



# Information Systems Management

## Summary

The Grand Jury investigated how the Information Services Department (ISD) is structured to provide technical services and support as requested by San Mateo County Departments. The Chief Information Officer for ISD reports directly to the County Manager, oversees an authorized staff level of 144 employees, and manages a total current budget of \$14.6 million, rising to \$14.9 million in fiscal year 2004-2005.

Technology has the power to streamline operations, improve the quality and quantity of data necessary for strategic business decisions, and improve the cost effectiveness of all aspects of County business.

## Key Finding Centers on Management Structure of Information Technology in the County

The Grand Jury found the current information technology management structure led by ISD is ineffective in meeting all of the technology needs of the Departments and offers no technical strategic direction for the County. While the full Grand Jury report lists numerous areas that could be improved, the primary steps that must be taken immediately are:

- Adopt a collaborative Information Technology (IT) governance model and restructure the management of IT in the County under an Information Services Steering Board (ISSB) to drive the strategic direction of technology for the County.
- The ISSB should consist of all Department Heads (with ISD as a member but not in control), chaired by the County Manager, and responsible for:
  - Strategic direction of all County IT
  - All IT investments, budget, and project funding
  - Prioritization of all IT projects
  - Countywide technical standards and security
  - Oversight of centralized systems and applications
  - Network infrastructure design
- Develop a plan to eliminate the IBM s/390 mainframe within one year and engage vendors to develop replacement applications run in a distributed server environment. Plan to outsource all applications remaining on the mainframe at the

end of 2005 until new replacement applications operating in a distributed server environment have been installed.

- Redefine the role and resource requirements of ISD in the County to focus on maintenance of the network infrastructure, management of network security, management of some minimal centralized technical services, telecommunications, and participation on the ISSB. All development projects should be contracted to outside vendors or completed in-house by the Department IT staff or Business Solution Teams as defined in the IT governance model.
- Develop a strategy for defining effective uses for leading technology (e.g., Geographic Information Systems, Electronic Document Management Systems, Web management and transaction applications, etc.) to improve all County operations.

The detailed recommendations in the full report involve restructuring the management of IT in the County, and elimination of an aging mainframe that is no longer cost-effective. The following is a summary of findings and conclusions detailed in the report.

## **Information Technology Management Structure**

ISD acts in an advisory/contractor role charging for services that are requested by the various departments. ISD allocates 37% of its budget to project management and/or technical development that are considered substandard by the client departments. It is the opinion of several departments that ISD either does not have the skills or takes too long to produce a quality product. In response to these deficiencies many County Departments have established their own resources with IT responsibilities, and engage vendors for systems and application development.

ISD has not provided a technical direction that can be embraced countywide. Leading technologies such as Geographic Information Systems, Web transactions, and electronic document imaging and storage offer considerable cost savings opportunities if a countywide strategic direction and technology implementation plan were in place.

IT in San Mateo County lacks uniform standards, has a poor ISD image, is held back by each Department individually managing its own IT design and development (IT silos), and by an internal culture that does not foster ongoing collaboration between departments. The current management of IT silos focuses on operational problem solving, not long-term vision and strategy for the County. A cultural shift must be made from these IT silos to an enterprise culture of laterally managed countywide technology with independently managed technical operations by groups with common application needs.

A collaborative IT governance model developed by KPMG and refined and implemented by Nevada County, California provides an example of a successful transformation. This model is considered “best practice” of all counties and materials reviewed, and is gaining much industry acclaim. (See Attachment A of the full report.) Development of a strategic direction for IT in San Mateo County cannot be done solely by ISD. All County Departments need to contribute in order to support a long-term vision and direction as a county enterprise. This is possible by connecting all countywide IT investment, budget and

funding into one governance body, the Information Services Steering Board. This encourages active participation from all departments in order to fund new IT projects.

## **Mainframe Applications**

ISD oversees four applications run on an aging mainframe (IBM s/390) hobbled with expensive scheduling system software under a license fee agreement. Two of these applications are migrating from the mainframe to distributed server applications. The full system scheduling fees are ongoing despite the fact that only two applications will remain. The life of the lease for the mainframe ends 2005. ISD has no definitive plan to fully utilize the mainframe or eliminate it as applications are removed.

The IBM s/390 is no longer a cost effective system. Eliminating the mainframe and migrating all mainframe applications to distributed computing with a network of servers will result in cost savings, improved functionality of the applications running on the network, and mainframe programmers and maintenance staff would no longer be required.

The full Grand Jury report provides detailed findings and conclusions, and a total of 38 recommendations in five major areas:

- Information Technology Management Structure
- Network Administration, Data Services, and Telecommunications
- Mainframe Applications
- Leading Technology
- Other Areas of Review

The full report may be found at: <http://www.sanmateocourt.org/grandjury/>

## **Issue**

How effective is the San Mateo County Information Services Department in meeting the Information Technology planning, development, implementation, and systems support needs of County offices?

## **Background**

The Grand Jury investigated how the Information Services Department (ISD) is structured to provide technical services and support to San Mateo County Departments and reviewed considerable documentation provided by ISD: its management direction, accountability measures, and a preliminary draft of its Information Technology (IT) Strategic Plan. The Grand Jury also interviewed several Department Heads and managers of Department IT groups, and hosted an ad hoc end user group representing six different County

organizations that discussed ISD services and support, technology availability, training, and process improvement opportunities.

Research by the Grand Jury<sup>1</sup> also included analysis of the services, organization, and management of ISDs and IT groups in San Diego, Orange, Nevada, Ventura, Alameda, and Santa Clara counties in California, and Clark County in Nevada.

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<sup>1</sup> See Attachment D for the Information Technology Research bibliography.  
Information Systems Management  
2003-2004 San Mateo County Civil Grand Jury

This report has been organized into the following five major sections, each with its own documentation of findings, conclusions, and recommendations:

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# I. INFORMATION TECHNOLOGY MANAGEMENT STRUCTURE

## Findings

- **ISD Organization and Responsibility**

The Chief Information Officer for ISD reports directly to the County Manager, oversees an authorized staff level of 144 employees, and manages a total current budget of \$14.6 million, rising to \$14.9 million in fiscal year 2004-2005. While ISD charges all costs to users in order to maintain a zero-based budget, it also has Reserves for fiscal year 2004-2005 over \$4.4 million that exceed the County Reserves Policy by \$4.2 million. ISD advised this is for ongoing contributions for future equipment replacement.

