

Final Report

Performance Audit of CEO/Office of Information Technology

**TASKS III-V REPORT:
Review of CEO/IT Operational Readiness, Performance Measurement,
and Communications**



June 9, 2010

Office of the
Performance Audit Director

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Executive Summary

Introduction

On June 2, 2009, the Board of Supervisors (Board) approved the scope of work for the Performance Audit of the County Executive Office/Office of Information Technology (CEO/IT). To successfully manage the audit and ensure more frequent receipt of information, the Board divided the audit into five tasks:

Task I:	Document and Verify Current IT Resource Allocations
Task II:	Review CEO/IT Proposed Business Model (IT Strategic Plan)
Task III:	Review CEO/IT Operational Readiness
Task IV:	Review CEO/IT Performance Measurement
Task V:	Evaluate CEO/IT Communications

The Task I and II reports have been completed by the Office of the Performance Audit Director (Office) and submitted via the public agenda to the Board. This report combines Tasks III – V into one final document.

Preface

Over the past nine months, the Office and its IT consultant (AEF Systems Consulting, Inc.) have comprehensively examined the operations and activities of CEO/IT. In our first report (Task I), the primary conclusion of the audit was that IT at the County of Orange is a significant budgetary expense (including considerable sole source contracts) that requires increased scrutiny and a more robust framework for tracking and reporting costs. In our second report (Task II), the primary conclusion was that the IT Strategic Plan developed by CEO/IT for the County of Orange does not achieve its intended purpose of serving as an actionable roadmap for Countywide IT operations and investments over the next five years.

In this report (Tasks III – V), there are two primary conclusions:

1. The IT infrastructure services that are most valued by agencies/departments (e.g., network, security, telephone) are generally well provided by CEO/IT. This is quite an accomplishment in an organization with the size and complexity of Orange County, and it is a testament to the skill and work ethic of many CEO/IT employees.

2. There remain, however, many critical opportunities for improvement within CEO/IT. Given the scale of these challenges, meaningful progress cannot be made without a strong commitment from CEO/IT leadership to adjust its approaches to Countywide IT strategic planning, IT project/portfolio management, performance measurement, and external/internal communications.

These conclusions are based on the audit team’s comprehensive review of CEO/IT documents, financial information, research of industry best practices, a customer survey of agency/department executives and IT managers, and a body of consistent testimonial evidence from 83 interviews with agency/department executives, agency/department IT managers, Board of Supervisors’ staff, and CEO/IT and CEO staff at all levels of the organization. As such, this audit report is a compilation of direct observations, factual documentation, and informed opinions of the County’s business and IT technical leaders (both within CEO/IT and agencies/departments) about the management and performance of CEO/IT.

Background

A consideration of past events is vital to understanding the present condition of CEO/IT. In many ways, the current County IT environment has evolved as a reaction to the actions of the previous County Information Officer (CIO), as confirmed during numerous interviews with County executives. The previous CIO attempted, against the collective desire of agencies/departments, to further centralize control of Countywide IT operations under CEO/IT. As a result of this approach and other issues, a change in leadership was made. Thus, at the time the current CIO was hired in February 2006, the majority of agencies/departments made it clear that they preferred the continuation of a decentralized County IT system. In response, the CIO has maintained a decentralized system and revamped the Countywide IT Governance structure in an effort to increase agency/department participation. The success of these endeavors and other operational aspects of CEO/IT are addressed within this audit report.

Summary Findings

CEO/IT Strengths:

Overall, in light of CEO/IT’s commitment to retain a largely decentralized IT model (i.e., Federated model), many agencies/departments view the current CEO/IT organization as

an improvement over the past. A sample of specific positive features of CEO/IT that were identified throughout the course of this audit is listed below:

Strengths

- ☑ Several IT staff and managers within CEO/IT (including its contractors) have earned praiseworthy reputations for their responsiveness to customer issues and for their work to improve technical operations.
- ☑ Many technical CEO/IT staff members (primarily contract employees) have worked in the County's IT environment for many years. These individuals understand the history and intricacies of County IT systems and have stable working relationships with agency/department IT staff.
- ☑ Data Center operations have enabled the County to provide a well-functioning IT infrastructure. Specific examples of accomplishments include: the implementation of a rigorous planning process for infrastructure-related projects, the enhancement of data storage capacity, and the upgrade and further securing of the Wide Area Network. (pages 37-39)
- ☑ CEO/IT has established an IT Project Review Board which includes CEO/IT, CEO/Budget, and agency/department IT managers that reviews annual budget requests for IT projects costing more than \$150K. (page 24)
- ☑ CEO/IT has coordinated the provision of IT Project Management training for hundreds of County IT professionals. (pages 25)
- ☑ The billing of agencies/departments for services provided by CEO/IT has improved over the past few years, with greater detail available and more precise tracking of services rendered. (page 50)

Areas for CEO/IT Improvement:

Notwithstanding these accomplishments, CEO/IT customers and stakeholders (County agencies/departments, Board of Supervisors) have several significant concerns. All of these issues have been thoroughly validated by interviews, survey responses, and the audit team's research of internal operations. The following bullet points represent the most significant improvement opportunities identified, though there are many others contained in the body of this report.

Areas for Improvement

- ☑ Long-standing strategic deficiencies have not been sufficiently addressed by CEO/IT, the more significant of which include: clarifying CEO/IT roles and responsibilities relative to agency/department IT operations, understanding agency/department business and technology issues, and oversight of Countywide IT spending. (pages 8-11, 16-18)
- ☑ CEO/IT has not prioritized its spending based on customer values/needs. CEO/IT has spent millions of dollars (\$1.1M of ISF 289 Retained Earnings in FY 08/09; \$1.3M projected in FY 09/10 and \$1.4M projected in FY 10/11) of agency/department money to pursue projects that agencies/departments view as lower priority (e.g., eGov, Single Sign-On) at the expense of core infrastructure needs and services (e.g., network security, telephone services), which agencies/departments view as higher priority. (pages 44-45, 52)
- ☑ There are problematic levels of disclosure in how CEO/IT allocates, spends and reports spending in Internal Service Fund (ISF) 289 and General Fund Agency 038 (Data Systems Development Projects). This includes: (1) funding the operations and maintenance of non-infrastructure initiatives and projects out of ISF 289 Retained Earnings without informing agencies/departments, (2) including cost elements in the administrative overhead of ISF 289 without adequately informing agencies/departments (e.g., Clarity project, the FY 10/11 proposed movement of the CEO/IT Project Management Office from Agency 017 to ISF 289), and (3) reallocating money between IT projects without notifying the Board. (pages 43-46, 50-55)
- ☑ CEO/IT has established an unworkable number (14) of discrete, specialized organizational units based upon the inappropriate application of the “Centers of Excellence” concept. This has resulted in staff confusion over responsibilities, set unreasonable expectations for attaining operational excellence in all 14 organizational units and made it difficult to accomplish organizational goals and objectives. (pages 11-14)
- ☑ Many high-profile CEO/IT-driven projects have faced implementation challenges due to a variety of issues. Examples include: eGovernment (\$5.8M), Clarity (\$643K), OCid (\$286K), and 3-1-1 Customer Service Center (\$450K). Furthermore, CEO/IT did not first establish adequate management processes to prepare its organization to take on these and other initiatives. (pages 26-34)

- ☑ The IT Governance structure was established for the purpose of ensuring agency/department participation in important funding decisions and Countywide IT initiatives/projects. However, the governance system as a whole is struggling due to (1) CEO/IT's decision to wholly or partially bypass the Governance structure on several important IT issues and funding decisions (e.g., initial Sourcing efforts, use of ISF 289 money), (2) an infrequent meeting schedule for County executives, (3) inconsistent attendance, (4) an inefficient number of groups (which includes separate governance structures for some major IT initiatives/projects), and (5) a confusing line of authority and flow of information up the decision making chain. (pages 18-21)
- ☑ Verbal communications from CEO/IT to the Board tend to be unnecessarily technical, heavy on jargon, and unsuccessful in informing the audience. In addition, several forms of written communication (e.g., Agenda Staff Reports, IT Quarterly Reports, memoranda) have failed to provide sufficient and/or accurate information to allow the Board to make informed decisions. (pages 66-71)
- ☑ Based on multiple interviews and observations, there are several opportunities to improve internal communications within CEO/IT. A prime example is the CIO's decision not to provide the County Technology Officer (one of his two direct reports) with a copy of the preliminary draft of this audit report for review prior to the factual review meeting. Another example cited by many CEO/IT staff is their reluctance to offer differing viewpoints from those of the CIO. (pages 71-73)
- ☑ As the central organization for Countywide IT efforts, CEO/IT should be establishing performance measurement standards, templates, and targets for agencies/departments and gathering data on the performance of Countywide IT; to date, CEO/IT has not made substantive progress in this area. (pages 56-57)
- ☑ CEO/IT does not have sufficient metrics in place to measure its own performance in many areas. For example, CEO/IT does not measure IT project performance beyond schedule and budget metrics, and there is minimal or no tracking of actual staff resource hours against planned allocations. (pages 48-49, 58-61)
- ☑ CEO/IT and its primary contractor (ACS) have not conducted ACS performance surveys as required by the contract since FY 06/07. Consequently, for over two years, ACS went without a performance incentive bonus/penalty; CEO/IT went without a quantitative measure of its primary contractor's performance; and the Board of Supervisors has been without a formal performance assessment of the County's largest IT contractor. (pages 63-65)

Collectively, the aforementioned deficiencies have had a significant negative impact on the management of a major County cost center. Positive progress in addressing these deficiencies can only be achieved if there is a clear acknowledgement of their existence on the part of the CEO and CEO/IT leadership.

Summary Recommendations

The audit team has provided the following key recommendations to address Tasks III – V findings.

1. Establish specific roles and responsibilities for CEO/IT vis-à-vis agencies/departments; begin by confirming Board and agency/department expectations. It would be most efficient for CEO/IT to resolve this issue prior to the release of the IT Sourcing RFP (Note: this was also a recommendation in the Task II audit report).
2. Streamline the existing organizational structure, and identify a small number of topical (not organizational) areas that can be developed as “Centers of Excellence” (e.g. Project Management).
3. Simplify the IT Governance structure by consolidating groups, ensuring that Countywide IT issues/initiatives/projects (and the associated business case analyses) are thoroughly vetted, understood, and have broad stakeholder buy-in before they are implemented.
4. Focus CEO/IT resources on core, mission-critical infrastructure services for agency/department customers before pursuing other less essential initiatives.
5. Develop a policy for the use of ISF 289 Retained Earnings; include, as a requirement, the disclosure to and approval of a majority of agencies/departments leadership via the IT Governance structure.
6. Improve the planning stages for IT projects by ensuring that all proposed solutions undergo a rigorous business case analysis, which includes a discussion of how the solution addresses a compelling and necessary agency/department business need and establishes clear project outcomes.
7. Develop meaningful key performance metrics and reporting mechanisms that track and evaluate important decision-making information to the Board, the public, and County executives.

8. Improve communications with the Board of Supervisors and agencies/departments by ensuring that all documents/presentations are complete, accurate, timely, and clearly articulated for a non-technical audience. In addition, all stakeholders need to be brought into the discussion as early as possible for IT projects/initiatives that have significant operational and cost implications.

The audit team would like to thank County agency/department staff for their cooperation and candor during this performance audit. We would also like to express our appreciation to CEO/IT staff members who spent many hours collecting information and documentation to assist in the successful completion of this lengthy audit.

Introduction

Board Chair Bates and Vice-Chair Nguyen, in response to the Board of Supervisors' (Board) postponement of the approval of the Countywide Information Technology Strategic Plan in March 2009, requested that the Office of the Performance Audit Director (Office) audit the efforts and activities of the County Executive Office/Office of Information Technology (CEO/IT) and the former Information Technology Working Group. On June 2, 2009, the Board approved the scope of work for the Performance Audit of CEO/IT.

The specific goals of the Performance Audit are to:

1. Ensure that a major Countywide expense category (i.e., information technology) is efficiently and effectively managed, especially in the current fiscal climate.
2. Ensure that CEO/IT has an information technology business model that provides clarity to the Board and agencies/departments in long term information technology planning efforts and in daily information technology decision making. Identify successful governmental information technology business models and practices. Clearly define the areas of responsibility and authority assigned to CEO/IT.
3. Identify opportunities to improve CEO/IT's management of information technology operations and projects.
4. Provide recommendations to improve CEO/IT communication to the Board, County agencies/departments, and the public.

