responsibilities (see Appendix C for a breakdown of roles and responsibilities during the project life-cycle) are as follows:

- **Project Manager** - The project manager has total responsibility for the overall project and its successful completion. The project manager also has responsibility for planning and ensuring that the project is successfully completed on time, within budget, and at an acceptable level of quality.
- **Operating Executive (Project Executive/Sponsor)** – The operating executive articulates program/agency requirements and ensure that requirements are met. The operating executive also provides necessary funding and resources as appropriate, serves as a champion for the project to provide exposure and buy-in, and communicates their views on project progress and success factors to the project team and other stakeholders.
- **Executive Steering Committee** - provides agency-level oversight and management control of the project. The Steering Committee will include business and IT executives.

<u>Milestone</u>	<u>Date</u>
Revise SIMM to standardize project governance	Q1, FY 07-08

⁴ Matrix organizations use a system in which project staff members are “borrowed” from their functional organizations to work on a specific project and then returned once their part of the project has been completed or their skill sets are no longer needed.

3.4 Establish Qualifications for IT Project Managers

Assigning a skilled project manager is of critical importance to the success of IT projects. Accordingly, the following skill sets serve as the foundational qualifications for IT project managers:

- **Integrative Skills**—Holistic philosophy, systems approach thinking, flexibility, and cultural awareness.
- **Project Management Skills**—Planning, organizing, controlling, and monitoring.
- **People Skills**—Leadership, communication, facilitation, motivation, and team building.
- **Technical Skills**—Engineering and scientific ability, mathematical competence, specialized expertise.
- **Business and Management Skills**—Organizational operations insight, general business management, and fundamentals of planning, budgeting, and finance.

This general framework will be used by the PMO to further define the required knowledge, skills, abilities/competencies for IT project managers (See Appendix D – Draft Required Knowledge, Skills, Abilities/Competencies for IT Project Managers). In recognition of the fact that project requirements necessitate that the qualifications of the project manager are commensurate with the complexity of the project, the PMO will establish minimum qualifications for project managers based on project size and/or criticality. For example:

- **Small Projects** – The Project Manager should have some training in project management methodology and project management tools. In addition, the PM should have an interest in and reasonable knowledge of the product that is being created by the project.
- **Midsized Projects** – The PM should have experience on several small, focused project efforts and developed their general management and business skills to the point that they can manage people and technology by delegation. Midsized projects typically incorporate more than one technology type or functional group, and the PM needs to be able to manage several different functional groups with different needs.

**Supplemental Report of the
2007 Budget Act 0502-001-9730 1
Office of the Chief Information Officer**

- Large projects – The PM should have led many high-profile midsize project engagements and be well recognized for their efforts. A project manager at this level must be able to understand the technology being used but not necessarily be an expert in it. Project managers will be spending most of their time working the planning and controlling aspects of the project as well as dealing with the “political” issues. Delegation, time management, and interpersonal skills are keys to success. Large projects are those that are agency-wide or extend beyond the agency itself. The person must have the unwavering confidence of agency management and be considered an acceptable and well-liked representative for the agency.

Using this framework, the OCIO will utilize the Project Management Institute’s Project Management Professional (PMP) certification as a baseline to certify and qualify project managers. To enforce project management standards, project managers for midsize projects with a high criticality rating and project managers for all large projects must be approved by the PMO.

<u>Milestone</u>	<u>Date</u>
Finalize and publish qualification/KSA standards for project managers.	Q1, FY 08-09
Recruit/retain experienced project management staff (ongoing)	Q1, FY 08-09
Utilize certification to further professionalize the project management career path (ongoing)	Q1, FY 08-09
Standardize project management training using CA-PMM	Q2, FY 08-09
Standardize project management certification process	Q2, FY 08-09
Seek wage differentials for certified project managers	Q2, FY 08-09
Review project management certification process	Q1, FY 09-10
Review project management qualification/KSA standards	Q1, FY 10-11
Review project management qualification/KSA standards	Q1, FY 12-13

4.0 – Addressing the Challenges of Implementing Large IT Projects

A strong foundation on which to build a robust information technology program for government is the vital first step. The organizational foundation is so important because the information and program demands in California are like no other state. California is big and big translates into complex in the work of information technology. California's large population, its vast geography, and its diversity of people and variety of economic opportunities challenge the best practices for developing information processing applications.