ISD has the following responsibilities:

- Coordinate technology-based initiatives impacting multiple departments
- Coordinate technology standards, and computer and network security
- Provide radio systems and internal telecommunication systems
- Manage the data network and operate the data center
- Manage the County Medical Center information technology and computer operations
- Review technical projects submitted to the Board of Supervisors for funding authorization by the County Departments
- Offer application development services, project management, desktop services and support, some data processing and data management services, and recommend new technologies and applications to County offices requesting these services

Management of all San Mateo County IT is not centralized in ISD. ISD acts in an advisory/contractor role charging for services that are requested by the County Departments; however, most County Departments have their own resources with IT responsibilities. Usually the Departments do not use ISD for business needs assessments, application development, and systems projects, yet 37% of ISD's budget is allocated to these functions.

The Human Services Agency (HSA) performed a cost/benefit analysis that demonstrated it is more cost-effective for HSA to design and manage its own IT systems and applications utilizing vendors for application development, than to use ISD resources at charge back rates loaded with ISD overhead costs. The Assessor-County Clerk-Recorder (ACR) also has its own IT staff. Its policy is to retain vendors with maintenance agreements to correct all software/system problems and handle future upgrades and enhancements. The ACR Offices believe ISD does not have the detailed business knowledge of ACR's various divisions necessary to design, develop, and maintain ACR applications. ACR advised it is better to use vendors familiar with the functions germane to its programs, to develop a system that might be usable by other counties as well. The San Mateo County Sheriff's Office (Sheriff) recently appointed an IT Manager to build and direct its IT group. This group not only supports the Sheriff's organization, but also provides technical support to

the Coroner's Office and the Probation Department (primarily for the Release on Own Recognizance program).

Some programmer and technical engineering job titles and salary classifications in the County are restricted for use only by ISD. A Department project that requires a programmer employee to maintain its systems must utilize ISD personnel to do that work for a loaded hourly fee. HSA utilizes an ISD database programmer full-time and believes it would qualify for State and/or Federal funding to pay that salary if the programmer were an HSA, rather than ISD, employee.

- **Strategic Direction**

ISD is in the process of finalizing a formal strategic plan to replace the last County IT Strategic Plan developed in 1992. The current draft of that plan documents the value of various new technologies, the outlook, risks, and concerns associated with these technologies, and general view of how they might benefit the County, but it offers no action steps. Attachments to the ISD strategic plan provide an overview of each Department's needs and direction. However, the plan offers no clear recommended IT direction for the County, has no prioritization of clearly defined goals, no classification of mandated projects versus an ongoing development plan, and no discussion of the resources (either within the Departments or ISD) required to procure, manage or maintain the technology if/when implemented.

- **ISD Relationship with the Departments**

The large County Departments advised that they manage their own IT resources and requirements because it is easier, faster, and more economical to use vendors for systems/applications development than to work with ISD. Independently, the County Departments meet and discuss IT concerns regularly with their peers in other counties, both in California and nationwide, in order to seek out best practices for their specific areas of responsibility. One Department manages all its own maintenance; another negotiates maintenance contracts with vendors for ongoing maintenance and upgrades. For these, ISD is used only as a network interface resource, and is helpful coordinating any interfaces needed between departmental systems.

To maintain high network server availability, ISD documented it would initiate a network assessment program and implement an in-house IT Technician development program. ISD made network assessments available free of charge to the Departments in 2003. The Departments interviewed by the Grand Jury either knew of no network assessment performed for their Department, or found the assessment of little value. To date there has been no IT Technician development program implemented.

Based on performance, ISD is perceived by most Departments interviewed as not having a thoughtful approach to analysis of business issues, or understanding of Departments' business needs. Departments also believe ISD does not cultivate a business relationship, does not listen and communicate effectively with stakeholders, and this has not changed with the recent change in management. It is the opinion of several Departments that ISD either does not have the skills or takes too long to produce a quality product. One Department believes that ISD was learning as it went along with the development of a

database that resulted in costs three times the maximum amount the Department agreed it would pay for the project.

Any technical project over \$100,000 must go to the Board of Supervisors for approval. The Board does not have in-depth technical expertise of its own and it asks ISD to review these projects and “sign off” on them. There is departmental concern that ISD knows little about the individual Department’s business platform, yet is put in a position of advising the Board of Supervisors. There have been instances reported to the Grand Jury in which ISD has reviewed such projects, and then offered an alternative bid because ISD is trying to generate revenue to cover their own operating costs.

- **Information Technology Governance Model**

The Grand Jury research revealed some counties and some states<sup>2</sup> completely outsource management of countywide information services responsibilities while Departments retain IT resources necessary to maintain and develop their specific business environment and applications. Other counties control IT centrally, limit departmental IT job classifications, and charge fully burdened costs to all users. Between those end-points is a collaborative IT governance model that transformed at least two counties with poor ISD images, and operational and funding problems due to a lack of IT standardization and IT policy, into efficiently managed IT enterprises accomplishing more projects with less costs.

As an example, IT in Nevada County, California was held back by each department individually managing its own IT design and development (IT silos), and by an internal culture that did not foster collaboration between departments. Enhancement and implementation of a collaborative IT governance model developed by KPMG<sup>3</sup> provided a cultural shift from these IT silos to an enterprise culture of laterally managed countywide technology, with independently managed technical operations by groups with common application needs. (See Attachment A for an overview of this model.) The success of this enterprise model is spreading with more counties and states considering its implementation.

This enterprise mode of addressing technology issues puts ownership of ISD and the direction of technology projects into the hands of the county’s business leaders, the Department Heads. The collaborative IT governance model creates an Information Systems Steering Board (ISSB) responsible for the establishment and oversight of the overall IT investment program. The ISSB is comprised of the County Department Heads and led by the County Manager. Additionally there are Communities of Interest (COI)

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<sup>2</sup>The Rand Corporation conducted a survey in 2003 of the most effective State Information Technology Governance models. Its research focused on four states, New York, Virginia, Pennsylvania and Illinois. Three governance models were identified: the “Centralized” model, the “Advocacy” model and the “Collaborative” model. Pennsylvania and Illinois utilize the decentralized Collaborative model. In this model, authority for deployment of information technology is distributed among multiple departments, agencies, and the Chief Information Officer. IT governance relies on sharing of authority among diverse stakeholders.