In order to effectively manage the significant scope of work for this performance audit, the Board approved the following phased approach:

- Task I: Document and Verify Current IT Resource Allocations
- Task II: Review CEO/IT Proposed Business Model (IT Strategic Plan)
- Task III: Review CEO/IT Operational Readiness
- Task IV: Review CEO/IT Performance Measurement
- Task V: Evaluate CEO/IT Communications

Given the operational overlap between several of the topics covered in Tasks III – V, the audit team chose to combine these final three Tasks into one report.

Scope and Objectives

This report addresses the following activities and questions, as approved by the Board of Supervisors:

Task III: Review CEO/IT Operational Readiness

- Does the current CEO/IT organizational structure support or detract from accomplishing the Information Technology Strategic Plan and Countywide mission and goals?
- Are established CEO/IT processes and procedures and CEO/IT's staff knowledge of agency/department business processes adequate to: (1) influence or control agency/department information technology expenditures, (2) assist with project management and implementation, and (3) ensure that project reviews are done in a timely manner?
- Is there a formal process in place for assessing risk on a project-by-project basis?

Task IV: Review of CEO/IT Performance Measurement

- Are there sufficient metrics and monitoring procedures in place to track actual versus expected performance of CEO/IT contributing to: (1) Countywide information technology productivity, (2) efficiency of agency/department operations, and (3) effectiveness of agency/department operations?
- Is there an effective process in place for post-implementation reviews to: (1) validate expected costs and benefits of information technology projects and (2) document and disseminate lessons learned?
- Is there an effective process in place to assess the practices and procedures used by CEO/IT to monitor and report on contractor performance (e.g., ACS)?
- Does CEO/IT have a process for continual benchmarking against organizations in the public and private sectors with respect to cost, speed, productivity, and quality of outputs/outcomes?
- What is the role and performance history of CEO/IT in large information technology projects with Countywide implications (e.g., CAPS+, ATS)?

- ❑ What is CEO/IT's process for determining the need for sole source contracts/agreements vs. competitively bid services?
- ❑ Does CEO/IT have a process that involves the County Financial Officer, or other corporate official, to develop and maintain full and accurate accounting of information technology-related expenditures and results?

Task V: Evaluate CEO/IT Communications

- ❑ Review all processes for communicating the information listed above to the Board, County agencies/departments, and the public.
- ❑ Does CEO/IT have a separate annual report that describes progress in achieving its goals? If so, does it provide the depth of information preferred by the Board?

Audit Methodology

This audit report is organized around the Tasks III – V subject matter areas: CEO/IT Operational Readiness, CEO/IT Performance Measurement, and CEO/IT Communications. Each subject area is further parsed in order to answer the aforementioned questions posed by the Board of Supervisors.

The audit team, with the assistance of its IT consultant, AEF Systems Consulting, Inc., performed the following audit activities:

1. Revisited the working documents of the Task I and II performance audit reports (e.g., financial and staffing data sets, Countywide IT Strategic Plan).
2. Conducted comprehensive IT research, including but not limited to, organizational structure, performance metrics, management processes, project management, and industry best practices. (see Appendix E)
3. Distributed an online Customer Survey to County agency/department executives and IT managers to measure the quality of CEO/IT performance in Task III – V areas. (see Appendix A)

4. Interviewed CEO/IT management staff, the County Executive Officer and Chief Information Officer, staff from each Board of Supervisors Office, former CEO/IT management employees, and executive and IT staff from 22 County agencies/departments. In total, 83 interviews were conducted.
5. Conducted detailed review of CEO/IT documents including: Operating Plan, project planning documents, project management methodology, consultant/vendor contracts, policies and procedures, IT Governance charters and minutes, strategic planning documents, Resource Plans, internal CEO/IT analyses and consultant reports, annual budget and actual expense data, and IT Agenda Staff Reports.

Background Information

Technology and the business of local government are inseparable. At the County of Orange, in order to meet the public service requirements of its 3.1 million citizens, every agency/department utilizes technological resources during the course of its day-to-day operations. To illustrate, consider these examples:

- The Social Services Agency, Probation Department, District Attorney, Health Care Agency, and Sheriff-Coroner Department all have electronic case management files.
- The Assessor's Department stores its property value assessment and subsequent property tax billing information electronically.
- The County Clerk records the exchange of real property in the County and maintains vital personal information such as birth, marriage, and death records electronically.
- The Orange County Waste & Recycling department tracks every ton of trash disposed in the County's landfills electronically.
- The Orange County Library system maintains and provides its citizens an electronic catalogue of media and resources.
- The OC Public Works Department electronically tracks road conditions and traffic signal operations for 321 miles of Orange County's roadways.

- The Auditor-Controller electronically records information pertaining to the receipt and dispersal of monies.
- The Clerk of the Board of Supervisors electronically prepares the Board’s public agenda and maintains a historical record of all Board decisions.
- The Registrar of Voters electronically records, processes, and presents the results of the votes cast by Orange County citizens during elections.

To understand the current IT environment at the County of Orange, it is vital to first consider past technology and leadership events.

In the 1990s, IT systems environments transitioned from centralized mainframe computing to dispersed client servers and open systems. As a result, most County agencies/departments became increasingly autonomous, gaining control over their own local area networks, help desk operations, and server maintenance staff. For some common Enterprise (Countywide) IT functions, however, it continued to make sense to provide some services via the County’s central IT organization (CEO/IT) – services such as a wide-area network, the management of the remaining mainframe computers and servers, and the provision of first-line network security for the County. In addition, CEO/IT also continues to provide services to smaller agencies/departments that do not have their own IT operations. This balance of centralization/decentralization at the County of Orange is referred to as a “Federated model.” Though there are inherent economic inefficiencies from decentralizing IT operations, from an operational perspective, the ability for agencies/departments to control their own resources and maintain closer linkages between business needs and technology decisions has sustained the County’s adherence to the Federated model.

Given the pervasive use and average annual cost (~\$150 million) of technology services in the sixth largest County in the United States, the Board has made the monitoring and evaluation of County IT operations a priority. Some of the actions taken by the Board to improve IT management at the County include:

- In June 2005, following the controversial purchase of a \$6 million computer mainframe and increased concerns from agencies/departments regarding the lack of transparency in IT service rates, the Board created the “Information Technology Working Group (ITWG),” as an oversight body. Two Board Offices were voting members of and actively participated in the ITWG for the past five years.

- The County Executive Office, in response to a Board request, instituted an IT quarterly reporting process (May 2005) and an IT cost study (November 2005) to provide the Board with additional insight into IT operations at the County.
- In March 2009, the Board postponed the approval of the IT Strategic Plan and subsequently authorized the Office to conduct a performance audit of CEO/IT activities and operations.

There have also been several changes in CEO/IT leadership, with four County Information Officers (CIOs) over the past ten years. At the time the current CIO was hired in February 2006, there were numerous identified concerns to be addressed¹:

- Unclear roles and responsibilities for CEO/IT vis-à-vis agencies/departments, as well as the lack of discussion regarding the appropriate balance between IT centralization/decentralization
- Poor communication between CEO/IT and agency/department IT operations and the resulting lack of trust
- Lack of billing transparency from CEO/IT to agencies/departments
- Lack of CEO/IT knowledge of agency/department IT operations
- Lack of sufficient planning for major IT initiatives
- Lack of active contract management for CEO/IT vendors

In many ways, the current County IT environment has evolved in reaction to these issues and the actions of the previous CIO, as confirmed during interviews with County executives. The previous CIO attempted, against the collective desire of agencies/departments, to further centralize control over Countywide IT operations under CEO/IT. As a result of this approach and other issues, a change in leadership was made. Thus, at the time the current CIO was hired, the majority of agencies/departments made it clear that they preferred the continuation of the decentralized County IT system. In response, the CIO has maintained a decentralized system and revamped the Countywide IT Governance structure in an effort to increase agency/department participation. The success of these endeavors and other operational aspects of CEO/IT are addressed within this audit report.

¹ Identified in CEO/IT strategic and organizational planning documents (2006) and numerous audit interviews

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Findings and Recommendations

Task III: Review CEO/IT Operational Readiness

The audit team's review of CEO/IT's operational readiness includes (A) an evaluation of its roles and responsibilities relative to those of agencies/departments, (B) the efficiency/effectiveness of CEO/IT's organizational structure, and (C) its formal management processes and procedures.

A. Roles and Responsibilities

The discussion of CEO/IT roles and responsibilities includes an examination of the Countywide IT system and CEO/IT's understanding of customer IT business needs and issues.

Decentralization and the Federated Model

As previously noted, the County of Orange manages its IT operations under a "Federated" model. In a Federated system, agencies/departments retain autonomy over program-specific IT processes, applications, and systems. CEO/IT's overall role in the current Orange County system is to provide leadership in Countywide strategic IT initiatives and shared IT services. This leadership should be provided in the context of a formal governance structure, which includes agencies/departments as participating stakeholders.

Finding 1: The specific roles and responsibilities of CEO/IT (e.g., IT oversight, performance management, identification of consolidation opportunities) vis-a-vis agency/department IT operations continue to be vaguely defined.

The lack of clearly defined roles and responsibilities for CEO/IT has been a source of concern for several years. The following examples illustrate this consistent challenge:

- An August 2005 report by CEO consultant, Performance Management Partners, stated that the role of CEO/IT in the evolving technology environment is a strategic issue that should be addressed.

- At a CEO/IT management offsite meeting in November 2005, the “lack of a clear definition of CEO/IT roles and responsibilities” was identified as a significant issue hampering Countywide IT operations.
- In a series of interviews with agencies/departments conducted by CEO/IT and its consultant between June and July 2006, one of the “Major Concerns with CEO/IT” was the need for better clarity regarding the role of CEO/IT.
- In October 2007, a consultant hired by CEO/IT conducted a series of interviews to analyze CEO/IT business processes. In these interviews, one of the “Top Agency Complaints” identified was a “Lack of understanding of CEO/IT role (perceived role not aligned with what the agencies need from CEO/IT).”

More recent assessments of this problem indicate that little or no progress has been made in rectifying this concern. For example:

- Clearly defined CEO/IT roles (e.g., IT oversight, performance management, identification of consolidation opportunities) vis-a-vis agencies/departments are not delineated in the Countywide IT Strategic Plan or the CEO/IT Operational Plan.
- In a majority of interviews with agency/department executives and IT managers (conducted as part of this Tasks III-V audit between February 2010 and April 2010), the lack of clearly defined roles between CEO/IT and agency/department IT staff was an issue that was consistently cited as problematic.
- Several members of the CEO/IT management team indicated that it is critical to resolve this long-standing issue, which has constrained progress in Countywide IT service delivery for many years.
- In the survey instrument utilized in the Task II audit report, when agency/department respondents were asked, “How would you rate the clarity of the [IT Strategic] Plan regarding the roles and responsibilities of CEO/IT compared to the IT functions of agencies/departments,” the average score was 2.7 out of 5, with 1 being ‘Very Unclear’ and 5 being ‘Very Clear.’ This Strategic Plan was created during 2007 and 2008.

Recommendation 1: Implement Task II audit report recommendation #5: “Working with County agencies/departments, define roles and responsibilities for CEO/IT and agency/department IT operations, seek approval of these roles from the Board of Supervisors, and clearly communicate these roles to all IT stakeholders.” It would be most efficient for CEO/IT to resolve this issue prior to the release of the IT Sourcing RFP.

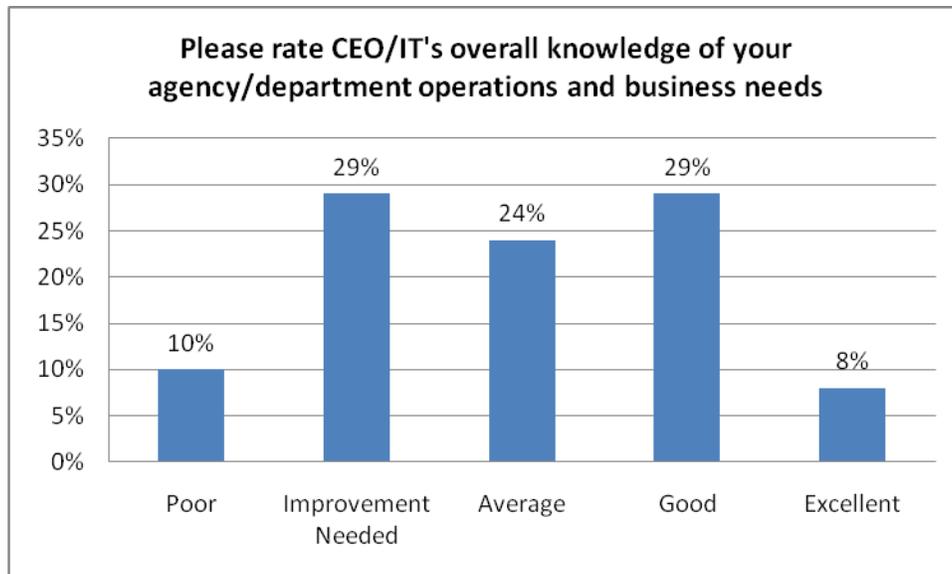
CEO/IT Knowledge of Agency/Department IT Operations

Before an organization defines its roles and responsibilities, it is important to first understand customer needs and issues. In CEO/IT’s case, its primary customers are agencies/departments.