Information technology is necessary to service people in an efficient and effective way. In almost every venue, activities in California are big. The sheer magnitude of size causes even seemingly simple projects to become large, difficult and complex. Often the only solution is a big project solution.

Big information technology projects can be daunting. They require experience, judgment and management skill in addition to creative thinking, structured planning and collaboration. The cost seems massive, benefits may sometimes be difficult to quantify and risk can be intimidating. California needs to undertake big projects as the only way to meet our service needs at reasonable cost. The cost may seem high, but the benefits are great and it often costs even more to do nothing. Projects are not just technology engineering efforts; they transform how business is accomplished and how services are provided.

Risk is inherent in all IT projects; the bigger and more complex the project, the greater the risk. The state's reaction to risk has been to implement project oversight in an attempt to eliminate project risk. A more realistic approach is to identify and manage risk by coupling strong project structures with rigorous project management and internal oversight.

As noted in Section 3, the OCIO will be establish a standardized project management methodology, this action has significant benefits from a risk management perspective as it reduces variability and allows for the placement of skilled staff on critical projects.

Key Deliverables

4.1 Develop Phased Project Planning Approach

Given the variability of project costs and schedules, implementing IT projects in phases with functional deliverables provides greater transparency into the full costs, schedule and benefits of IT projects. This approach reduces project risk and enables greater project success. The PMO will lead a collaborative effort to develop a phased planning approach. Establishing a standardized project

planning approach also provides for comparative analysis and a valuable library of lessons learned that will inform future projects.

<u>Milestones</u>	<u>Date</u>
Develop phased project planning approach	Q2, FY 08-09
Evaluate phased project planning approach	Q4, FY 10-11
Evaluate phased project planning approach	Q4, FY 12-13

4.2 Develop standard project reporting

The standardization of project management methodology and planning approach permits for the meaningful comparison of projects. To enable this comparison, project managers must report quarterly using earned value metrics. This framework promotes the timely identification of project weakness and missing components and allows early intervention into problem projects.

<u>Milestones</u>	<u>Date</u>
Deploy Economic Analysis training	Q2, FY 08-09
Deploy Earned Value Management training	Q2, FY 08-09
Deploy Earned Value metrics	Q3, FY 08-09

4.3 Develop standard processes for risk reporting and risk mitigation

Leveraging the risk management strategies that will be part of the revised California Project Management Methodology, project managers on state IT project will be required to provide the OCIO – PMO with a project risk mitigation plan which identifies critical risk components, tracking mechanisms, and triggers to implement risk mitigation strategies. While this plan is required for all projects, PMO approval is only required on projects with a total cost of \$5 million; all projects which exceed a department’s delegation will need to be approved by the Agency Chief Information Officer (AIO).

<u>Milestones</u>	<u>Date</u>
Develop standardized risk management methodology	Q1, FY 08-09
Deploy risk management training and certification program	Q1, FY 08-09
Develop Project Template	Q1, FY 08-09
Define standardized risk escalation procedures	Q1, FY 08-09
Conduct semi-annual assessment of best practices and ongoing lessons learned.	Q3, FY 08-09
Update methodology, procedures and templates	As required

5.0 – Leveraging the State's Information Resources to Enhance Government Services and Decision-Making

Since the inception of the Office of Information Technology in 1983, the Legislature has correctly focused on the ability of interoperable data and information systems to enhance services, inform decision making and reduce the cost of government operations. While several state agencies, including the Board of Equalization, Employment Development Department, the Franchise Tax Board, and the Department of Motor Vehicles, have made, or are making, significant progress on data sharing, data warehousing and business intelligence and analytics efforts, the State does not have an overarching Information Architecture (IA)⁵ model. Given the information technology advances that have occurred in the last 25 years, California has the opportunity to deploy existing technologies to enable data sharing on an enterprise-wide basis through the use of Enterprise Architecture.