<sup>3</sup> A collaborative decentralized IT governance model developed by KPMG for Clark County, Nevada (consisting of Las Vegas and Henderson) and further deployed and enhanced by Nevada County, California, has also been recognized in Government Technology on-line magazine for its immense success in county government environments.



created as virtual organizations with representatives from Departments that have common core business processes and IT concerns. COIs review, prioritize, fund and monitor all IT capital projects with the purpose of ensuring the IT investments fit as closely as possible within the mission and strategic plan of the organizations. Business Solution Teams are appointed as ad hoc groups of technical and management staff formed by the ISSB or a COI to address specific technical needs, and to oversee projects.

The most significant lesson learned by those counties going through this transformation process is the necessity of connecting all countywide IT investment, budget and funding into one governance model, the ISSB. This encourages active participation from all Departments in order to fund new IT projects.

## **Conclusions: Information Technology Management Structure**

ISD has not demonstrated to the Departments that it is the best resource to design, develop, and manage projects and new applications. ISD is not staffed with resources capable of developing leading edge applications and should not attempt to bid against outside vendors for work ISD has rarely demonstrated it is able to do. ISD should not endeavor to restrain the Departments from hiring whatever job title they need to accomplish their business goals.

The reliance of the Board of Supervisors on ISD to review technical projects currently creates an inherent conflict of interest. A Department may have requested a proposal for a project from ISD as well as outside vendors. Usually the outside vendor is selected, but ISD reviews the proposal and makes recommendations to the Board. This conflict is eliminated with the collaborative IT governance model whereby the ISSB first evaluates, rates, and prioritizes all IT projects for the review and budget approval by the Board of Supervisors. (See Attachment B for an overview of the model budget/funding cycle.)

Considerable expense (37% of ISD's budget) is spent on technical development and/or project management that is considered substandard by the client Departments. While the Departments are paying customers of ISD, they have no leverage or control over ISD's quality of work; there is nowhere else to go, except to manage one's own IT group. To contract all applications development to vendors, who typically underbid ISD for such projects, would result in improved quality, project savings to the County, and ongoing savings with the elimination of the ISD development staff. (Also see III. Mainframe Applications.)

ISD has not provided a technical direction that can be embraced countywide. Sophisticated Department IT organizations have evolved from necessity with a management culture focused on improvement of their own processes and services. These IT groups continue to grow with new IT groups emerging because a centralized ISD cannot meet their needs. County Departments such as the Human Services Agency come to possess valuable direction and trends in IT pertinent to their specific business needs from interaction with the same agencies in other counties, vendors, and from their own skilled technical staffs. ISD cannot, and should not be expected to provide that kind of expertise and knowledge to all Departments. Multi-county consortiums share the costs to develop systems specifically

designed to meet their unique business needs, providing the participating counties the opportunity to obtain a more robust system than they might be able to afford were they to build their own system independently.

ISD and management of IT in San Mateo County face the same issues Nevada County surmounted: there is a lack of compelling standards, a lack of ongoing interdepartmental collaboration, a poor ISD image, and technology silos. With implementation of a collaborative IT governance model, more sharing of departmental applications is possible. This translates into cost savings in hardware and software and lower maintenance costs. Organizational support of a business process that flows across departmental boundaries will improve process effectiveness and eliminate negative downstream impacts of system changes, all of which translates to cost savings.

Development of a strategic direction for technology in San Mateo County cannot be done solely by ISD. The current management of IT silos focuses on operational problem solving, not long-term County vision and strategy. All County Department and Agency Heads, both elected and appointed, need to contribute to the development of a strategic direction for technology in San Mateo County.

The draft of the ISD Strategic Plan is more an assessment of existing and emerging technology than a strategic plan. However, with its overview of departmental IT needs and direction, and evaluation of risks and concerns associated with implementation of various new technologies in the County, this document could serve as useful reference tool to launch the collaborative IT governance model utilizing an Information Services Steering Board, IT Communities of Interest, and Business Solution Teams to establish standards and strategic direction.

## **Recommendations: Information Technology Management Structure**

### ***The Board of Supervisors should immediately:***

- 1.1 Adopt a collaborative IT governance model and restructure the management of Information Technology in the County under an Information Services Steering Board consisting of all Department Heads (with ISD as a member but not in control), and chaired by the County Manager to drive the strategic direction for technology for the County.
- 1.2 Charge this Information Services Steering Board with responsibilities for:
  - Strategic direction of Information Technology
  - All Information Technology investments, budget, and project funding
  - Prioritization of Information Technology projects
  - Countywide technical standards and security
  - Oversight of centralized systems and applications
  - Network infrastructure design
- 1.3 Redefine the role and resource requirements of the Information Services Department in the County to focus on maintenance of the network infrastructure, management of network security, management of some minimal centralized

technical services, telecommunications, and participation on the Information Systems Steering Board for assessment of emerging technology, joint development of network and operational standards, and joint development of network and operational security plans.

- 1.3.1 Transfer the entire organization providing hospital operations services to the San Mateo County Medical Center Department Head.
- 1.3.2 Review the Information Services Department Reserves and advise the Departments exactly what equipment is being replaced, when, and at what costs, requesting the concurrence of the Information Systems Steering Board in this expense plan.
- 1.4 Remove any limitations on the Departments regarding Information Technology resources, job classifications or job titles they are allowed to employ in meeting their business needs within authorized budget constraints.
- 1.5 Redeploy project management and business systems positions currently in the Information Services Department to the Departments.

***The Board of Supervisors should direct all County Departments to immediately:***

- 1.6 Develop Communities of Interest for oversight of business processes that flow across departmental boundaries, and the joint development of Information Technology projects to support those business processes.

***The Board of Supervisors should direct the Information Services Department to:***

- 1.7 Continue to maintain a minimum of centralized services for departments that collectively determine the Information Services Department is more economically positioned to perform such service than the department is itself.
- 1.8 Discontinue providing any systems/applications development and project management services to the Departments and assist in the joint efforts of a Communities of Interest to seek the most cost effective experienced vendor for the services required.
- 1.9 Continue to pursue the development of an in-house Information Technology Technician development program for use by all Departments.
- 1.10 Share its documented strategies to support its security, cost reduction, and combination of services goals with the Information Systems Steering Board for consensus, modification, and implementation.

## II. NETWORK ADMINISTRATION, DATA SERVICES, RADIO AND TELECOMMUNICATIONS

### Findings

- **Network Infrastructure**

ISD provides the use of network resources to connect County information systems to the Internet, internal and Internet e-mail, and intranet servers. ISD collects fees for network attachments such as a local area network or system, terminals, personal computers, and printers that are attached directly to the network. These network attachment charges fund the support and maintenance of the existing County data network infrastructure.