Finding 2: CEO/IT’s knowledge of agencies’/departments’ IT business issues and activities continues to require improvement.

CEO/IT’s understanding of Countywide IT business activities is important for at least two reasons: (1) the Board expects CEO/IT to have specific knowledge of Countywide IT activities so it can provide expert advice on Agenda Staff Report items and annual budget requests, and (2) so that expensive Enterprise IT initiatives/projects pursued by CEO/IT are of practical value to agencies/departments.

Unfortunately, CEO/IT’s understanding of agency/department operations has been a long-standing concern. Some smaller agencies/departments do not view CEO/IT as understanding, or having the desire to understand, its business needs. This is in contrast to some agencies/departments with major IT initiatives, who generally perceive CEO/IT as having adequate knowledge of their business needs. The Customer Survey conducted as part of this audit confirms these average results, as shown on the following page.



At one point, CEO/IT designated a Customer Representative to focus on understanding each agency's/department's business and IT needs, but due to budget constraints, this position is no longer active.

Recommendation 2: As the County's central IT organization, CEO/IT should undertake a focused effort to (1) clarify that agencies/departments are CEO/IT's primary customers throughout its organizational documents, and (2) comprehensively identify and analyze agency/department business needs and IT operations.

B. Organizational Structure

Organizational structure is the division of staff into groups and reporting relationships for the purpose of effectively and efficiently accomplishing an entity's mission. The organizational structure should fit the task environment, which includes an organization's resources, goals and objectives, workloads, and constraints.

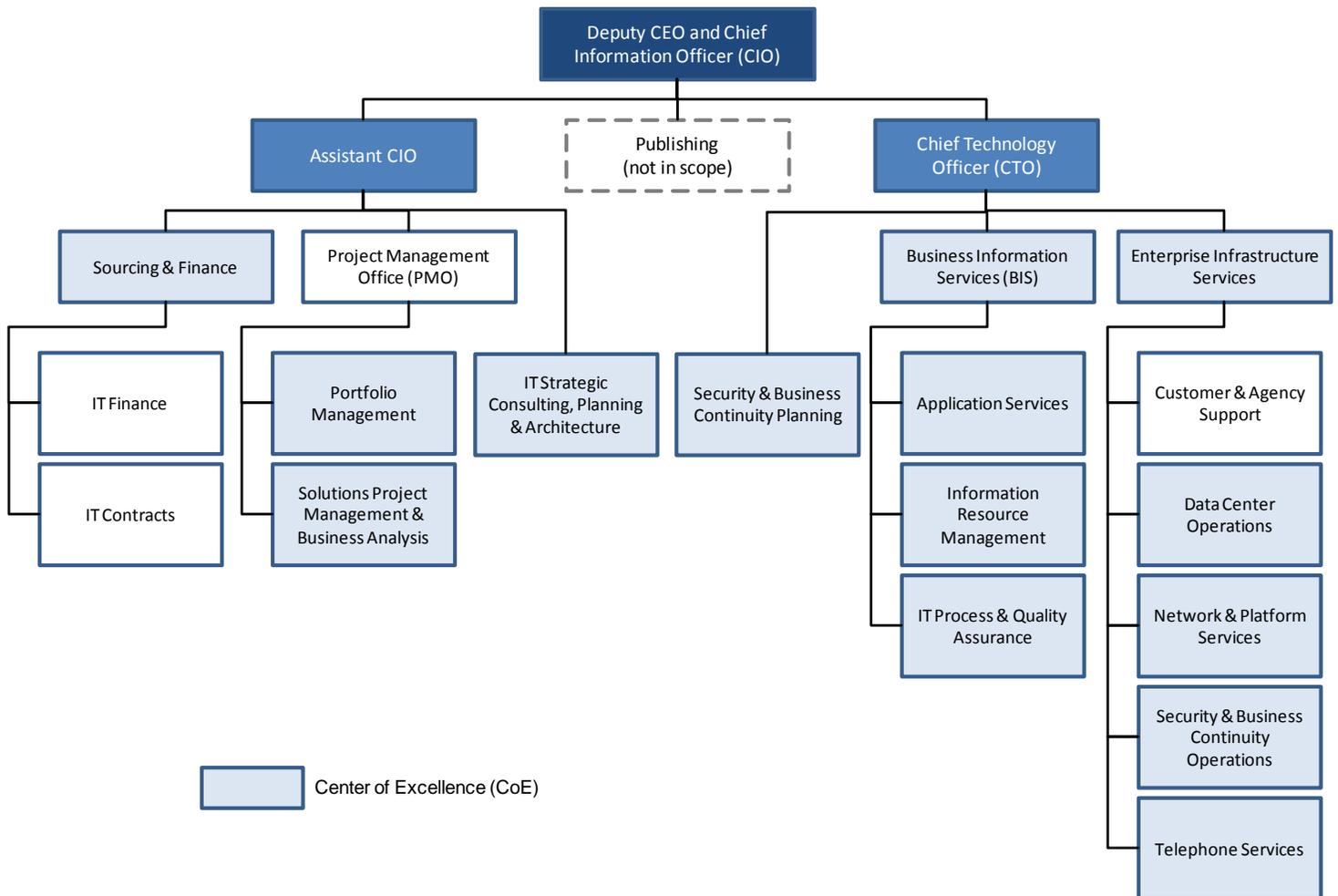
The core functions of IT departments are typically divided into two discrete sections which require different skill sets: Infrastructure and Applications.

- *Infrastructure* is the physical platform for electronic information handling— hardware, networks, and the “operating system” software that enables this equipment to perform elemental functions such as storing data, doing arithmetic, backing up files, etc. Infrastructure also includes general security mechanisms such as anti-virus and intrusion protection.

- *Applications* define the particular pieces of information to be created and used, and the particular forms, transactions, workflows, and business rules for processing that information. The application function also includes software tools for the general user (email, word processing, spreadsheets, etc.), as well as tools for programmers to develop custom applications to meet business requirements.

CEO/IT Structure

The organization structure for CEO/IT is depicted below.



The bulk of CEO/IT’s resources (both staffing and budget) are located in the Infrastructure functions managed by the Chief Technology Officer (CTO). These

functions are the core services for Countywide IT and they include the operations and maintenance of a mainframe, servers, a wide-area network, and a telephone system. Infrastructure activities are funded out of Internal Service Fund (ISF) 289.

The Application function is primarily the responsibility of County agencies/departments that use particular applications, although CEO/IT has taken on some projects that entail developing and maintaining applications with Countywide implications (e.g., eGov, OCid). Application project management and support services are dispersed among several sections of CEO/IT, with some applications project management staff reporting to the Project Management Office (PMO) Manager and some applications project management and support staff reporting to the CTO.

Arrangement of Organizational Units

Finding 3: CEO/IT has improperly used the “Centers of Excellence” (CoE) concept to establish an unworkable number (14) of discrete, specialized organizational units.

As identified on the organizational chart on the previous page, CEO/IT calls its key organizational units “Centers of Excellence” (CoE). A CoE is commonly defined as a cross-functional body that brings together a group of people to focus on a single process area, business activity, or capability². A CoE is typically an overlay to an organization which can be formal or informal, but should not be substituted for, or made synonymous with, organizational units, as CEO/IT has done. In CEO/IT’s case, they have identified 14 CoE which constitute its organizational structure. While the stated intent of this approach was to develop specialists in each of the 14 CoE, it has resulted in a fragmented organizational structure with several inefficiencies:

- For an organization the size of CEO/IT (200 FTEs and shrinking), developing 14 “Centers of Excellence” promotes an unrealistic goal that operational excellence can be developed in all 14 distinct areas, with its current staffing contingent.
- Planning and Security functions are dispersed among multiple organizational units. There are three separate organizational units for Planning activities: IT Strategic Consulting, Planning & Architecture; IT Process & Quality Assurance; and Strategic & Business Continuity. Likewise, there are two separate

² 8 *Reasons to Consider a Center of Excellence*, Digital Landfill, March 2010; *Establishing a Center of Excellence*; Jonathan G. Geiger; Information Management Magazine, August 2006.

organizational units for Security: Security & Business Continuity Planning and Security & Business Continuity Operations.

- Two CoE have no staff assigned to them (IT Strategic Consulting, Planning & Architecture and IT Process & Quality Assurance)
- CEO/IT has applied an inconsistent method for identifying CoE within its structure. For example, as shown in the organizational chart, some CoE are actually subcomponents of other broader CoE.
- In order to achieve coordination among 14 operational units, each composed of specialists, a greater number of staff must be involved to address issues or plan/execute projects. Agencies/departments have criticized this practice, stating: “When we call a meeting, ten CEO/IT staff members attend and we get charged for it.”

Recommendation 3: (a) Streamline the existing organizational structure, and (b) identify a small number of topical (not organizational) areas that can be developed as “Centers of Excellence” (e.g., Project Management, Vendor Management).

Finding 4: The individual fulfilling the role of Chief Information Security Officer (CISO) reports to the CIO for security-related activities and to the Chief Technology Officer (CTO) for technical project work; this situation has the potential for conflicts of interest.

An organization’s CISO is typically a senior level manager or executive responsible for establishing and maintaining the enterprise strategy to ensure information assets are adequately protected. The CISO (1) works with staff to identify, develop, and implement processes across the organization that reduce information technology (IT) risks, and (2) establishes appropriate standards and controls. The CISO is also typically responsible for security compliance. According to a 2009 Gartner research publication, the role of the CISO is becoming “increasingly more strategic, with relatively less day-to-day responsibility for operational tasks, and a commensurately larger responsibility for enterprise coordination of security management activities, and promulgation of the IT risk management agenda³.”

³ *Top-Five Issues and Research Agenda, 2009-2010: The Chief Information Security Officer*; Gartner; 26 March 2009.

Over the past decade, there has been much industry discussion regarding the appropriate organizational level/location of a CISO. The appropriate choice depends upon many factors such as an organization's size, level of external connectivity, the type of confidential information stored, and its dependence on information technology. Some experts believe that the CISO should be at the same level as the Chief Information Officer (CIO). In some organizations that have chosen this structure, CISO reporting varies from reporting directly to the CEO, the CFO, the Risk Management Office, or the Internal Audit Department.

At the County of Orange, from May 2009 to April 2010, the CTO had oversight over projects that were under the CISO; however, the CISO continued to report to the CIO in matters of information security. This dual reporting relationship has the potential to influence the CISO in security matters. In April 2010, CISO responsibilities transferred to the Enterprise Infrastructure Services Manager who, as of the writing of this report, also has a dual reporting relationship to both the CIO and the CTO.

Recommendation 4: The CISO should report exclusively to the CIO.

Organizational Change (Turnover and Growth)

Finding 5: Since the hiring of a new CIO in February 2006, the CEO/IT organization has undergone significant turnover, especially in the administrative management ranks.

The primary personnel statistics used to measure organizational turnover are separations (either voluntary or involuntary) and transfers out of CEO/IT into other agencies/departments. From December 1992 through February 2006 (a period of 13 years), CEO/IT experienced 81 separations or transfers, which averages out to approximately 0.5 such personnel actions per month. Of those 81 separations, 19 or 23% were in the administrative management ranks. From March 2006 through January 2010 (a period of almost four years), CEO/IT experienced 53 separations or transfers out of the department, which averages out to approximately 1.1 such personnel actions per month. Of the 53 separations or transfers out occurring during this period, 18 or 34% were in the administrative management ranks.

As noted in the Task I Audit Report, CEO/IT has also seen significant growth in the administrative management ranks. In FY 2005/06, there were 16 Executive or Administrative Manager (AM) positions throughout CEO/IT (8 AM I, 4 AM II, and 4

AM III or AM III Special), excluding the CIO. As of the writing of this report, there are 29 Executive or AM positions throughout CEO/IT (9 AM1, 11 AM2, 7AM3 or AM3 Special, and 2 Executives). Of these 29 positions, 22 of the individuals have been hired into or transferred into their position from elsewhere in the County since September 2006.