Key Deliverables

5.1 Establish Comprehensive Data Strategy

Recognizing the significant opportunities which exist to leverage existing data and establish enterprise technical architecture standards, California state government needs to develop a comprehensive data strategy. The Office of the Chief Information Officer (OCIO) will conduct a focused analysis and initiate the strategic development of three important solutions, including: data sharing; data warehousing; and business analytics and business intelligence/business analytics.

<u>Milestone</u>	<u>Completion Date</u>
Initiate data strategy planning process (ongoing)	Q1, FY 08-09
Compete data strategy report	Q4, FY 08-09
Establish enterprise architecture standards for data and data systems	Q4, FY 08-09
Develop an information exchange, transaction and sharing standard framework for intergovernmental and public/private sector initiatives, including shared services and infrastructure	Q3, FY 09-10
Review EA standards for data and data systems	Q4, FY 11-12

⁵ Information Architecture (IA) is the process of maturing and governing the information needed to support the business processes and functions for state and cross-boundary initiatives.

5.2 Data Sharing

The state will establish a statewide data sharing strategy and functional design that will provide a single, accurate and consistent source of data for the Legislature, state agencies and local governments for the services provided to the public. Data sharing leverages federated, but defined information sources to serve diverse public and government needs. Examples include: fraud detection; compliance and homeland security/public safety.

<u>Milestone</u>	<u>Date</u>
Initiate data sharing working group (ongoing)	Q1, FY 08-09
Compete data sharing strategy	Q4, FY 08-09
Establish functional design for data sharing architecture	Q1, FY 09-10

5.3 Data warehousing and Business Analytics/Business Intelligence

The practice of data warehousing and advanced business analytics/business intelligence are critical components of decision support systems and they allow the state to maximize shared data. As such, the state will establish a common standard for database management systems in FY 2008-2009 and move toward the consolidation of all legacy data warehouses as part of the data sharing strategy with consolidation complete by FY 2011-2012. Leveraging the enterprise data warehouse, the state will use business analytics to gather, provide access to, and analyze data and information, and use business intelligence solutions to acquire a more comprehensive knowledge of operating metrics, such as service quality, transactions, internal operations, and decision support.

<u>Milestone</u>	<u>Date</u>
Initiate data warehousing/business analytics work group (ongoing)	Q1, FY 08-09
Complete data warehousing/business analytics plan	Q2, FY 08-09
Deploy business intelligence/business analytics tools	Q2, FY 08-09
Compete hosting and data center consolidation strategy w/DTS	Q2, FY 08-09
Establish enterprise architecture standards for data and data systems	Q4, FY 08-09
Review EA standards for data and data systems	Q4, FY 11-12

5.4 Data Integration

As a complement to data sharing, data integration represents the processes and methods through which data is combined and transformed into information to support business processes. This includes the internal framework for a service oriented architecture, data interfaces with trading partners, and the standards needed to maximize the reuse of software and data. Every agency in the state of California has individual requirements to exchange data with other agencies, the

federal government, and trusted third parties. Data integration is the key to turning data sharing agreements into true business value for the State.

<u>Milestone</u>	<u>Date</u>
Establish data integration framework and strategy	Q4, FY 08-09

5.5 Data Governance

Data governance encompasses the people, processes, and procedures to create a consistent enterprise view of the state's data in order to:

- Increase consistency and confidence in decision making;
- Control the use of data and information;
- Decrease the risk of regulatory violations; and
- Improve data security.

As discussed with respect to data integration, managing data requires the use of standards; however, specifying data format standards is only one component of the approach. Data governance includes data security, standardized data models, rules and best practices for regulatory and statutory compliance, privacy, and data preservation. Data is the most important asset entrusted to a technology organization.

