



CALIFORNIA COUNCIL ON
SCIENCE AND TECHNOLOGY

CCST Project Advisory Panel

Recommendations to the
Department of Information Technology


The DOIT Project Report

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FOREWORD

The California Council on Science and Technology convened a CCST Project Advisory Panel, at the request of the Department of Information Technology, to review that agency's information technology acquisition proposal review process. The project benefited greatly from the expertise of Council members and their institutions and various public service administrators and working groups. The recommendations presented herein have been presented to the Department and represent the work of the CCST Panel. The observations and narrative that form this report are the views of the Panel and do not necessarily reflect the views of the Council, its member institutions, or those agencies and departments that provided assistance to this initiative.

The California Council on Science and Technology is California's premier collaboration focusing industry, academic, and public sector technical experts on science and technology issues and projects that, when addressed, serve to advance the economy and commerce of California.

CCST concentrates on science and technology issues, public policy, research, and services that impact California's economy, environment, educational systems, and governance.

For additional information regarding CCST, please contact its executive director, Dr. Susan Hackwood at (800) 854-4151.



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CCST Project Advisory Panel RECOMMENDATIONS to the Department of Information Technology (DOIT)

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Introduction

In January, 1996, at the request of the Department of Information Technology (DOIT), the California Council on Science and Technology (CCST) formed a CCST Project Advisory Panel. The purpose of the panel was to advise the Department of Information Technology on the development of an effective process and series of protocols related to that agency's review of information technology acquisition and application proposals submitted by other State departments. The CCST Panel, which conducted its work between January and April 1996, included experts from CCST member institutions and industries. The Panel team included Emile Attala, Robert Byer, Gary Garland, Susan Hackwood, Stewart Loken, Don Lord, Stuart Lynn, Harold Lurie and Ted Michels. Various industry and government representatives helped to staff and provide data to the working Panel.

DOIT is actively engaged in improving California government information technology project initiation mechanisms, the management of projects and the validation and verification processes. DOIT considers project initiation to be one of the bottlenecks to the State's information technology process and has requested CCST assistance. It is the second of several cooperative activities of CCST and DOIT.

DOIT was represented by Chief Deputy Lynn Wright, and DOIT staff Allen Wildermuth and Susan Davis-James; Andersen Consulting representatives Greg Morgan, Joe McCafferty and James Chadam; and VisiCom staff Babette Davis and Laura Metzger. During the review process, CCST Project Advisory Panel members received background information compiled by DOIT from many sources including the Office of the Legislative Analyst, the Technology Investment Review Unit (TIRU) of the Department of Finance and the Franchise Tax Board.



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DOIT has been given the responsibility by Governor Wilson and the Legislature via Senate Bill 1 to reform the manner in which the state invests in information technology. A major element of the reform is cycle time: It often requires a minimum of two or more years for State agencies to process an information technology application through the complex initiation and approval process, the procurement process and the project implementation and management processes.

The task of the CCST Project Advisory Panel was to suggest how to reduce the information technology project cycle time by adapting best practices and proven models for project initiation and approval to the State.

A review of current practices and identification of non-value added elements was followed by development of an improved process to be adopted by the State.

Task Statement

CCST was asked to provide a critical review of existing information technology project initiation and approval mechanisms and recommend guidelines for improvement. DOIT's goal is to be more efficient, e.g., reducing time to approval, while maintaining a check and balance to ensure project success.

Relevant Background Information

DOIT has been in operation since January, 1996. John Thomas Flynn was recently appointed the CIO and DOIT Director. Previously, information technology was represented by an office of information technology within the Department of Finance (DOF). This Department still retains a staff of 10 (in the TIRU who also review information technology proposals for fiscal impact).

Wildermuth and Davis-James are currently coordinating all the reviewing processes. Reviewing follows the time lines of funding approval through the DOF.

DOIT's current operating budget is \$2.5M. Additional budget support is being sought. California state agencies and departments spend about \$1.5 - 2 billion annually on information technology systems. It was not clear how much of this was new information technology systems and how much was for upgrades and replacement.

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DOIT has requested a new information technology Investment Fund, to be managed by DOIT. This will enable DOIT to undertake projects, e.g., the fingerprint ID initiative in Los Angeles, without going back through the DOF time lines.