Recommendation 5: (a) Ensure formal knowledge transfer procedures are in place and followed for personnel separations/transfers, (b) Initiate a separation/transfer interview process for any future separations/transfers, to be conducted by the Human Resources Department, in order to capture any common challenges/issues, and (c) Ensure that agency/department customers are always formally notified of relevant staffing changes (both County and contractor) in a timely fashion.

C. Processes and Procedures

This section evaluates CEO/IT's formal processes and procedures for managing IT operations.

Management and Oversight of Countywide IT Activities

As the IT leader in the County, it is expected that CEO/IT has some degree of management and oversight of Countywide IT activities. The audit team evaluated CEO/IT's role as an IT leader in the following three areas:

- Control and Oversight of Countywide IT Expenditures
- IT Governance
- Countywide IT Strategic Planning

Control and Oversight of Countywide IT Expenditures

CEO/IT has budget authority over all projects funded out of Agency 038/Data Systems Development, which includes both agency/department and CEO/IT-driven projects. Though CEO/IT does not have formal authority to control spending on agency/department-funded projects, there is a Board expectation that CEO/IT provides oversight of Countywide IT expenditures.

Finding 6: CEO/IT exercises minimal oversight over agency/department IT spending.

CEO/IT currently oversees agency/department-funded IT project spending through two mechanisms, one formal and one informal. The first method is the formal review of agency/department IT projects estimated to cost more than \$150K. As part of the annual budget process, the IT Project Review Board (composed of two CEO/IT staff, the CEO Budget Director, and four agency/department IT managers) scores all agency/department IT projects that exceed the \$150K threshold that are included in the agency/department's budget for the upcoming fiscal year. The IT Project Review Board scores these projects according to a set of criteria, including risk, return on investment, and whether the project is mandated. While this process is formally conducted every year, the results do not directly impact funding for the project, as long as the agency/department intends to pay for the project out of their own budget. To date, these scoring results have not been formally reported to the Board of Supervisors or the public.

The second method of oversight exercised by CEO/IT over agency/department IT spending is via the submittal of agenda items for approval by the Board of Supervisors. The CIO and his staff review IT-related items that come before the Board, and their input contributes to the ultimate concurrence or non-concurrence by the CEO on the item. The CIO stated that his role in the review of all ASRs is as follows:

- Review all ASRs for IT implications
- Review all ASRs for impact and the possibility of leveraging the contract
- Provide feedback on ASRs that the CIO disagrees with, e.g., Sheriff's contract for platform support
- Look for opportunities to leverage master contracts, where possible
- The CIO does not look at ASRs from the perspective of "CEO/IT can provide it"

As illustrated by the statements above, the CIO's review is focused more on the contractual elements of ASR items and less on Countywide operational efficiency or efficacy of ASR items. As noted elsewhere in this report, this somewhat laissez-faire approach to agency/department IT spending oversight is driven by the CIO's interpretation of his role in a decentralized, Federated IT model. Multiple interviews confirm that this interpretation does not always match the Board's expectation for CEO/IT's level of review.

Overall, as mentioned in the audit's Task I report, CEO/IT should take a greater role in the tracking and reporting of Countywide IT expenditures on a regular basis.

Recommendation 6: (a) Formalize and seek Board support for CEO/IT’s role in the oversight of Countywide IT activities, which includes the important task of understanding and opining on agency/department IT spending prior to ASRs being heard by the Board, and (b) Report IT Project Review Board scoring to the Board of Supervisors as part of the annual budget process.

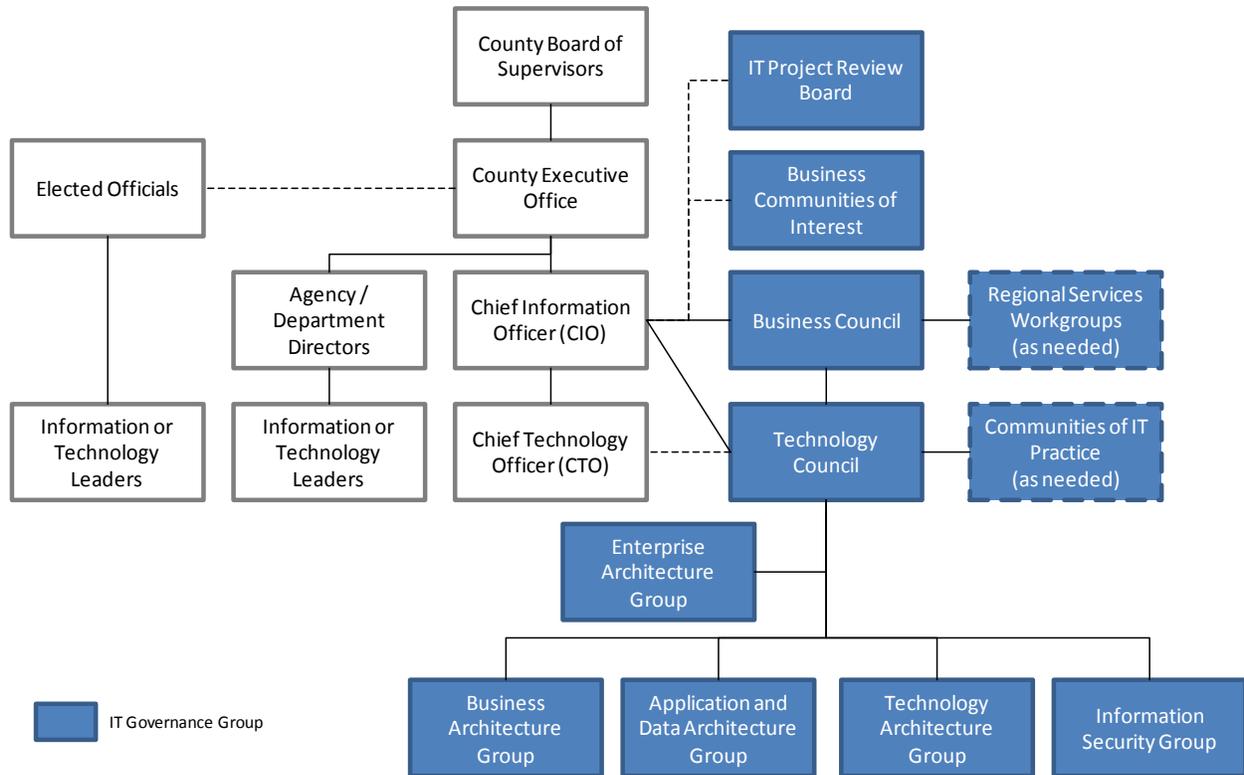
IT Governance

Most large local governments oversee their IT investments and initiatives through interdepartmental participation in “governance” committees. According to a relevant article from the *IT Governance Institute*, IT Governance should enable policymakers to:

- Allow the CIO and the IT organization to return business value
- Ensure that the CIO and IT organization does not squander the capital that [policymakers] provide or invest in bad projects
- Control the CIO and the IT organization

The County’s IT governance structure was established for the purpose of ensuring agencies/departments a formal mechanism to collaborate and jointly make decisions regarding Countywide IT issues. As depicted on the following page, governance groups consist of a number of different stakeholders. The Business Council is made up of Department Heads or their delegates; the Technology Council is made up of IT Managers from agencies/departments; and the Technical Groups (e.g., Technical Advisory Group, Security Working Group) consist of IT Managers and IT subject matter experts.

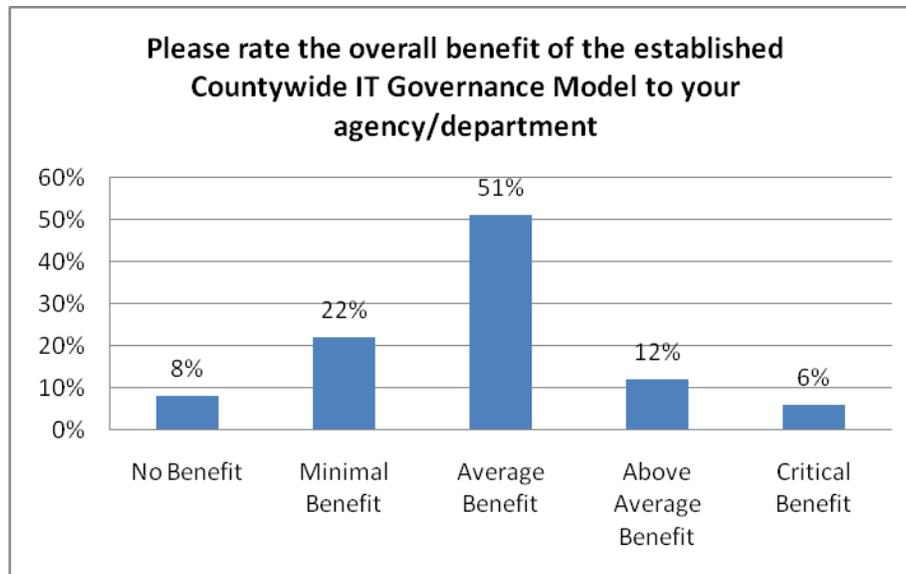
Countywide IT Governance Structure



Finding 7: The County’s IT Governance structure and practices require significant improvement.

The Customer Survey of agency/department executives and IT managers validates this finding. The chart on the following page shows that when asked to “rate the overall benefit of the established Countywide IT Governance Model to your agency/department,” results indicate a clear opportunity for improvement⁴. CEO/IT should be striving for the Governance Model to be of above average benefit to greater than 18% of agency/department stakeholders.

⁴ See Question #11 of the Customer Survey, Appendix A.



The IT Governance structure is not functioning effectively for a variety of reasons.

- First, the structure itself is inefficient. Several groups are composed of many of the same participants, indicating an opportunity for consolidation. In addition, some major IT initiatives/projects (e.g., IT Sourcing, eGov) have IT governance structures separate and apart from the Countywide IT governance structure.
- Second, recommendations from the Technology Council do not necessarily advance directly to the Business Council, but have, in some instances, funneled through the CIO's office. In a Federated IT system, the role of the CIO in an IT Governance structure should be as a facilitator, not a filter between Business leaders and IT leaders. The formal decisions and recommendations made by the Business Council should be reported to the CEO and, where appropriate, the Board of Supervisors.
- Third, the IT Business Council (a critical Governance group composed of department heads or their designees) has only met twice since it was created over two years ago. In the Factual Review for this audit, the CIO stated "in lieu of the Business Council, Agency Heads have been briefed either directly, or at Department Head meetings." This approach does not afford agency/department business leaders the opportunity to jointly discuss and reach consensus on important Countywide IT issues in a dedicated forum.
- Fourth, meetings are inconsistently attended by agency/department staff. Agency/department staff interviewed cited lack of value as one reason why attendance is sometimes low.

- Finally, and most concerning, the IT Governance structure has been wholly or partially bypassed by CEO/IT on several important funding decisions and Enterprise IT initiatives/projects (e.g., initial Sourcing efforts, use of ISF 289 Retained Earnings) which defeats the purpose of having a Governance structure. Unfortunately, in the Factual Review for this audit, the CIO stated that use of ISF 289 Retained Earnings (generated from charges to agencies/departments) is not a Governance issue.

When asked about some of the aforementioned challenges, the CIO acknowledged that the Governance structure remains “embryonic.”

Recommendation 7: Revise the IT Governance structure to (1) establish a “dotted line relationship” between the CIO and the Technology Council and between the CIO and the Business Council, (2) consolidate groups with redundant participants, (3) ensure that the establishment of any separate IT governance groups for individual IT initiatives/projects are for subject matter needs and that these groups link up with the Countywide IT Governance structure, and (4) ensure that all Countywide IT funding and initiatives/projects are thoroughly vetted and agreed upon through the Governance decision-making chain.

Countywide IT Strategic Planning

Among CEO/IT’s responsibilities is Countywide IT Strategic Planning. The Task II audit report evaluated the content of the proposed IT Strategic Plan; this section evaluates CEO/IT’s ability to perform effective IT strategic planning.

Finding 8: CEO/IT’s strategic planning responsibilities and activities are dispersed and not well-coordinated within the organization. Furthermore, there are missed opportunities to provide value to agencies/departments as a Countywide IT leader.