- **Telecommunications**

ISD built a Synchronous Optical NETWORK (SONET) microwave system that handles the communications and emergency needs of the County. ISD supports the wireless systems, public address systems, and other communications equipment that provide countywide communications capabilities for public safety, emergency medical services, and public service agencies. Relations between ISD and the Departments utilizing the emergency communications systems are improving. The Sheriff is dependent on ISD for improvements to its communications systems with city police departments, an issue that has constrained the Sheriff's capabilities in the past.

ISD supplies voice communications, manages and maintains the switched network, coordinates service rearrangements and voice mail, and is responsible for all voice and data wiring and pager services. The San Mateo County telecommunications system is independent of the public telephone network with the exception of exterior cabling between facilities.

- **Standards**

ISD recently established a standards committee and invited the management leaders of IT groups in the Departments to participate. Departments commented that there has been no clear mission statement provided that describes the purpose of this group or what it expects to accomplish.

ISD established Novell as the standard server networking software many years ago. ISD stated it did not want to use Microsoft because it is so vastly distributed that it becomes a target for viruses. ISD specifically states among its key duties: "a major role for ISD is to monitor technology trends and to recommend new technologies for County Offices." ISD's embracing of dated standards for networking systems in preference to more modern and accepted standards is the basis for certain Departments' dissatisfaction with ISD's standards administration role.

- **Security**

ISD stated that the San Mateo County maze of interconnected networks is highly vulnerable to unauthorized access and data corruption. The number of reported attacks on County networks doubled every year for the past four to five years. ISD expects this trend

to continue for at least three to five years. The documented strategy provided to the Grand Jury for security stated ISD would implement an initiative for password standards, filter incoming e-mail for viruses and spam, and ensure all servers and workstations are running current virus protection software. There was no data provided to indicate if/when these action items would be accomplished.

## **Conclusions: Network Administration, Data Services, Radio and Telecommunications**

The network structure and availability currently in place serves the County well. Management of the network infrastructure is effective, but Departments are generally kept uninformed. The voice, data, wireless, and radio communications currently in place serve the County well.

ISD provides a security plan for the County network, but provides no guidelines offering the best type of security recommendations for specific types of environments and applications. Secure protection of the integrity of the County network will require ever increasing efforts to maintain and keep ahead of digital viruses, unauthorized network access, and other “attacks.”

## **Recommendations: Network Administration, Data Services, Radio and Telecommunications**

- 2.1 The Board of Supervisors should direct the Information Services Steering Board to develop a set of security standards that address existing and emerging technologies, hardware, network access, etc. as a first priority.
- 2.2 The Board of Supervisors should direct the Information Services Department to develop an independent operations budget for network infrastructure costs that is approved through the InformationTechnology governance budget model by the Information Services Steering Board prior to being approved by the Board of Supervisors. Any upgrades made to the general network infrastructure should not be charged to the Departments.

### III. MAINFRAME APPLICATIONS

#### Findings

- **Mainframe**

ISD oversees the following four applications run on an aging, inefficient mainframe that requires ongoing license fees for its scheduling system:

- County payroll system
- Criminal Justice Information System (CJIS) used by the Courts, the District Attorney's (DA) Office, the Sheriff, and the Probation Department
- Welfare Case Data System (WCDS) used by the Human Services Agency
- County back-up system – Tivoli Storage Manager (TSM).

The turnaround time for mainframe changes is lengthy when compared to changes for UNIX or Microsoft based server systems that now dominate the data processing world. The ACR Offices have been migrating applications from the mainframe since 1993. Some bits and pieces, such as checks for temporary employees manning election polls, remain. It costs that Department \$110,000 per year just to store data on the mainframe. Also fleeing the mainframe for distributed server applications are the Courts' use of CJIS, and HSA's replacement of WCDS in 2005. The applications on the mainframe lack flexibility, require technical-level assistance to obtain data, and have skyrocketing costs. The life of the lease for the mainframe ends in 2005. The full system scheduling license fees are ongoing for the remaining applications.

- **Criminal Justice Information System**

In 1984, several counties in California collectively designed and implemented an integrated Criminal Justice Information System. In 1991 San Mateo County joined the consortium and the system was implemented by ISD in 1995, when the system was already 10 years old. CJIS has served as the primary tool for criminal justice information in San Mateo County for nearly 10 years, and in other consortium counties for nearly 20 years.

CJIS is no longer an efficient running robust application. The Courts will be migrating from CJIS to a new state system by 2007. The DA, the Sheriff, and the Probation Department will then be left with an antiquated system that would require development of new interfaces in order to interconnect with the planned new Courts system. The Grand Jury was told that CJIS is also used by the Sheriff for some jail management functions. ISD has not been asked to develop a plan, nor has it recommended a transition plan or a more effective replacement for CJIS, or both.

In 1997 the Sheriff requested ISD develop an interface between CJIS and the Automated Warrant System (AWS). ISD began actual development work in 2000, and advised the Grand Jury that the project completed in January 2003. However, the Sheriff advised the Grand Jury that it has been over six years since the project was requested and it is still only partially complete.

The DA receives monthly CJIS reports of the number of cases filed or rejected. The DA can also obtain some ad hoc reports itself, but it is very difficult, complex, the data may be misleading, and it costs \$75 for each ad hoc report already defined. If there is a need to create a new report, ISD charges \$100 per hour and it can take eight hours of programming time to produce a new report. As a result, the DA passes these charges on to anyone requesting reports.

- **Welfare Case Data System**

This application was developed and is managed by the California Welfare Case Data System Consortium comprised of 18 counties, including San Mateo County. The thirty-year-old system requires more maintenance now than ever before as it processes increasing amounts of data for programs ranging from food stamps to child support and refugee assistance. The Consortium recently decided to replace WCDS with the California Welfare Information Network (CalWIN). HSA is moving from the mainframe into a new distributed environment by November 2005. WCDS is a single user system, and once it is shut down, the Human Services Agency will have no mainframe applications or projects.

- **Payroll System**

Payroll processing for San Mateo County employees and temporary election staff at the polling sites is currently run on the mainframe. It is not known by the Grand Jury if the current payroll system could be easily migrated from the mainframe to a client-server environment. Currently San Mateo County uses Integrated Financial and Administrative Solution (IFAS) as its financial management system, and is testing the most recent upgrade (IFAS 7i) to determine whether it is acceptable for general use. This system operates in a distributed client-server environment and is targeted to be fully deployed in the County as early as Fall 2004. IFAS 7i also has a robust personnel management module that includes a comprehensive payroll process.