DOIT is currently considering numerous tasks, including the following:

- development of information technology project oversight procedures
- hiring a chief network officer to oversee interconnectiveness of state government departments
- development of a strategic plan of information technology within agencies and departments
- conduct special projects, e.g., professionalizing the State's information technology management

DOIT regards the current information technology reviewing process as duplicative and weak, with particularly poor cost estimating techniques.

DOIT is prepared to completely change the information technology acquisition process if advised to do so, e.g., they are interested in building public/private partnerships for procurement. Any new process should take advantage of changes in procurement process.

DOIT has a fundamental problem in taking stove-pipe systems and integrating them into more modern systems, e.g., Caltrans systems connecting to the newer emergency response vehicles.



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CCST Project Advisory Panel Recommendations

The most important function of DOIT is to provide the State of California, and all the government entities associated with it, the overall planning guidance for information technology. There is a great need to develop a coherent infranet structure with related standards and fine-walls. This function is critical to ensure maximum cooperation and minimum potential damage in information technology systems.

DOIT needs to function as an innovator of the use of information technology in the State. It is no longer in the Department of Finance. We recommend that DOIT be given the means to enact out its charge, in a timely manner, with good external support. We understand that overall fiscal responsibility for project expenditures reside in the Department of Finance. However, due to the rapid growth and evolution of information technology, a more flexible and incremental review, pilot program and verification system needs to be developed. TIRU has the responsibility of making recommendations on the business perspective of an information technology project. The relationship between DOIT and TIRU needs to be clarified. Formal and informal channels of communication need to be put in place to ensure a smooth service to the customer departments. Transfer of staff from TIRU, joint appointments and team management approaches should be explored.

DOIT is an important resource for State departments and agencies. DOIT staff should work directly with these entities, before a proposal is prepared, making suggestions as to the use of information technology to their business practices, providing guidance and coordinating activities. DOIT should be viewed as a means by which new information technology programs can be initiated. The CIO should work in collaboration with the director of customer departments and coordinate information technology activities. The CIO should be an advocate of information technology to the Legislature on behalf of and in conjunction with the departments and agencies.

In general, we are in concurrence with the business and management recommendations made by the Franchise Tax Board in the document entitled "*Report to the Interim Board of Directors, Customer Task Force*", dated October 1995. In particular, we agree with the recommendations that the business objectives of the information technology project be planned in coordination with the technical feasibility study. We also agree that DOIT should work with the information technology representative from the customer department to advise, plan, coordinate and assist in prototyping. The management and business operations of DOIT are currently under review by the Legislative Analyst and other organizations. We will therefore focus more on the technology aspects of the department.