The Center of Excellence/organizational unit that is responsible for strategic planning reports to the Assistant CIO but contains no assigned staff resources. Instead, strategic planning activities are dispersed throughout the organization. For example, the development of Countywide IT policies, guidelines, and standards is a strategic planning activity that, at times, is handled by either a Program Manager in the PMO, the Chief Information Security Officer, or the Chief Technology Officer. This dispersion of responsibility for the development of IT policies, guidelines, and standards has the following negative consequences:

- There is no individual or group with explicit responsibility for enforcing policy mandates or auditing against guidelines. The lack of clearly defined roles and responsibilities for CEO/IT vis-à-vis agencies/departments is likely one of the major reasons CEO/IT has not historically monitored compliance.
- Without an identified individual or group with direct responsibility for strategic planning, existing policies, guidelines, and standards are not updated over time. For example, the most recent *Email Domain Policy* available was created in 2005 and the most recent *Cell Phone Guidelines* document is from 2004, despite major changes in the IT environment.
- Furthermore, agencies/departments also indicated that they expect CEO/IT to be a leader in specific areas of Countywide strategic planning. For example, as part of their own strategic planning, agencies/departments will plan for upgrades of systems and technology. CEO/IT should have an understanding of agencies/departments plans for their upgrades and provide the option for agencies/departments to coordinate with the rest of the County – an effort that would likely help agencies/departments achieve cost savings by pooling the procurement of IT goods and services.

As the central IT organization at the County, CEO/IT should work toward providing more consistent value to agencies/departments in this area.

Recommendation 8: Clearly identify and localize strategic planning roles within CEO/IT. Work with agencies/departments to ensure that CEO/IT strategic planning activities are valuable to and consistent with agencies'/departments' own strategic planning efforts.

Project and Portfolio Management

Another key management process that is the responsibility of CEO/IT as the central IT organization in the County is Enterprise (Countywide) IT project management. This includes managing projects related to Countywide upgrades of IT infrastructure (e.g., Wide Area Network, Telephone), as well as leading projects that either have a Countywide scope (e.g., Disaster Recovery) or are not owned by any particular agency/department (e.g., emergency mass notification system). CEO/IT also offers project management services through its Project Management Office (PMO) to County agencies/departments, as requested.

The following sections discuss and evaluate CEO/IT's portfolio and project management operations.

CEO/IT Portfolio and Project Management Office (PMO)

The PMO was established by CEO/IT in 2004. At that time, the PMO's primary objectives were to develop and adopt a formal IT Project Management Methodology (based on the standards set by the Project Management Institute⁵) and to build a more disciplined project management culture in the County. One positive result of this effort was the development of an IT Project Management Methodology Handbook, with 22 sets of supporting guidelines covering specific project management topics and 16 supporting templates.

In 2006, the PMO was expanded into a formal project management Center of Excellence (CoE) that reports to the Assistant CIO. The current responsibilities of the PMO are outlined in the following table:

Program Management Office (PMO) Responsibilities
1. Provide structure and leadership for managing IT projects and programs
2. Manage the CEO/IT-driven Enterprise IT project portfolio
3. Provide project oversight and quarterly reporting to the Board of Supervisors for all County IT projects over \$250,000
4. Perform Risk Assessments for all major Countywide IT Initiatives with budgets \geq \$1,000,000
5. Provide guidance and coaching to agency/department IT Project Managers as requested
6. Maintain a repository of project documents, lessons-learned and best practices

The PMO is composed of two units: Portfolio Management and Solutions Project Management & Business Analysis.

- Within Portfolio Management, "IT Program Managers" (1) manage Enterprise IT projects, (2) manage and report on CEO/IT's own portfolio of projects, and (3) promote project management competency through the development of standards, methods, training, risk management, and project review/evaluation.

⁵ The Project Management Institute (PMI) is a non-profit professional organization for the project management profession with the purpose of advancing project management

- Solutions Project Management & Business Analysis is composed of “Solutions Project Managers” who manage agency/department-driven IT projects and CEO/IT-driven projects, and “Business Analysts” who identify business requirements for IT projects.

Outside the PMO, there are also CEO/IT employees who serve as technical leads/project managers for infrastructure-related projects at the Data Center that require less than 500 hours of staff time (note: while these individuals manage projects as part of their role, these managers are not considered formal Project Managers). In addition, managers within the Business Information Services group (which reports to the CTO) plan, organize, manage and monitor Information Systems projects for custom-developed applications as well as the integration and implementation of commercial-off-the-shelf systems⁶.

CEO/IT Project Management

This section evaluates the performance of CEO/IT in several important categories:

- Project Management leadership and oversight
- IT Portfolio Management
- CEO/IT-driven Enterprise projects
- Agency/Department-driven IT projects
- CEO/IT-driven Technical operations projects
- Post-implementation project reviews

Project Management Leadership and Oversight

Over the past four years, the PMO has achieved success in promoting a more disciplined project management culture in the following ways:

- The PMO maintains the County of Orange IT Project Management Methodology guidelines and templates. Some agencies/departments have found the templates useful for their own IT project management efforts.
- The PMO Manager leads the IT Project Review Board, which reviews all project requests for Agency 038 funds and recommends projects for funding based on many factors such as cost, benefits, and alignment with strategic goals. The

⁶ CEO/IT Business Information Services Profile, August 18, 2009.

review board was established in 2009 and includes representatives from agencies/departments and CEO/Budget.

- The PMO is responsible for reporting the status of all County IT projects costing \geq \$250,000 (or that are highly visible and require additional oversight) to the Board of Supervisors via IT Quarterly Reports. In this capacity, CEO/IT has knowledge of some agency/department IT projects that are not funded via General Fund Agency 038. It should be noted that as part of this process the PMO validates project status/progress updates provided by agencies/departments.
- The PMO performs Risk Assessments for all County IT projects with a budget of \geq \$1 million, or those that are deemed to require additional oversight. This process includes a review of the project schedule, budget, expenditures, status, and evaluation of risks. Risk Assessments are presented the Board of Supervisors along with the IT Quarterly Reports.
- The PMO coordinates IT project management training for County staff. Between 2004 and 2008, when the County funded formal project management training through UC Irvine Extension, 330 County employees completed at least one training course. Of those, 74 employees received formal certification by completing the six required courses. Due to budget constraints, these certification courses are no longer offered, but in 2009 the PMO began conducting its own basic project management training sessions with Child Support Services. Based on positive feedback, the PMO intends to continue offering this training to interested agencies/departments.

Countywide IT Portfolio Management

IT Portfolio Management is typically addressed with a two-pronged approach:

- Project Portfolio – IT Project Portfolio Management is the analysis and collective management of a group of current or proposed projects. The fundamental objective is to determine the optimal mix and sequencing of proposed projects to achieve the organization's overall goals (e.g., economic goals, business strategy goals, or technical goals) within constraints such as budget, scarcity of staff resources, and schedule.
- Application Portfolio – Application Portfolio Management examines spending on IT applications based upon their relative value to the organization, including an

examination of the financial benefits of each application in comparison to the costs of the application's maintenance and operations.

Finding 9: Application Portfolio Management is not performed.

CEO/IT began the discussion of managing a portfolio of all County IT applications as part of the Countywide IT Strategic Plan and Business Continuity/Disaster Recovery initiative. In FY 09/10, CEO/IT assembled a complete central inventory of IT Applications Countywide; however, this portfolio is not currently managed by CEO/IT.

Recommendation 9: Develop an Action Plan for managing the Countywide IT Application Portfolio within the context of the County's Federated IT system.

CEO/IT-Driven Enterprise Projects

As noted, the PMO assigns staff to a number of CEO/IT-driven projects that have Enterprise benefit or implications. In 2006, CEO/IT received \$5.6 million of General Fund money for such projects. Enterprise projects that were funded included many of what CEO/IT calls "Strategic IT Initiatives" in its proposed IT Strategic Plan (e.g., eGovernment, 3-1-1 Service Center, Regional Wireless).

The PMO has had some notable successes in implementing Enterprise solutions. Among the more successful projects are those that were prompted by a Board request or Grand Jury report, or those that were not already in place at agencies/departments. One example is the Business Continuity/Disaster Recovery project that was initiated following a 2005 Grand Jury report that found that the County's business continuity plans were incomplete. The resulting Disaster Recovery project commenced in FY 06/07 and is now nearly complete. Another example is the AlertOC project, which implemented a new emergency mass notification system.

Despite these successes, there have been several fundamental mistakes made by CEO/IT relative to Enterprise IT projects.

Finding 10: CEO/IT did not adequately prepare internal management processes, documents, methods and tools prior to taking on a significant increase in the number of Enterprise IT projects/initiatives.

The Task I audit report highlighted the significant increase in the number of Key IT Projects over the last several years. In FY 06/07, there were 16 such projects, and in FY

07/08, there were 14 such projects, compared to only four in FY 05/06. Though CEO/IT did add a number of management personnel, CEO/IT was ill-prepared for this drastic influx of IT projects, as there were many internal management processes not yet in place or substantively implemented. For example:

- The IT Strategic Plan had not yet been developed. Without an established strategic direction, investments in IT projects and initiatives were not clearly prioritized or aligned with IT strategic goals.
- The IT Project Review Board had not yet been established, and therefore, investments in IT projects/initiatives did not undergo a rigorous business case analysis (e.g., assessment of costs, benefits, alignment with strategic goals), aside from one-off feasibility studies. This is confirmed by the audit team’s review of many Enterprise IT project planning documents.
- A comprehensive tool to both plan and manage the allocation of resources to these new projects was not yet available. Though a project to implement a resource planning tool (Clarity) was initiated in FY 07/08, it was not until FY 09/10 that Clarity was even partially functional for resource management. The only means for resource planning that existed prior to FY 09/10 was a large Excel spreadsheet, which was updated quarterly and is referred to by CEO/IT as the FY 07/08 and FY 08/09 “Operating Plans.”
- ITIL, a process management framework that outlines industry best practices, had not yet been implemented; substantive progress in implementing the ITIL framework was not made until FY 08/09⁷.

The effects of pursuing such a high number of IT projects and initiatives simultaneously without first focusing on internal improvements led to a number of major deficiencies:

1. Frequent changes in project focus/priority
2. Unrealistic workload demands on staff
3. Poorly executed projects

Recommendation 10: CEO/IT should take additional steps to build a sufficient strategic framework and solid organizational foundation in order to achieve successful management of future IT projects/initiatives

⁷ According to a 2009 ACS review of CEO/IT organizational alignment, “Different functions of ITIL have been adopted at various degrees of maturity within CEO/IT. However, it seems that ITIL framework and lifecycle is currently something most of the staff and managers pay attention to ‘when time permits’ or on the sidelines.”

Finding 11: Many high profile CEO/IT-driven Enterprise projects have not been implemented successfully due to a variety of project planning issues.

A number of Strategic IT Initiatives and other Enterprise IT projects pursued by CEO/IT have encountered significant challenges from a project management standpoint. Audit interviews and a thorough review of pertinent documents provided several examples (shown below as case studies) where CEO/IT has launched many of its projects without satisfactory planning.

Case Studies
<ul style="list-style-type: none"> • 3-1-1 Customer Service Center • eGovernment • Clarity IT Portfolio Management • OCid • IT Sourcing

3-1-1 Customer Service Center:

The 3-1-1 Customer Service Center project proposed to implement a shared, Countywide public contact center to manage customer communications. Specific planning deficiencies related to this project included (1) a problematic approach for its business case analysis and (2) a lack of sufficient stakeholder buy-in.

In March 2008, CEO/IT requested Board approval for a contract with EMA, Inc. for 3-1-1 Customer Service Center services in the amount of \$1.3 million. The first phase of this project was for EMA to conduct a detailed business case analysis to determine the feasibility of implementing 3-1-1 at the County. If the study recommended—and the Board approved—implementation, EMA would be the vendor utilized for the subsequent phases of the project. While in some cases it is acceptable practice to engage the same vendor for both the analysis and implementation phases of an IT project, in the case of the 3-1-1 Customer Service Center project, where the recommendation of the business case analysis was essentially a ‘go/no-go’ decision (in this case, a ‘go’), there is a potential risk of insufficient independence and objectivity on the part of the vendor conducting the business case analysis.