## **Conclusions: Mainframe Applications**

- **Mainframe**

The IBM s/390 mainframe is no longer a cost effective system with only three user applications resident on the machine. A cadre of special programmers is employed by ISD for maintenance, special system requests, and making changes and upgrades to the software. ISD has no definitive plan to fully utilize the mainframe or eliminate it as applications are removed. Costs to operate will continue to increase to the remaining users. Distributed computing with a network of servers and the elimination of the mainframe would result in cost savings due to improved functionality of the applications running on the network. Additional savings would be experienced with the elimination of mainframe programmers and maintenance staff.

- **Criminal Justice Information System**

With the Courts' announced plan to migrate to a new information system, it is not practical and not cost effective to develop CJIS interfaces to the planned Courts system, and bind the Sheriff, the DA, and the Probation Department to the antiquated mainframe. Based on the

Grand Jury's research and interviews with IT specialists, migration to a distributed serving environment is necessary and CJIS needs to be replaced. To continue putting money into updates and interfaces to CJIS is investing in obsolescence. If necessary, CJIS could be outsourced until it can be replaced with a new server-based system linked with the Courts' new system.

- **Payroll System**

If the payroll system becomes the last application (presuming the above migrations are achieved) left on the mainframe, other than systems back-up, the total cost to run the mainframe will become the sole burden of the payroll system. This would more than triple the costs to run payroll for the County. The payroll system should be outsourced to another mainframe or migrated to a server-based system. It might also be possible to convert payroll to the new IFAS 7i system that has a payroll capability, and is currently in test use in the County. Conversion of payroll records to IFAS 7i was not studied by the Grand Jury.

## **Recommendations: Mainframe Applications**

*With regard to the mainframe, the Board of Supervisors should direct:*

- 3.1 The County Manager, Information Systems Department, and all County Departments as part of the Information Services Steering Board to immediately develop a plan to eliminate the mainframe within one year, and engage vendors to develop replacement applications run in a server environment.
- 3.2 The Information Services Department to no longer provide development services once the mainframe has been eliminated, but work with the Departments to find the best vendors for the development required.

*With regard to the Criminal Justice Information System, the Board of Supervisors should direct:*

- 3.3 The Information Systems Department to immediately develop and drive a migration plan for this application to a distributed serving environment.
- 3.4 The Information Systems Department to immediately form and lead a Business Solution Team comprised of representatives of the Sheriff, the DA, and the Probation Department to evaluate needs and costs to acquire a distributed system replacement for the Criminal Justice Information System, with particular attention paid to procedural costs and improvements (workflow analysis).

*With regard to the Criminal Justice Information System, the Sheriff must:*

- 3.5 Immediately evaluate systems operating on a file server platform as an alternative to the Criminal Justice Information System for jail management. Consideration should be given to the possibility of enhancing the existing Records Management System with a jail management module.
- 3.6 Reassess the interface between the Automated Warrant System and the Criminal Justice Information System based on the new state system being implemented for



the Courts, and consider development of a new interface with Automated Warrant System on a file server platform.

***With regard to the Welfare Case Data System, the Board of Supervisors should direct:***

- 3.7 The Human Services Agency to temporarily outsource its case management to a functioning California Welfare Information Network user county, if the California Welfare Information Network is not fully implemented by the time the mainframe is eliminated.

***With regard to the Payroll System, the Board of Supervisors should direct:***

- 3.8 The Employee and Public Services Department to immediately form and lead a Community of Interest to create a Business Solutions Team responsible for development and implementation of a plan to migrate the payroll system off the mainframe into a server-based environment within one year.
- 3.9 The Employee and Public Services Department to temporarily outsource the current payroll system if a replacement application is not in place within one year when the mainframe is eliminated.
- 3.10 The County Manager and Information Services Department to immediately evaluate the Integrated Financial and Administrative Solution 7i personnel management system module as part of the current beta test for possible replacement of the existing payroll system.
- 3.11 The Information Services Steering Board to outsource all operations and maintenance remaining on the mainframe if the Criminal Justice Information System, Welfare Case Data System, and payroll systems have not been replaced within one year.

## IV. LEADING TECHNOLOGY

### Findings

- **Electronic Document Management Systems**

FileNet Corporation markets document management systems under the high level descriptor of FileNet Enterprise Content Management (ECM) with an extended list of modules that can be interconnected to provide a wide scope of record management functions. A FileNet system is supporting the publishing of the Board of Supervisors meeting agenda and associated documents. ISD stated this system is set up to be a shared system among County Departments.

The ACR organization has a variety of uses for FileNet systems with data imaging. Its Recorder's Office has specific electronic document storage needs unique from the rest of the County, and its unique security requirements drive it to maintain its own FileNet license, and run the application on its own separate server. The ACR Offices are considering engaging one of the many vendors qualified in document management systems, not ISD, to evaluate whether this whole organization would be more efficient if all its divisions used the same centralized FileNet application. The ACR Offices do not have confidence in ISD's skills to make this evaluation.

- **E-Government/Web Management**

The mission of E-Government is to enable government services in an electronic form and make them available to customers 24 hours each day and 7 days per week. The most important forms of E-Government are those web-based services allowing customers to access services, obtain and submit forms and registrations on-line. County Departments have varying levels of experience with web management and it is reflected in their individual sites. ISD did not provide a standard web environment that could accommodate the variety of web needs for each Department. Those Departments with web applications and transaction capabilities have their own web designers, and/or outsource application and transaction processing design and development. Departments would like to have their own intranet servers and run and manage their own web-based applications.

- **County Geographic Information System (GIS)**

GIS is a computerized system for capturing, storing, checking, integrating, manipulating, analyzing and displaying data related to positions on the Earth's surface. Typically, GIS is used for generating and maintaining maps. These might be represented as several different layers where each layer holds data about a particular kind of feature. Each feature is linked to a position on the graphical image of a map. Layers of data are organized for study and statistical analysis.

The ACR Offices initiated installation of a GIS with design and development originally coordinated by ISD. It took two years and the end product is limited to the needs of the Public Works Department and the Assessor's Office. Parcel maps are now kept up to date in a near real-time mode, and hardcopy maps can be produced much more quickly and cheaply than in the past. Lists of property owners near to major work sites can be produced

more quickly and accurately. Maps that could serve as an effective portion of a grant proposal are easy to generate and annotate.