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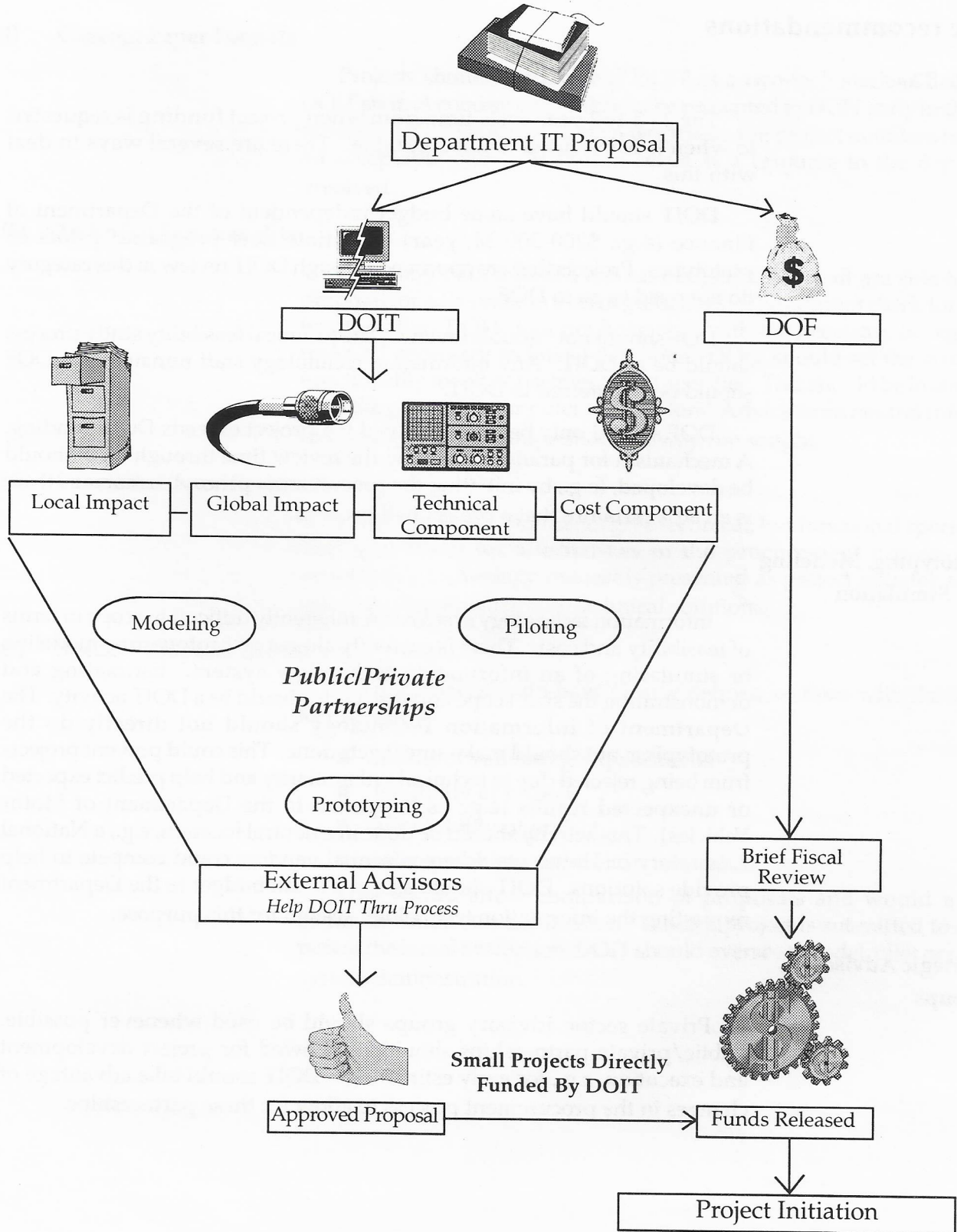
Two operational items are of particular concern to the Project Team:

- (1) DOIT cannot rely on internal information technology staff alone. DOIT needs a highly-technical, high-level group to assess a project's global effectiveness. These information technology specialists are unlikely to come from internal staff in DOIT.
- (2) DOIT needs a radically different method of project approval, consistent with a rapidly evolving, highly complex technological field. The restrictions of the DOF budget cycle are a problem when planning information technology systems. There is also confusion among the customer departments as to who is making the decisions on information technology systems.

The current situation results in information technology decisions being made by local information technology managers with limited technical expertise and a separation from the global business plans for the customer and the State.

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PROPOSED PROCESS FLOW



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Specific recommendations

(1) Cycle Time

The 2 - 2 1/2 year cycle time from when project funding is requested to when it is executed is unacceptable. There are several ways to deal with this.

DOIT should have some budget independent of the Department of Finance (e.g., \$200-300 M/year) to initiate new programs, pilots or prototypes. Projects that are approved through DOIT review in this category do not need to go to DOF.

DOF should not "double review." The technical feasibility study process should be in DOIT. Any information technology staff remaining in DOF should be transferred to DOIT.

DOF should only become involved if a project exceeds DOIT funding. A mechanism for parallel processing the review time through DOF should be developed, (e.g., by initiating the procurement process) as soon as there is an 80% certainty that a project will proceed.

(2) Prototyping, Modeling and Simulation

Information technology systems are inherently difficult to scope in terms of feasibility and cost. There is currently almost no prototyping, modeling or simulating of an information technology system. Estimating and demonstrating the size, scope and feasibility should be a DOIT activity. The Department of Information Technology should not directly do the prototyping, but should make sure it gets done. This could prevent projects from being rejected due to technical unfamiliarity and help predict expected or unexpected results (e.g., as happened to the Department of Motor Vehicles). This activity should be done in a neutral location, e.g., a National Laboratory or University where potential vendors could compete to help provide solutions. DOIT should assign a small budget to the Department requesting the information technology system for this purpose.

(3) Strategic Advisory Groups

Private sector advisory groups should be used whenever possible. Public/private partnerships should be allowed for project development and execution, e.g., for early estimating. DOIT should take advantage of changes in the procurement process to allow for these partnerships.