Furthermore, a review of the business case analysis indicates that there was insufficient acknowledgment of the need for agency/department buy-in, particularly in light of the County's decentralized IT environment; audit interviews confirmed that several key agencies/departments did not support this project moving forward. The Customer Survey of agencies/departments also validated this lack of buy-in. When respondents were asked to rate the benefit of the 3-1-1 Customer Service Center project to their agency/department, the majority indicated that the project would have minimal or no benefit:

Project	Minimal or No Benefit	Average Benefit	Above Average or Critical Benefit	Project Cost To Date*
3-1-1 Customer Service Center	61%	32%	7%	\$450K

*Costs do not include salary and benefit costs for County staff time spent

Finally, it is noteworthy that the results of the business case analysis/study were never formally presented to the Board of Supervisors. In addition, internal CEO/IT documents confirm that prior to the EMA, Inc. study, CEO/IT was aware of the prohibitively high costs of the project (\$20 million); however, this information was also not formally shared with the Board. This project has been suspended indefinitely, although neither the Board nor agencies/departments has been formally notified.

eGovernment (eGov):

The original objective of the eGov initiative (which was initiated in FY 06/07) was to develop a web portal (collection of websites) that provides a means for the public, businesses, other governmental agencies, and County of Orange employees to (1) access services through the Internet on a more self-serve basis, (2) participate in cross-agency information and application sharing, (3) have universal access to previously siloed applications and content, and (4) experience productivity and efficiency gains. Major planning deficiencies that have negatively impacted eGov implementation include:

- The initial projected cost for eGov (\$1.2 million) was unrealistic, as it was not based on a rigorous analysis or benchmarking. This was confirmed by vendor bids in response to an RFP. Total eGov expenses for just Phase I of the project were \$3.7 million.
- Various technical issues (e.g., firewall structure, network quality, application problems) were not adequately considered during the planning phase of eGov, which later became implementation challenges. This was one reason why the eGov budget increased by \$2.5 million in Phase I of the project.

- Although eGov was initially funded by General Funds (Agency 038), it is currently being funded out of ISF 289 Retained Earnings, an approach that is not transparent or sustainable. In addition, agencies/departments are and will continue to be charged for eGov operations and maintenance (approximately \$1 million+ each year), a charge that was not communicated to agencies/departments during the planning process. To date, the eGov project has cost the County \$5.8 million and is projected to cost an additional \$1.4 million in FY 10/11 (this does not include the significant time spent by County staff within CEO/IT).
- An April 20, 2010 Agenda Staff Report to the Board requested a sole source contract with Vignette to assist CEO/IT in migrating its eGov web content management application from the existing Wintel server environment to a new P595/AIX platform at a cost of \$68K. The original ASR contained a number of factual inaccuracies and omitted other important business case analysis details. As a result, CEO/IT continued this item to make appropriate necessary revisions to the ASR; this item was subsequently approved at the May 17, 2010 Board meeting.

While eGov has experienced some successes, namely, a common County website “look and feel” and better content search and content management capabilities, the Customer Survey shows that the overall benefit to agencies/departments is not high:

Project	Minimal or No Benefit	Average Benefit	Above Average or Critical Benefit	Project Cost To Date*
eGovernment	50%	26%	24%	\$5.8M

*Costs do not include salary and benefit costs for County staff time spent

Clarity IT Portfolio Management:

In 2007, CEO/IT requested Board approval to procure an Enterprise IT Portfolio Management solution, a software tool to help CEO/IT identify and execute its IT investments, manage its resources, and track and report on project status. The original intent was to pilot the solution for CEO/IT first, and then expand its use to other County agencies/departments⁸. CEO/IT selected the *Clarity* solution, a robust, best-in-class application that includes multiple modules covering project, resource, financial, time, and demand management, at an upfront cost of \$393K, plus two years of maintenance and support for \$60K.

⁸ CEO/IT Project Charter

CEO/IT's planning and implementation of the Clarity project has been criticized by both agencies/departments and CEO/IT staff. Some of the criticisms include:

- Although it typically takes at least two years to roll out such a system, CEO/IT staff was originally directed to roll out Clarity within six months.
- At the time Clarity was initiated, CEO/IT was lacking in many key project management and resource planning processes, which needed to be in place, or at least in process, for a seamless transition to Clarity. This added to the time required to implement the software.
- CEO/IT purchased all Clarity modules at once, even though the organization was not ready for total implementation (i.e., it was premature to make design requirement decisions since many business processes were not yet defined).
- CEO/IT configured (i.e., set up/prepared) all modules first, rather than configuring and implementing one module at a time, as they were needed. Because of the time lapse between when a module was configured and when it was implemented, CEO/IT needed to adjust its configuration work when new software functionality was released, wasting time and resources. Moreover, CEO/IT is currently only using two of the modules extensively.
- While Clarity is technically being used to generate CEO/IT's Quarterly IT Reports, it is not being done in an automated fashion. In reality, agencies/departments enter project information and updates into Clarity, and this information is extracted and formatted in a Microsoft Word document⁹.
- The robustness of the Clarity solution is beyond what is needed by most agencies/departments, and is therefore viewed by many agencies/departments as too costly.¹⁰ This perception greatly decreases the chances that Clarity will be implemented beyond CEO/IT as originally envisioned, especially in light of budget constraints in the near term. Moreover, in the Customer Survey of agency/department stakeholders, the majority indicated that Clarity would have minimal or no benefit to their agency/department:

Project	Minimal or No Benefit	Average Benefit	Above Average or Critical Benefit	Project Cost To Date*
IT Portfolio Management (Clarity)	66%	26%	8%	\$643K

*Costs do not include salary and benefit costs for County staff time spent

⁹ There are future plans to develop capabilities that will make report modification / customization easier.

¹⁰ A "Creator" license is about \$600-700 per year; a "Participant" license is about \$60-70 per year. For any resource (i.e., staff member) to be loaded into Clarity, each resource needs to have at least a participant license.

OCid:

This project was first initiated during the FY 08/09 budget cycle and experienced multiple changes during its planning phase. For example, OCid was first envisioned to be implemented Countywide to allow for single sign-on (i.e., one password and access point for all County applications) and identity management capabilities (i.e., a consolidated database of County employee identification information). The first major application that CEO/IT attempted to synchronize with OCid was the CAPS+ financial and purchasing system. When the CAPS+ project team decided not to pilot OCid, the Property Tax Management System (PTMS) project was asked to consider implementing OCid. PTMS agreed initially, but ultimately decided to abandon the integration after unsuccessful efforts to “make it work.” PTMS management stated that this failed effort has cost the PTMS project both significant time and money. Subsequently, the plan for OCid changed again to a pilot implementation with CEO/IT and the Health Care Agency (HCA). However, in December 2009, CEO/IT and the Human Resources Department saw an opportunity to use OCid to roll out a new IT Usage Policy to all County employees, which again required a Countywide roll out to all agencies/departments. The OCid team was then given just 60 days to plan and implement the application Countywide.

Not surprisingly, this aggressive timetable, combined with haphazard planning and unrealistic expectations, resulted in a number of critical implementation flaws, such as: (1) instances of OCid system overload due to its rapid Countywide roll-out, (2) incorrect information in employee profiles, (3) employees being assigned to the wrong agency/department, and (4) managers given access to information of employees in other agencies/departments. CEO/IT would have benefited from a slower, phased rollout of OCid when the scope was expanded, as is industry best practice. During project planning, CEO/IT also failed to properly engage agency/department stakeholders. Agencies/departments were not apprised of important details and plans related to OCid, which should have been communicated through the IT Governance structure. Rather than having all critical stakeholders in the same room, CEO/IT chose to speak with agency/department IT and Human Resources Department stakeholders separately, which led to misunderstandings and poor coordination. To date, the cost of the OCid project is \$286K (not including salary and benefit costs for County staff).

IT Sourcing:

The IT Sourcing initiative is arguably the most critical IT project/initiative currently in process. In this complex undertaking, CEO/IT is proposing to go out to bid to replace

its current 11-year, \$266 million Staff Augmentation contract with ACS with a Managed Services outsourcing contract. A Managed Services outsourcing model differs from a Staff Augmentation model in that (1) vendor performance/quality is measured solely against contractual Service Levels (i.e., minimum standards of performance), (2) management of contractors is the responsibility of the vendor rather than the County, and (3) infrastructure services are procured for a fixed per-unit-supported (e.g., per server) fee at a agreed upon Service Level, rather than on a per hour basis for contract staff time.

In September 2009, the consultant engaged by CEO/IT to conduct a sourcing analysis (Avasant) began meeting with agencies/departments to gather information, with the goal of developing a recommendation on the type of sourcing model (e.g., Staff Augmentation, Managed Services) that would be in the best interest of the County. Unfortunately, during this process, (1) many agencies/departments were left with the impression that a decision to move to a Managed Services model, which would have outsourced many existing Countywide IT positions, was predetermined without their input, and (2) the impact on agency/department operations, as well as the identification and consideration of important logistical aspects (i.e., meet and confer obligations, legal) had not been sufficiently considered and resolved.

CEO/IT also proposed a highly aggressive timeline which would have rushed important communication with and analysis for agencies/departments and the Board. Initially, CEO/IT planned to agendize the approval of a conceptual sourcing strategy for a November/December 2009 Board meeting, before resolution of the issues noted above and without sufficient discussion with agencies/departments or the Board. Once informed of the significant impact of CEO/IT's sourcing initiative on County operations, the Board of Supervisors directed the audit team and CEO/IT to discuss the timeline for both the audit and the sourcing effort and also directed the audit team to identify issues that the Board should consider before hearing the item and to recommend improvements to CEO/IT's approach.

As a result, CEO/IT re-engaged agency/department stakeholders through a governance process (separate from the County IT Governance structure) before bringing the item to the Board. Following governance discussions, the scope of the IT sourcing initiative was scaled back from a Countywide proposal to the current scope of the ACS contract (Data Center services only). A recommendation was also made for CEO/IT to proceed with one Request for Proposal (RFP) for IT Sourcing and Voice over Internet Protocol (VoIP), rather than two separate RFPs. These changes were approved by the Board at its February 2, 2010 meeting.

Recommendation 11: Improve the initial stages of IT Project Management (project initiation and planning, business case analysis) to ensure that proposed solutions (1) address clear business needs for all stakeholders, and (2) include agency/department buy-in before proceeding with project implementation.

Agency/Department-Driven IT Projects

In addition to CEO/IT-driven projects, CEO/IT Project Managers (typically “Solutions Project Managers”) support periodic agency/department projects, as requested. Since FY 05/06, CEO/IT Project Managers have supported 11 major agency/department projects¹¹ (e.g., ePages, SECURE Electronic Recording Delivery System) totaling approximately \$9 million (compared to 13 major Enterprise projects, such as Disaster Recovery and eGov, totaling approximately \$12 million).

Some agencies/departments who have utilized CEO/IT project management services have provided positive feedback about their experience. However, CEO/IT faces multiple on-going challenges in providing project management services to agencies/departments Countywide.

Finding 12: The project management services offered by the PMO are viewed as having little value to many agencies/departments.

According to results of the Customer Survey of agency/department executives and IT managers, only 14% of respondents indicated that use of CEO/IT project management resources to assist them with IT projects was of ‘Above Average’ or of ‘Critical Importance/Value’; as opposed to the 47% who said that project management services were of ‘Minimal’ or ‘No Importance/Value’¹².

There are several reasons given by agencies/departments to explain these results:

- Many agencies/departments have and prefer to use their own IT staff for project management and simply need a point of contact at the Data Center to assist with the infrastructure component of their projects. For example, none of the three major system upgrades currently in process (i.e., CAPS+, PTMS, ATS) relies on CEO/IT as their primary project manager, as they have their own PMOs.

¹¹ Agency/Department IT projects budgeted to cost \geq \$250,000 (e.g., ePages, SECURE Electronic Recording Delivery System)

¹² See Question #7 of the Customer Survey in Appendix A

- There is a decreased demand for project management services due to the current and near-term budget constraints.
- Of those agencies/departments that have experience with CEO/IT's project planning and implementation services, several believe there is improvement needed. For example, in the Customer Survey, when asked to rate the quality of the PMO's IT *Project Planning* services to agencies/departments, of the 12 individuals who responded to this question, six indicated that it was 'Poor' or 'Needs Improvement' (vs. four indicating that it was 'Average' and two indicating that it was 'Good' or 'Excellent'). Similarly, when asked to rate the quality of the PMO's IT *Project Implementation* services to agencies/departments, of the 12 individuals who responded to this question, five indicated that it was 'Poor' or 'Needs Improvement' (vs. five indicating 'Average' and two indicating that it was 'Good' or 'Excellent')¹³.
- Agencies/departments perceive CEO/IT's project management services to be too costly. When asked in the Customer Survey to compare the cost of CEO/IT's project management services with IT industry standards, of the 13 individuals who responded to the question, 12 indicated that CEO/IT was more costly¹⁴.

For agencies/departments that do utilize PMO services, there is a stated need to more clearly define project expectations between CEO/IT and the agency/department. Currently, there is not a consistently utilized agreement between the two parties as to expected hours, bill rates, and detailed responsibilities¹⁵. This is important because individual agencies/departments have different needs from the PMO. While some need a PMO resource to serve as just a technical liaison, others may need more traditional project management support (e.g., managing vendors). (Note: CEO/IT does not currently bill agencies/departments for CEO/IT Project Manager time but plans to establish charge rates for all project managers beginning next fiscal year. Other services offered by CEO/IT, such as Help Desk support and network operations, do have Memoranda of Understanding and service level expectations).