A single data item represents the result of work performed by either the State of California or one of the groups that exchanges data with the state. Each item has value and business rules implicit in its use and management. Data governance is the process through which the OCIO will ensure that this value is preserved and properly protected. Data governance initiatives improve data quality by assigning a team responsible solely for the data's accuracy, accessibility, consistency, and completeness, among other metrics. Through the data strategy, OCIO will establish a team to provide data governance.

<u>Milestone</u>	<u>Date</u>
Establish data governance team	Q1, FY 08-09

6.0 – Developing and Retaining Key IT Skills

The state is facing a serious challenge in attracting, developing and retaining IT skills. The potential retirement of 57 percent of the state's IT personnel in the next ten years requires immediate succession planning. This is a significant issue for agencies that are already experiencing a ten to 15 percent IT staff vacancy rate.

The first challenge is the development of succession planning without clear information on where the skill shortages will occur throughout the state, when they will reach crisis levels, and establishing budget to ensure adequate skills transfer. The situation is exacerbated by the age of the technology that supports vital services for the state. In many cases, it is not possible to find IT skills in the technologies in use today. This requires the replacement of older technology while training state IT personnel in its operation and support.

The second challenge is the need to continually train state IT personnel in the skills required to meet the changing technology environment. As the state replaces its aging technology, the move to newer technologies requires different skill sets not readily available today.

Finally, the role of state IT staff is changing. While technical skills are essential for a portion of state IT personnel, others must move from purely technical capability to understanding and communicating how technology can change the way the state does business. They must be innovative and creative in utilizing scarce resources to improve citizen and business interaction with state government. They must possess strong project management skills to handle the size and scope of California's projects. They must possess leadership skills to interact with key members of the legislature, agency and departments, and other constituents.

Key Deliverables

6.1 *Complete IT Human Resources Classification and Selection Project to streamline classifications, selection, testing, and evaluation.*

The IT Human Resources Classification and Selection Project (IT HR Project) involves establishing a modern and flexible State IT classification plan, replacing the State's legacy selection systems, and establishing skills-based certification authority for IT classes. The key steps necessary to implement this effort, including: designing and developing a selection system(s) that include a skills based certification function; completing exam development and recruitment; implementing the change management process and training program; and rolling out the new system using the new classifications for the exam. In addition, the

OCIO will work with DPA and SPB to allow for open examinations for all IT classifications.

<u>Milestone</u>	<u>Date</u>
Work with DPA and SPB to allow for continuous open exams	Q1, FY 08-09
Complete exam development and recruitment	Q2, FY 08-09
Implement change management and training program	Q2, FY 08-09
Roll out HR modernization system	Q3, FY 08-09

6.2 Partner with universities and colleges to recruit students

As noted by the California Research Bureau and others, the state's IT recruitment efforts have been sporadic and inconsistent. While some agencies have been able to market themselves effectively, many state agencies are unknown to the college and university students looking to start their career. This is due to the fragmented and inconsistent marketing and networking efforts with colleges, universities and vocational education institutions. To address this issue, the OCIO will forge partnerships with colleges and universities in California to raise the profile of the state's IT program and the employment opportunities that exist within state service. In addition, the OCIO will bring together a team of experienced state IT professionals who will serve as recruiters for state IT positions at colleges and universities throughout the state.

<u>Milestone</u>	<u>Date</u>
Establish partnerships with colleges/universities (ongoing)	Q4, FY 07-08
Establish IT recruitment team (ongoing)	Q4, FY 07-08

6.3 Utilize IT capital planning process to project future workforce needs

Section two of this project plan discusses the going forward process for IT capital planning (see Section 2.2 above); as part of this planning process, state agencies will be required to provide the OCIO with their IT workforce and succession management plans. The OCIO will use this information to map future workforce needs and work with DPA, SPB, employee organizations and other stakeholders to identify solutions.