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4) Concept Paper Formats

Projects should not arrive at DOIT as a two-inch stack of detail to the DOIT staff. A concept paper should be presented to DOIT early in the review process. DOIT staff should then work with the project initiators to develop an acceptable plan. It should serve as a resource to the departments involved.

(5) Technical Functionality

Currently with a \$2-3M annual budget, DOIT staff are able to check a proposal for adherence to a set of guidelines. They cannot check for technical functionality. DOIT does not have staff with the necessary background to make all necessary technical decisions. DOIT should set the standards of functionality for all departments and agencies. This should be in conjunction with the private sector potential vendors. Advice from neutral information technology expert groups should always be sought.

(6) Functional Specifications

Project requests should not give technical, but functional specifications. This will allow for alternatives in the procurement process, i.e., the information technology request is presented as project initiator asking for solutions, not for a specific technical solution.

(7) Specific Proposal Sections

All proposals should have clearly defined sections with the following key features:

- means of validating requirements
- feasibility of project
- affordability of project
- interoperability to other State systems

This would allow comparison of proposals and would maximize communication standardization. When a project is submitted to DOIT, as part of the initial evaluation, DOIT should oversee a model, pilot or prototype system demonstration.



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(8) Paperless Protocols

All DOIT project processes should be in electronic form to the extent possible (e.g., initiation, management, tracking etc.).

(9) Referral System of Experts and Effective Models

To expand the requirements of Senate Bill 1 to provide a data base of information technology programs, DOIT should provide a referral system and historical data base of successful projects to be used as models and templates. This will increase information technology implementation efficiency and avoid duplication. It will be difficult to maintain a technically qualified staff within DOIT. It will be more difficult for all Departments and State agencies to have resident experts. DOIT must help the customers define their goals.

(10) Inter-Agency Interface with DOIT as Lead

The Department of Information Technology should be the governmental lead in information technology. Other Departments, agencies etc. should interface with DOIT. For example, the newly formed Division of Criminal Justice Information Services within the Department of Justice and the telecommunications initiatives should be fully integrated with DOIT. Key, functional relationships and partnerships should be established and defined with other state resources e.g., LLNL, JPL, LBL, universities and colleges.

(11) Connectivity Requirements/Guidelines

DOIT should form guidelines for connecting to local government and multi-jurisdictional agencies. This should include guidelines for funding that comes in from federal sources which have their own federally mandated requirements.

(12) Project Termination Capabilities

DOIT should always retain the ability to suspend or terminate a project that appears to be in difficulty or is not succeeding and to make sure that State agencies comply to established standards.



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Conclusion

The creation of the Department of Information Technology is of critical importance to the State of California. In order for it to be successful, changes to the project approval, procurement and execution phases must occur. DOIT must be allowed to give the State a sense of direction and purpose in information technology. It must be kept in mind that for any information technology project the final system capabilities may evolve as a project is executed, due to information technology advances.

DOIT has the responsibility as the overall State information technology architects. Any information technology project has a local impact on the home department, and a global impact on the State's information technology capability. DOIT should also have the status of a primary State resource for departments and as a senior manager, it should not become a bottleneck. DOIT should help the agencies and departments develop their own information technology capabilities as much as possible.

DOIT will not be able to afford the technical assistance it will need. The reviewing, modeling, prototyping, piloting and demonstrations can be outsourced to a trusted and neutral body.

We recommend the review process be conducted as suggested by the Franchise Tax Board Task Force Report, with the addition of substantial information technology expertise and involvement of the private sector in project design. Organizations such as the California Council on Science and Technology would be in a position to recommend information technology specialists and prototyping capabilities in a neutral environment to DOIT.

A tentative proposed process flow is diagrammed on page 7. As recommended by the Franchise Tax Board, a department should submit an information technology proposal to both DOIT and DOF. The Department of Finance retains the proposal and assigns a budget allocation, but does not release funds. DOIT begins the proposal review process by considering the local impact on the home department operations, the global impact on California's information technology system, the technical feasibility and the cost analysis. These processes occur in-house, with an external high-level information technology advisory board providing oversight. Public/private partnerships should be developed in the private sector using universities and the National Laboratories for the modeling, prototyping and piloting.

When the information technology project is 80% certain of being approved, the funds should be released from the Department of Finance. DOIT should continue its oversight role during project execution. The release of funds from DOF should not have to correspond to the budget cycle as money is already encumbered for this purpose.



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