The ACR Offices are evaluating many uses for GIS in all of their divisions, and have hired a GIS specialist with a spatial geography degree. The ACR Offices have initiated a study with an outside vendor to evaluate the possibility of setting up a GIS information cell and providing real time data for use by Public Works. ISD is not involved.

There is limited communication from ISD to County Departments regarding what opportunities there might be for countywide use of GIS. HSA approached ISD for a proposal for GIS. ISD could not document the methodology that would be used to bring the system up for HSA. HSA engaged an outside vendor and within two months had its own GIS product directly applicable to its needs.

## **Conclusions: Leading Technology**

ISD does not manage the software development life cycle with a structured management process that ensures timely turn-up and production. ISD desires to be involved with leading edge technology, but learns as it goes, rather than providing the County Departments proven expertise. Each of these new technologies noted above have considerable cost savings opportunities if a countywide strategic direction were in place. There are opportunities for shared applications as well as independent applications, but the business opportunities need to be defined from a business process perspective.

## **Recommendations: Leading Technology**

*As part of the new collaborative governance model for Information Technology in San Mateo County, the Board of Supervisors should charge the Information Systems Steering Board with the development and direction of the following:*

- 4.1 A Community of Interest that develops a strategy for the most cost-effective and efficient way to make FileNet systems available with standards for some shared use countywide.
- 4.2 A Business Solutions Team that determines to what level County web operating environments might be standardized for the sake of efficiency, ease of use, or cost effectiveness.
- 4.3 A Community of Interest that will develop a standardized Geographic Information System data storage and manage the version controls to ensure all Departments in the County are using the same data in calculations to make business decisions. This Community of Interest should:
  - 4.3.1 Collectively manage the richness of the data, and ease of accessibility to the Geographic Information System database.
  - 4.3.2 Develop a marketing plan that will focus on the business solutions possible for all Departments with effective use of Geographic

Information System, and also considers how cities and special districts in the County can also take advantage of the Geographic Information System, selling the benefits of centralized, standardized data for a fee.

## V. OTHER AREAS OF REVIEW

### Findings

- **Help Desk**

ISD manages a Help Desk charging clients for this service. Help Desk software tracks trouble, monitors down time, reports status, keeps history, etc. Employees in Departments with their own IT staff often have their own technical contacts for help with system or desktop problems. The ISD Help Desk in many instances is just a dispatcher.

Departments that do not use ISD for desktop assistance, contact their own department IT help group, who in turn will contact the ISD Help Desk if the problem is a network or mainframe application issue. The Department IT group becomes the end user advocate to ensure the problem gets resolved.

- **Measurements**

ISD provided the Grand Jury a series of informational data meant to reflect its performance and user organization satisfaction with the services it provides. ISD also provided measurements that are goals-based for the current and two future target periods. While these data are informative, key areas of the role ISD plays in County support are not being measured.

ISD consolidates the results of its ongoing performance measurements into a measurement titled "Quality and Outcomes Data Meeting Performance Targets and Showing Progress." This statistic is a seeming illustration of ISD's overall measured results; however, the specific ISD measurements that are used to develop these consolidated results are not identified.

ISD measures the percentage of completed projects that meet primary project goals. These are based on each project's original timeline and cost for completion. ISD advised the Grand Jury that the targets (set between 62% and 75%) are set so that they can be reached. ISD also measures customer satisfaction primarily based on customer survey responses rating satisfaction with delivered projects. The following targets have been established:

<b>Measurement</b>	<b>2002-2003 Estimate</b>	<b>2003-2004 Target</b>	<b>2004-2005 Target</b>
% Projects meeting primary goals	62%	70%	75%
% Projects completed on time	50%	70%	70%
% Projects completed within budget	50%	70%	70%
% Customer survey responses rating satisfaction level "good" or better	70%	80%	80%

These measurements do not indicate that the effects of customer-defined changes made to the scope, definition, technology, or negotiated delivery date are considered. There is no clearly defined change management process.

The Systems Availability measure reported by ISD to the Board of Supervisors measures all County systems, including those operated and maintained by other Departments. ISD has no responsibility for the availability of a Departments' systems and applications. A user of a departmental system who encounters problems and cannot use their system or application for its intended purposes usually does not deal with ISD to resolve that problem. Departmental systems that become inoperative are reported as unavailable by ISD, but in the case of an application failure, ISD is not involved in restoring service to those users. In the case of a network outage, ISD is responsible for restoring services to the affected users.

Biannual customer satisfaction surveys sample user satisfaction with the technology-based services provided by ISD.

- **Charge Back Policy**

ISD negotiates Work Authorizations with each Department during budget development and provides rates and service levels for ISD services to the Fiscal Officers Committee every year. ISD bills customer Departments monthly for all services provided during the month in accordance with rates published in a Service Level Agreement. Labor fees include salary and benefits plus overhead (indirect expenses, management and administrative costs). Often ISD develops a proposal based on function points, a means of providing cost per function statistically without doing system analysis. Other fees are developed from functions as appropriate. The fee per telephone line and fee per network node are based on all the costs associated with those functions. Labor charges are added based on all ISD billable employee costs and then loaded with the overhead, which includes all management and non-billable employee costs.

If analysis is needed before a proposal can be made (i.e., review and analyze specifications), the hours spent are charged to the client Department. Departments complain that ISD charges for every telephone conversation, attendance at meetings, and for evaluation of its own service levels. One Department advised that if a service ISD provides to a Department is no longer required, the costs of the remaining services provided to that Department increases so that ISD can still recover the same revenue level. While one Department had to take a 30% budget cut last year, its ISD costs went up.

- **Workflow Analysis**

As ISD and/or the Department IT groups evaluate projects, the opportunity for saving user input time, or cost savings associated with a streamlined process are usually not quantified.

- **Training**

Each Department is responsible for its own technical training. The Employee and Public Services group schedules training courses, but the courses are not described in enough detail for employees to know if it is appropriate for them, or if it is already something they know. Most employees rely on people they know and senior department IT Managers or support technicians to help them understand how to use the system.