<u>Milestone</u>	<u>Date</u>
Agencies submit IT Capital Plans to OCIO	Q2, FY 08-09
OCIO releases Statewide IT Capital Plan w/workforce needs	Q3, FY 08-09
OCIO convenes workforce planning taskforce (ongoing)	Q3, FY 08-09
Workforce planning taskforce releases 5-year plan	Q4, FY 08-09
Agencies submit IT Capital Plans to OCIO	Q2, FY 09-10

**Supplemental Report of the
2007 Budget Act 0502-001-9730 1
Office of the Chief Information Officer**

OCIO releases Statewide ITCP w/ updated workforce needs	Q3, FY 09-10
Workforce planning taskforce releases plan update	Q4, FY 09-10
Agencies submit IT Capital Plans to OCIO	Q2, FY 10-11
OCIO releases Statewide ITCP w/ updated workforce needs	Q3, FY 10-11
Workforce planning taskforce releases plan update	Q4, FY 10-11
Agencies submit IT Capital Plans to OCIO	Q2, FY 11-12
OCIO releases Statewide ITCP w/ updated workforce needs	Q3, FY 11-12
Workforce planning taskforce releases plan update	Q4, FY 11-12
Agencies submit IT Capital Plans to OCIO	Q2, FY 12-13
OCIO releases Statewide ITCP w/ updated workforce needs	Q3, FY 12-13
Workforce planning taskforce releases plan update	Q4, FY 12-13

7.0 – Securing IT Assets

State information technology assets are vital to government operation. From managing public safety to ensuring checks are delivered for citizens that depend on state support to delivering emergency services, IT assets must be protected and available. This covers everything from the physical computers of all sizes and shapes, the network that carries the essential ‘traffic’ to the need for mobile devices in the case of a pandemic flu outbreak.

The state IT assets today reside in two central data centers and a number of data centers around the state. A survey is being conducted to determine the number and location of computers in the state. The level of disaster recovery varies from department to department.

California has been a leader in the development of energy efficient planning around the state. The same enthusiasm and commitment are required to ensure that the state is utilizing computers in a manner that is energy efficient. Electricity use in data centers continues to grow and according to the U.S. Environmental Protection Agency is estimated to exceed 100 billion kWh by 2011 – nearly double the amount used in 2006.⁶ This means a number of actions – replacing old equipment, ensuring that data centers are ‘green’, utilizing latest technology to reduce the number of computers required.

Key Deliverables

7.1 *Based on the Statewide IT Capital Plan develop a long term plan for data center requirements including assessment of risk of natural disaster impact.*

<u>Milestones</u>	<u>Date</u>
Long term plan for data center requirements	Q4, FY 08-09

7.2 *Based on the Statewide IT Capital Plan, update current plans for the role of IT in continuity of government operations.*

<u>Milestones</u>	<u>Date</u>
Establish IT continuity of government (COG) plans	Q4, FY 08-09
Provide guidance to state agencies on IT COG	Q4, FY 08-09

⁶ EPA Report to Congress on Server and Data Center Energy Efficiency, U.S. EPA, August 2, 2007.

7.3 *Develop a security plan for network and data security in conjunction with the Office of Information Security and Privacy Protection.*

<u>Milestones</u>	<u>Date</u>
Network and data security plan	Q3, FY 08-09
Establish network and data security standards	Q4, FY 08-09

7.4 *Develop a plan to minimize the environmental impact and increase the energy efficiency of state IT resources.*

<u>Milestones</u>	<u>Date</u>
Green IT plan	Q2, FY 08-09

8.0 – From Planning to Implementation

This five-year project plan represents an aggressive plan to transform the state's information technology program. This plan attempts to resolve long standing issues about the way the state manages and implements IT projects and sets a course to enable the state to leverage its vast information resources to improve government services and decision-making.

Achieving the goals set forth in this plan will require the continued commitment of this and future governors and legislators to provide the resources that are necessary. In addition, the state will need to invest in workforce development and planning, and renew its partnership with the IT vendor community.