Recommendation 12: Reexamine PMO project management services to develop a clear service catalog that matches the needs of agencies/departments. Consider the use of contractors for intermittent increases in demand, as well as staff reallocation if agency/department demand for these services is not planned to increase in the near term.

¹³ See Question #5 of the Customer Survey in Appendix A

¹⁴ See Question #6 of the Customer Survey in Appendix A

¹⁵ Roles and responsibilities included in project charters are sometimes high level

It should also be noted that CEO/IT has played and continues to play a varying role in major system upgrades with Countywide implications (e.g., CAPS+, PTMS, ATS). For the CAPS+ project, the CIO is a member of the CAPS+ Steering Committee; for the PTMS project, staff from CEO/IT PMO is playing an independent verification and validation (IV&V) role; and for the ATS project, CEO/IT technical staff is supporting the infrastructure needs for the new system.

CEO/IT-Driven Technical Operations Projects

As mentioned previously, there are also technical managers who report to the Chief Technology Officer who manage technical, infrastructure-related IT projects (e.g., security, operations or network-related projects) that require less than 500 hours of staff time. Some of these projects are initiated by agency/department requests (e.g., creating a CAPS+ payment authorization report for Public Administrator/Public Guardian). Other projects are related to upgrades of the County IT network, refreshes to security hardware, upgrades to Data Center equipment, or process improvements to operations.

Post-Implementation Project Reviews

CEO/IT's Project Management Methodology calls for post-implementation reviews (project "Closing"). As part of these reviews, Project Managers are responsible for completing the following tasks:

- Obtain a sign-off on Project Acceptance by project sponsor
- Identify Lessons Learned with team
- Complete Customer and PMO Appraisals
- Close project in Clarity application and ensure all project documentation is stored in the project collaboration folder for future reference

Although CEO/IT's own Project Management Methodology calls for post-implementation reviews, according to CEO/IT staff, these reviews have not been completed consistently and/or thoroughly. For example, Lessons Learned documents have not been completed for all projects, and PMO Appraisals have not yet been formalized. As a result, CEO/IT has not benefited from positive and negative lessons learned for a number of high dollar projects.

A proper post-implementation review should also include measuring the success of a project, particularly realized benefits (e.g., actual cost savings achieved). This aspect of a post-implementation review will be discussed in more detail in the “Performance Measurement” section of this report (see page 55).

Technical Operations

The Technical Operations of CEO/IT are overseen by the Chief Technology Officer (CTO) and include activities such as Network/Platform Services, Mainframe Operations, Network Security, Telephone Services, and Business Information Services (BIS), which consists primarily of Application Development. The costs for these technical services are billed to County agencies/departments via Internal Service Fund (ISF) 289.

All agencies/departments at the County purchase, at a minimum, two types of services from CEO/IT: (1) access to the Wide Area Network (WAN)/the Internet and (2) Telephone services via the OCTNET system¹⁶. As noted in our Task I report, these two service charges comprised approximately 37% of all ISF 289 Charges in FY 08/09. Based on the multitude of interviews with agency/department IT management and executive/administrative management, the Customer Survey conducted as part of this audit, and a review of historical ACS Customer Service Survey results, on average, County customers have been and are currently satisfied with the level of technical service that they receive in these two primary areas.

The current CTO has made some significant improvements over the last 12-18 months. CEO/IT has pursued in earnest an organizational “re-alignment” of its Network/Platform Services unit, in conjunction with a broader initiative to implement the Information Technology Infrastructure Library (ITIL) framework throughout its technical operations. ITIL is a collection of concepts, checklists, and procedures that reflect industry best practices for information technology service management. To date the key positive results from this initiative are as follows:

- The documentation of over 280 Standard Operating Procedures (SOPs) for CEO/IT employees/contract staff to refer to as they complete tasks; these SOPs have all been reviewed and approved by either County or ACS management and are scheduled to be refreshed on an periodic basis. These procedures are available via an internal collaboration website (using SharePoint) to all CEO/IT

¹⁶ Agencies/departments that have their own Voice over Internet Protocol systems use OCTNET to connect to the rest of the County

employees. This is a critical first step toward making IT processes at the Data Center more repeatable.

- The assignment of key staff resources in order to cover the three primary phases of all technical tasks (Plan, Design/Build, and Operate/Maintain).
- The implementation of formal Service Design Packages (SDPs) to guide the design and execution of any new Network/Platform/Mainframe/AIX services requested by agencies/departments or CEO/IT for new projects/initiatives. SDPs provide a thorough, methodical approach to defining requirements, clarifying costs and performance expectations, and ensuring that all operational areas of CEO/IT are working from the same playbook as projects/initiatives proceed.
- Telephone Services has initiated an online, automated change request system that allows for improved tracking and more efficient processing of customer requests.
- Improved tracking and reporting on various workload and performance measures (see the Performance Measurement section of this report for more details).

Other non-ITIL related initiatives/projects have been successful as well.

- In the area of Network Security, prior to November 2009 the audit team has confirmed that the only intrusion detection mechanisms in place after normal business hours (M-F, 9-5) in the County Network were some obsolete pieces of monitoring equipment. In response to this escalating risk, in November 2009 CEO/IT Executive Management decided to purchase and implement an intrusion protection/detection system (IPS/IDS) from IBM for an upfront hardware cost of \$377K and an ongoing service cost of \$200K per year.
- In the area of Data Center (OCDC) Operations, there was a successful upgrade of the Uninterruptible Power Supply, a revamp of the fire suppression system, as well as the establishment of a formal OCDC access review process.
- The Mainframe Services group continues to provide solid reliable support for applications remaining on the Mainframe. In addition, Mainframe Services has successfully implemented, from a hardware standpoint, two new IBM P595 servers with AIX environments: one which is currently supporting the CAPS+ Finance and Purchasing System and one which will support the CAPS+ HR &

Payroll System, the eGov content management application, and possibly serve a disaster recovery role to the CAPS+ Finance and Purchasing system.

From a broader perspective, multiple interviews and documents also confirm that the current CTO has made noticeable progress in establishing priorities and plans for resource allocation in CEO/IT Technical Operations over the last 12-18 months. Prior to his arrival, the operational side of CEO/IT did not have formal direction or a framework for prioritizing among the cascade of implementation and maintenance projects pursued by the CIO and agencies/departments, especially during the timeframe FY 06/07 through FY 08/09. Consequently, during this time period, the modus operandi for the Data Center became crisis management or “fire-fighting.” While this issue did not lead to a significant degradation of overall service quality, the net impacts were increased operational risk and inefficiency, as well as CEO/IT staff frustration. It is important to note that ACS has played a key role in the success of many of these recent initiatives, including the ITIL implementation.

Alongside these positive findings, the audit team also identified some areas of concern and opportunities for improvement in the following functional units of CEO/IT’s technical operations:

- Business Information Services (BIS)
- Network & Platform Services (NPS)
- Security

Business Information Services (BIS)

Finding 13: Agencies’/departments’ demand for Application Development work has decreased drastically over the last three years, such that this operation of CEO/IT is no longer financially viable as currently structured.

Demand from agencies/departments for Business Information Services (BIS) (i.e., application development, application database design, etc.) has drastically decreased over the last three years. In FY 07/08, CEO/IT spent approximately \$13.7M on these services, but in FY 09/10 expects to only spend \$4.8M, a reduction of 65% over this time period. While a portion of these reductions are the result of flagging budgets for IT application projects, there are a number of other drivers that impact the viability of BIS as a standalone business unit in CEO/IT.

A significant portion of this reduction was caused by the removal of approximately 30 applications contract (ACS) staff who worked on the ATS Reengineering project. During FY 08/09, the Assessor, CEO/IT, and ACS agreed to have ACS and the Assessor negotiate a unique arrangement rather than utilize the standard ACS-CEO/IT contract. All parties agreed that it was inefficient for the Assessor to pay CEO/IT a 12% margin on top of ACS costs for general overhead, as the Assessor was managing these contractors on a day-to-day basis.

The rationale for moving the ACS resources working on the ATS project into a direct relationship with the Assessor is applicable to the majority of ACS resources working in the Application Development group of BIS. Over time, agencies/departments have moved away from utilizing CEO/IT to manage the planning, building and implementation of business-specific IT applications and instead, have either (1) embedded ACS resources in their department that they manage themselves or (2) utilized their own application development contractors (other than ACS). For example, both Probation and SSA have embedded ACS resources that they manage themselves on a day-to-day basis, yet they pay a 12% administrative overhead margin to CEO/IT. Both of these agencies also utilize outside contractors for application development work. As another example, the PTMS Project is currently contracting directly with Tata Consultancy for its application development needs.

The Auditor-Controller's CAPS+ Program Office also utilizes an ACS subcontractor (GCAP) for the CAPS+ upgrade and pays CEO/IT the 12% administrative overhead margin, despite the fact that these resources are managed day-to-day by the CAPS+ Program Office. In this case, ACS agreed to reduce its own overhead from the contractual 20.9% to 7.25% because of the minimal management responsibility for these subcontractors; however, CEO/IT made no such reduction in its 12% overhead charge. The CAPS+ Program Office also had a contract with ACS (via CEO/IT) to perform application development work related to the CAPS+ Reports and Interfaces. This was one instance where the CAPS+ Program Office expected CEO/IT to directly manage ACS resources to achieve the successful completion of these critical application elements. However, through a variety of miscues, these efforts failed, significant time and resources were wasted, the schedule was delayed, and the application development work was shifted to a different contractor.

It should be noted that there are two recent exceptions to this trend: the Electronic Fictitious Business Name (EFBN) project and the Electronic Recording Delivery System (or SECURE) project, both of which were funded by the Clerk-Recorder's Office. In both instances, BIS managed ACS application development resources successfully to the satisfaction of the Clerk-Recorder's Office.

In addition to the overall reduction in demand for Application Development services, the BIS unit has historically under-recovered its costs, placing further cost pressures on other service units of ISF 289, such as Network/Platform Services. For example, as noted above, BIS spent approximately \$13.7M in FY 07/08, yet only recovered \$12.0M in revenue, creating an operating deficit of approximately \$1.7M. Similarly, in FY 08/09 BIS spent \$10.9M, but collected only \$9.4M in revenues from agencies/departments, creating an operating deficit of \$1.4M. The reasons for this under-recovery of costs include (1) volatility of agency/department demand for services (outside of CEO/IT's control), (2) a lag in the reduction of contract resources commensurate with declining demand (within CEO/IT's control), (3) fixed administrative costs that have not declined commensurate with demand for services, and (4) inadequate control over ACS costs relative to ISF charge rates.

To manage this situation, BIS could be playing a more proactive role in conducting strategic application planning and business analysis of the Countywide portfolio of applications to identify application development opportunities that would benefit multiple agencies/departments. While there is a forum for such discussions in some IT Governance groups (e.g., Application and Data Architecture Group), to date, CEO/IT has not put forward any formal proposals in this regard. The audit team confirmed that historically ACS played a more active role in communicating with and marketing application services to agencies/departments. However, several years ago, CEO/IT made the decision to bring this responsibility "in-house" and required that ACS communicate with agencies/departments only via CEO/IT management. Unfortunately, subsequent to that decision, CEO/IT has not developed a marketing or strategic application plan for application development needs Countywide, despite BIS' continuing under-recovery of costs.

Taken together, all the aforementioned trends have diminished the need for a BIS Service Unit. Unless CEO/IT intends to develop a strategic application and marketing plan to revive demand for this service, all ACS resources should contract directly with agencies/departments, without paying for CEO/IT administrative overhead.

Recommendation 13: Merge BIS management into the PMO and BIS/Information Resource Management staff into Network & Platform Services. BIS/IT Process & Quality Assurance responsibilities should be assumed by the PMO.

Network & Platform Services (NPS)

The NPS unit of CEO/IT provides five major services to agencies/departments: (1) access to the Wide Area Network (WAN)/Internet, (2) Network Security, (3) Server Maintenance (SLA), (4) Storage Area Network (SAN) capacity, and (5) technical support for agency/department server-related projects. The first two cost centers are charged to all agencies/departments on a per email per month basis (with the exception of the Sheriff's Department exception noted below), and there is little volatility in the demand for these services. The other three cost centers, however, are charged only to agencies/departments that avail themselves of the service.