## Conclusions: Other Reviewed Areas

The following chart is based on actual targets provided by ISD:

Measurement	2002-2003 Estimate	2003-2004 Target	2004-2005 Target
% Projects <b>not</b> meeting primary goals	32%	30%	25%
% Projects <b>not</b> completed on time	50%	30%	30%
% Projects <b>not</b> completed within budget	50%	30%	30%
% Customer survey responses with <b>less than satisfactory</b> ratings	30%	20%	20%

No quality business would accept a target for performance that allows projects to overrun budget and miss due dates 30% of the time, and expect customers not to be satisfied 20% of the time. Setting goals with less than satisfactory targets gives the impression ISD is not concerned about the quality or timeliness of its work. The fact that ISD cannot meet a quality target should not excuse setting an unacceptable level of performance as a goal. If employees know that they are expected to fail one-third of the time and still be considered satisfactory, there is no incentive to improve. If employees believe it is acceptable to ignore customer satisfaction 20% of the time, then customers will continue to avoid ISD and seek alternatives. Customer expectations should drive performance measures, and targets should reflect the expectations of a customer.

The key to meaningful consolidated measurement reporting is a clear linkage between the “overall” results and the subordinate ones. Without an understanding of how the underlying measures contribute to the consolidated measurement, there is no understanding of how to improve the number.

Managing project changes, and the consequences of those changes, is a vital project management discipline, and is an important aspect for ISD, vendors, and the user departments to jointly manage. There doesn't seem to be a documented change management process in place that includes customer participation. The real goal is to manage a project in a quality manner, in the least amount of time, and at the least cost. Measurements should be in place that support those goals.

By measuring areas over which ISD has no control, it places itself in a role of policing how well Department IT groups manage their local hardware and software. This can develop resentment by the Departments.

ISD labor fees trend upward. This is hard to justify to a client Department when prices in the marketplace are going down. ISD becomes a revenue seeking entity to stay in business.

The Department complaints regarding the level of fees charged by ISD seem further fueled by the level of ISD Reserves, at 45% of Net Appropriations, which exceeds the two percent County Reserves Policy.

The current ISD charge back system allows no leverage for the buyer of services in the event that ISD fails to deliver a timely quality product. If ISD fails, it still gets paid, which is not the case when contracting an outside vendor. It is difficult to maintain a vendor/client relationship when the clients must pay for the service regardless of quality and timeliness of delivery.

- **Workflow Analysis**

Business evaluation teams that analyze how to automate a function or improve a business process with technology overlook the value of quantifying savings of manpower or process time as part of the justification for a project. While the result may not be staff reduction, it certainly frees staff for redeployment to other projects.

- **Training**

Most systems training is on-the-job, leaving users with a lack of comprehensive understanding of the full capability of the system being used.

## **Recommendations: Other Reviewed Areas**

### *The Board of Supervisors should require:*

- 5.1 The Information Systems Department and Information Technology staffs providing Help Desk service to include in measurements of the quality of service provided, speed of access to a “live” contact, and speed of restoration of service.
- 5.2 The Information Systems Department to stop setting goals for less than satisfactory performance as perceived by customers, and require additional supporting measures of improvement to indicate percent improvement over time. These same measures should be implemented to measure vendor performance when the Information Systems Department no longer provides development services.
- 5.3 The Information Systems Department with the Information Systems Steering Board and Communities of Interest to document a change management process that tracks the impacts on the project’s scope, time, and cost measured by whom they are initiated (Information Systems Department, vendor, or Client Department). Measurement of the overall success of a project should include the impact of negotiated changes.
- 5.4 All Department leaders involved with Community of Interest projects affecting multiple Departments to establish joint goal setting with all participants. Together they should determine business process impacts to be measured and assume joint accountability to attain them. All project teams should measure the success of a project from the using customer’s perspective.
- 5.5 The County Manager and the Information Systems Department to restructure the Information Systems Department Information and Technology Services Availability measurement so that the Information Systems Department measures and reports



only on the components for which it is accountable and does not report on component availability and functionality that it does not manage or operate.

- 5.6 All Department Heads with Information Technology staffs to measure performance and systems availability in areas over which they have control. Each Information Technology group should develop and track its own availability measures, providing action plans for areas not meeting expectations.
- 5.7 The Information Systems Department and the Departments to track the availability of each of the systems within their management control against the scheduled hours of operations for each.
- 5.8 That with the restructure of Information Systems Department and removal of responsibility for development and project management, the Information Systems Department should charge rates for its remaining services, vendor evaluation, and assessment of emerging technology under agreement and close scrutiny by the Information Systems Steering Board.
- 5.9 The Information Systems Department to immediately develop an action plan to meet its goal to implement an in-house Information Technology Technician development program, offering advanced training and skills to departments with internal support staff to better maintain the departmental Information Technology environments.

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## ATTACHMENT A

# OVERVIEW OF THE COLLABORATIVE IT GOVERNANCE MODEL AS IMPLEMENTED IN NEVADA COUNTY, CALIFORNIA

The IT governance model used by Clark County, Nevada and Nevada County, California has received considerable attention and is viewed in technical journals as the most progressive in the field of government technology. This governance model is based on the principle of user or citizen centric solutions, placing the IT decision-making process in the hands of business leaders. With this IT governance model, Nevada County accomplished twice the projects expected in the last four years. The Chief Information Officer of Nevada County stated, “What plagues most IT shops and Chief Information Officers is the endless politics and relationship problems. In addition they must constantly ‘beg’ for funding from all the players to fund a project that crosses multiple departments. When I talk to my peers [other county Chief Information Officers], they spend 90% of their time in these activities, 10% on strategic planning and leadership. I am the opposite and spend 90% of my time on strategic planning, leadership, capacity building, and support to my staff.”

Nevada County’s IT governance model has a three-tier structure with the ISSB occupying the highest level. This body is responsible for the establishment and oversight of overall information technology investment program, and is chaired by the Chief Administration Officer or County Manager. Other members are the Chief Information Officer and the chairpersons of each COI (often the county department heads). This board has complete control over determining whether new systems are consistent with the county’s vision and whether they can be adequately supported. Nevada County’s business managers (department heads) have control over the direction of applications and technology in their departments, determine standards for the county, and share technical resources and information. With this governance model ISD no longer does any design and development work itself, but it is essential for the Chief Information Officer to focus on core strategic and tactical issues with the ISSB, spending most of the time meeting with department heads, understanding their business issues and bringing them together in communities of interest. The Chief Information Officer becomes a facilitator rather than a consultant. This allows common threads assists the departments if necessary in identifying the best vendor for a project.

The second tier is made up of seven communities of interest, each a virtual organization of departments that have common core processes and IT concerns. Many departments seek to participate in more than one COI. The COIs review, prioritize, fund and monitor all IT capital projects with the purpose of ensuring the IT investments fit as closely as possible within the mission and strategic plan of the organization. In COI meetings, executives talk and listen to each other about similar issues, problems, needs, resources and shared clients. The purpose of the discussions is to attack duplication of resources and efforts, in the interest of better serving the citizens and stretching the county dollar. Department heads and elected officials work together toward common IT goals, sharing information and collaborating.

The third tier consists of business-solution teams – ad hoc groups of technical and management staff formed by the ISSB or a COI to address specific technical needs. A

business-solution team provides functional oversight to projects. Projects are documented in specific steps, schedules are approved, resources are allocated, and problems encountered while that project is being realized are tracked and corrected.

This tiered management structure makes that run across departmental lines and service offerings to be identified. The departments making up each COI oversee the employees and problems associated with projects. The technical project teams are department technology staff members, vendors, and if a network or infrastructure issue, ISD staff members.

Business lines (Departments) are grouped together in like activities. The concept is that in the pursuit of like activities, they need to share data, business processes, and resources. Alignment on IT projects is established for a Community. The Community is responsible for pooling resources and identifying the funding for the projects. They work out the details of who is contributing how much to the project. The ISSB, which is made up of the chair of each COI, the Chief Information Officer, and the Department Heads or their representatives, is responsible for achieving enterprise organizational alignment. The ISSB makes sure that each project fits into the long-term strategic objectives. The ISSB also looks to see if the project affects other COI's and will direct them to collaborate if needed. The ISSB also controls the allocation of funds from the county's enterprise technology fund.

This model is successful in the small California county of Nevada as well as in the very large Clark County in Nevada with explosive growth. The main lesson learned from Clark County was to closely tie IT governance with IT funding. They have to be joined in order for the IT governance to work. The following is a simplified outline of the top down alignment from the Board of Supervisor's annual goals to funding a department's individual IT project in this IT governance model:

1. Board of Supervisors publishes annual goals to kick off annual budget process.
2. Departments publish annual budget goals to deliver on Board goals.
3. Departments identify IT projects required to deliver on department goals.
4. COI's prioritize projects for their member departments.
5. ISSB prioritizes all COI projects based on enterprise perspective.
6. COI's identify and secure funding sources for projects.
7. Departmental budgets are submitted and approved by Board of Supervisors. Budget contains IT projects funds.
8. ISSB authorizes COI to move forward with project and spend funds.
9. COI authorizes department to move forward with project and provides project oversight.
10. Departments move forward with projects that are funded. (Final contracts and purchases are taken to the Board for approval at this step.)

While there are some exceptions, such as enterprise funded projects and grants, this is the basic process. It insures that projects going before the Board of Supervisors for funding approval (step 10) have first been completely vetted through the process with

organizational agreements made and funding secured. An overview of the budget process is presented as Attachment B.

## ATTACHMENT B

### **OVERVIEW OF COLLABORATIVE IT GOVERNANCE MODEL BUDGET PROCESS IN NEVADA COUNTY, CALIFORNIA**

There is a five-year IT enterprise strategic plan. In it, the COI's outline the projects that they want/need to implement over that five year period. These are evaluated and ranked at the COI level, number 1 being the most important project for the COI as a "community." Thus, if they could only fund one project, this would be it.

The ISSB then takes the projects from each COI, evaluates and ranks them from the full enterprise perspective. This is published in the strategic plan. The strategic plan is updated every two years and the process is repeated.

Annually before department budgets are prepared, the COI's create a work list of projects for all their member departments from the "five-year list" that they want to accomplish this budget year. Exceptions do occur when unplanned needs arise. These projects are simply added to the COI's list. The COI Chairpersons bring the project work list to the ISSB's meeting for endorsement. The ISSB reviews each project and either endorses the project or does not. The approved list is given to the County Manager.

As departments prepare their budgets for the next fiscal year, they build in their IT project component. During the county's budget subcommittee review process, the committee and County Manager check to see if the department's IT projects included in the budget submission have been endorsed by the ISSB. If it has not, the project does not get any funding approved in the budget. Many departments have fund balances or get grants to fund IT projects. The same process applies in these cases as well. However, they are reviewed before they are submitted on the Board's agenda instead of at budget subcommittee. If the projects don't have ISSB approval, they don't go before the Board for approval.

While an elected official could demand to take an item to the Board of Supervisors, this has never happened, or even come close in either Nevada County or Clark County. Smaller IT purchases and state mandated systems are not required to go through the IT governance model. However, they still must get ISSB approval before they go to the Board for final funding authorization.

(Please refer to the flowchart on the next page.)

# Nevada County IT Capital Investment Funding Model

IT Strategic Plan, page 17



## 10. Department Project Funded

Department spends funds from their budget as allocated/approved.

COI authorizes department to proceed with projects, spend funds.  
COI provides project oversight and reporting back to ISSB



## 9. COI Authorized Funds



ISSB authorizes COI to proceed with project, spend funds

## 8. ISSB Authorized Funds

Departments submit supplemental budget request based on ISSB/COI project outcomes

## 7. Budget Approved by BOS

BOS approves departmental budget requests.



## 1. BOS Goals

BOS sets County-wide goals



## 2. Department Goals

Goals set to deliver BOS Goals



## 3. Departments' IT Projects

IT projects submitted to COI, needed to deliver/deem departmental goals



## 4. COI Priorities

COI rates and prioritizes dept. projects based on COI community needs/criteria



## 5. ISSB Priorities

ISSB rates and prioritizes all COI projects based on countywide enterprise needs/criteria

Department (s) and COI identify and secure projects funding source.

All related/tangent cost must be identified and funded

Projects selected to fund determined through steps 4 and 5.

## 6. Funding Source Secured



## ATTACHMENT C

### GLOSSARY OF ACRONYMS

<b>ACRONYM</b>	<b>DEFINITION</b>
ACR	Assessor-County Clerk-Recorder
AWS	Automated Warrant System
BOS	Board of Supervisors
CalWIN	California Welfare Information Network
CIO	Chief Information Officer
CJIS	Criminal Justice Information System
COI	Community of Interest
DA	District Attorney
ECM	Enterprise Content Management
EDMS	Electronic Document Management System
FY	Fiscal Year
GIS	Geographic Information System
HSA	Human Services Agency
IBM	International Business Machines
IFAS	Integrated Financial and Administrative Solution
ISD	Information Services Department
ISSB	Information Services Steering Board
IT	Information Technology
PC	Personal Computer
SNA	Server Network Architecture
SONET	Synchronous Optical Network
TSM	Tivoli Storage Manager
VPN	Virtual Private Network
WCDS	Welfare Case Data System

## ATTACHMENT D

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