- With respect to Server Maintenance, CEO/IT has nine major customers, who house a total of approximately 232 servers at the Data Center. The largest of these customers are Assessor, Auditor-Controller, CAPS+, Clerk-Recorder, Probation, SSA, Treasurer-Tax Collector, and the PTMS project. These customers rely on CEO/IT to provide a general level of monitoring and maintenance for the servers, and in exchange, customers pay CEO/IT approximately \$647 per server per month.
- The storage capacity in the CEO/IT SAN is available to agencies/departments on a per gigabyte per month basis. The largest users of this service are Assessor, CAPS+, and SSA.
- Lastly, the technical support for server-related projects is available to agencies/departments at approximately \$90 per hour.

In FY 08/09, CEO/IT implemented an entirely new service rate structure and as a result, does not have consistent/comparable historical records of service demand. Thus, demand can only be measured beginning in FY 08/09. This short timeframe notwithstanding, the trends in customer demand for the three customer-driven service areas (SAN, Server Maintenance, and Server Project Technical Support) are as follows:

- Demand for technical support for server-related projects declined significantly from FY 08/09 to FY 09/10 (by approximately 35% or 6,900 hours), and a further decline is expected from FY 09/10 to FY 10/11 (approximately 15%). The associated revenues from these services dropped from \$1.8M in FY 08/09 to a projected \$1.1M in FY 09/10.
- Demand for storage capacity in the CEO/IT SAN increased drastically from FY 08/09 to FY 09/10 (nearly 100%), and a slight increase is projected from FY 09/10

to FY 10/11 to accommodate the CAPS+ Financial, Clerk-Recorder ERDS, and ATS systems. The associated revenues from these services increased from \$331K in FY 08/09 to a projected \$690K in FY 09/10.

- Demand for Server Maintenance at the Data Center increased from FY 08/09 to FY 09/10 (by approximately 21%), driven largely by the build-up of open system environments associated with large data system projects (i.e. CAPS+, ATS, PTMS) and the SECURE project from the Clerk-Recorder. Despite this ramp up, there is a 15% decline projected from FY 09/10 to FY 10/11 as customers such as PTMS and Clerk-Recorder scale back the level of monitoring/maintenance on a number of non-critical servers in order to save costs. The associated revenues with this service increased from \$1.7M in FY 08/09 to a projected \$1.9M in FY 09/10.

For details regarding cost recovery of different business lines of CEO/IT-NPS, please refer to Appendix C.

Finding 14: The Network and Platform Services unit of CEO/IT, a core, mission-critical service for agencies/departments, has been forced to reduce resources to problematic levels, largely due to operational and charging anomalies that have developed in other areas of CEO/IT over the last three years.

The positive progress in technical operations within CEO/IT during the last 12-18 months, noted earlier in this report, has been counteracted by finance-related challenges that have put pressure on the entire ISF 289. These challenges, detailed below, can be attributed to both endogenous forces (i.e., broader budgetary constraints), as well as internal decisions made by CEO/IT Executive Management:

- Charging Methodology: Going into FY 08/09, CEO/IT Executive Management decided to change the charging methodology for recovering costs pertaining to Network Services (i.e. access to the Wide Area Network/Internet). Historically, CEO/IT charged based on the number of Internet Protocol (IP) addresses within a particular agency/department. After performing benchmarking and research, CEO/IT decided to instead charge based on the number of email addresses within a particular agency/department. For agencies/departments that had a number of personnel with email addresses, but without assigned one-to-one personal computers or laptops (e.g., the Sheriff-Coroner Department) this meant a significant increase in monthly costs for access to the County Network. To illustrate the impact of such a change, the Sheriff-Coroner Department/Agency

060 (OCSD) went from paying \$462K in FY 07/08 to paying \$1.4M in FY 08/09. As a result, OCSD in particular protested the change during FY 08/09 and requested that CEO/IT only charge them for email addresses of the approximately 232 administrative personnel that utilize many of the County internal systems (e.g. VTI, CAPS+, ERMI), rather than for all 3,300+ personnel in OCSD. The CEO's office did not make the adjustment for the remaining portion of FY 08/09, but did agree to make a change in FY 09/10. Thus, in FY 09/10, OCSD has been charged only for those approximately 232 emails that pertain to administrative personnel, and consequently their costs have decreased significantly (projected to be only \$108K for the entire fiscal year). The resulting drastic reduction in revenue caused CEO/IT to (1) increase the rate for County Network Services charged to other agencies/departments from \$34.47 per email address per month to \$38.82 per email address per month (a 12.6% increase), and (2) to cut approximately \$700K out of its Network/Platform Services budget for FY 09/10. In spite of these impacts, CEO/IT has stated that they believe this is the appropriate method for charging the Sheriff's Department for Network Services for several reasons, including: (1) OCSD maintains its own separate network that includes all of its own internal systems, (2) most OCSD staff do not use VTI for timekeeping, but instead use an OCSD-specific system.

- Use of Retained Earnings: As noted in the Task I report of this audit, as well as in other sections of this report, CEO/IT began a practice in FY 08/09 of paying for select non-infrastructure-related projects out of the Retained Earnings from ISF 289. These earnings come from fiscal year-end operating surpluses (i.e., revenues collected from agencies/departments exceed CEO/IT's costs) in the ISF. In FY 08/09, CEO/IT spent \$1.5M of Retained Earnings on four projects, the most expensive of which was the eGov project, at just over \$1M. In FY 09/10, CEO/IT is projecting that it will spend \$2.2M on "Retained Earnings Projects," with eGov again being the most expensive at \$1.2M. Finally, as proposed in the FY 10/11 budget, CEO/IT plans to spend nearly \$3M on such projects, with eGov (\$1.4M) and IT Sourcing Transition (\$1.1M) constituting the bulk of the costs. Rather than using these Retained Earnings to help reduce rates or defray costs for core, mission-critical service areas (such as Network/Platform Services) or invest in necessary infrastructure (telephone upgrade), CEO/IT has primarily used these scarce resources in a fashion opaque to its customers (i.e., agencies/departments) to fund the ongoing operations and maintenance of the eGov system. Not only is this practice unsustainable, but it runs contrary to the message given to agencies/departments by CEO/IT from the outset of the eGov project, which is that agencies/departments are not paying for eGov.

The aforementioned idiosyncrasies have negatively impacted ISF 289 financial resources, which, in turn, has negatively impacted NPS service levels and exposed this mission-critical component of Countywide IT to greater operating risks as described below.

While NPS has been achieving greater efficiency as a result of better internal organization and standardization over the last 12-18 months, a review of all relevant documentation and CEO/IT management and staff interviews confirm that NPS has been required to cut critical elements of its operation and is delaying important activities indefinitely. For example:

- As a cost cutting measure in FY 07/08, CEO/IT disbanded the Network Operations Center (NOC), which was the central monitoring entity for the entire County network, across a variety of the NPS disciplines (WAN, Security, Server Monitoring). As a consequence of this action, NPS has been forced to become more reactive and uncoordinated when dealing with network problems.
- NPS management conducted a labor analysis (as of June 2009), which demonstrated that the workload for NPS was equivalent to almost 40 FTE positions, but funding for only 38 existed. This labor analysis also showed a backlog of “Outstanding/Deferred Operations & Maintenance” tasks in NPS, totaling over 34,000 hours of work (or 16+ FTEs). Since June 2009, NPS resources have been cut even further, primarily in the form of a reduction in ACS contract staff. For the 12 months ending June 30, 2009, the average ACS FTEs per month in NPS was 35.2. For the first 8 months of FY 09/10, the average ACS FTEs per month in NPS was 27.3, a reduction of almost 8 FTEs.
- CEO/IT management demonstrated to the audit team that the Security element of NPS is understaffed by at least one FTE, relative to the current workload. With the recent implementation of an intrusion protection/detection service, staff workload has increased as the number of protection/detection alerts to respond to has increased.

In sum, the financial decisions made by CEO/IT Executive Management have had significant opportunity costs to a core infrastructure service (NPS), forcing it to operate with fewer staff resources, which has created a higher degree of operational risk, while ISF Retained Earnings are being used for projects/initiatives that agencies/departments do not consider critical.

Recommendation 14: Focus resources on securing adequate core, mission-critical services for agencies/departments, such as Network Platform Services, before pursuing other non-core activities.

Security

Finding 15: The County Information Security Officer (CISO) has the ability to conduct individual investigations without the express written authorization from a Human Resources or Departmental Manager.

In speaking with CEO/IT security personnel, the audit team confirmed that there is no formal requirement for the CISO to obtain written authorization from either Human Resources or Departmental management prior to initiating an investigation of an individual's information technology behaviors or usage. Although there is an unwritten and in-practice rule that no such investigation should occur without HR authorization, there should be a formal control in place that protects all parties from frivolous or groundless investigations.

Recommendation 15: Create a formal policy mandating that the CISO obtain HR or Departmental authority prior to initiating any investigation of County personnel.

Resource Planning

Another key management process is the planning and monitoring of staff resources across a variety of project and operations/maintenance activities. When done effectively, resource planning helps management allocate scarce staff resources in a manner that accomplishes the highest priority tasks and minimizes internal inefficiencies/redundancies. Resource monitoring is also an important tool for managers to ensure a balanced workload with sufficient coverage for all important assignments.

In 2007, CEO/IT purchased Clarity, an IT Portfolio Management application/software tool that includes resource management functionality. However, as previously discussed in the PMO section of this report, many of the foundational management processes were not in place to make effective use of this tool. To illustrate, as noted, prior to the arrival of the current CTO and the implementation of the Clarity resource management tool, CEO/IT did quarterly resource planning on large MS Excel spreadsheets. In addition, some CEO/IT staff used MS Project to plan for upcoming

tasks and operational responsibilities. This approach did not afford a timely, aggregate view of resource needs and allocations.

In response, in FY 09/10, CEO/IT took several steps to address this issue:

- The PMO Manager and the CTO began conducting biweekly resource planning meetings to review planned staff allocations to various IT projects
- CEO/IT loaded all projects and Maintenance & Operations activities into the Clarity tool
- The CTO established project priorities to guide the allocation of scarce resources

Alongside these recent improvements to formalize Resource Planning, there are also some opportunities to improve both the planning and tracking of staff time.

Finding 16: CEO/IT has not yet documented formal resource planning procedures and has not refreshed critical resource planning documents, such as the Operating Plan.

The recently established resource planning meetings and associated resource planning screens in Clarity are a step in the right direction. However, these meetings are focused primarily on project-related activities, in large measure to ascertain and monitor the significant number of ongoing, concurrent projects that have infrastructure implications. Consequently, there is still some confusion among ACS contract staff about how to balance project-related responsibilities with day-to-day O&M tasks, especially for those staff that have both project and O&M responsibilities. In a related issue, CEO/IT is still undecided as to whether to use Clarity across the CEO/IT organization or to use other tools. Some managers prefer the Clarity tool and others prefer to extract information from Clarity and manipulate data in MS Excel or other applications.

Another area of concern is that the Operating Plan, the foundational document for resource planning, needs to be a living document and refreshed prior to the budget process to reflect any planned operational changes and needs.

Recommendation 16: (a) Refresh the Operating Plan at least once a year prior to the budget process. (b) Maximize the efficiency and effectiveness of resource planning meetings by discussing and documenting a set of formal procedures that drive the preparation for and execution of resource planning within CEO/IT. Examples of procedural questions that should be explicitly addressed in the documentation include:

- Who are the necessary participants in resource planning meetings?
- What information/dashboards need to be reviewed at each meeting?
- How should this group interact with the Operating Plan document and how often does the document need to be refreshed?

CEO/IT may also want to use the existing governance process or informal discussions with agencies/departments to collaborate on effective resource planning tools/strategies.

Finding 17: Most CEO/IT managers do not track actual staff resource hours against planned allocations, and in some instances, County staff utilization is not tracked at all.

It is important for any organization to track and retroactively examine how staff time has been spent relative to what was planned. Currently CEO/IT has two different tools for tracking staff time: (1) County staff in CEO/IT bill their time to specific job numbers that are established in the County's timekeeping system (VTI), and (2) ACS contractors bill their time to specific work requests that are established in a CEO/IT standalone system called the Electronic Labor Verification Information System (ELVIS). However, because many CEO/IT staff code their time to generic, catch-all job numbers, these reports would not necessarily be helpful in assessing true workload and utilization. Rather than fixing these business process/workflow issues (i.e., establishing and requiring all CEO/IT staff to code their time to more detailed job codes by specific projects/activities in VTI, and extracting/summarizing utilization data from ELVIS), CEO/IT has been incorrectly focusing on only the modifications to the Clarity system that create interfaces between VTI and ELVIS in order to automate the workload and utilization analysis; it is more critical for CEO/IT to fix the timekeeping procedures first, then focus on systems to automate the process.

The primary impact of this approach is that, to date, with the exception of the Application Services Unit (which does track utilization for all ACS resources), CEO/IT

has not been tracking, analyzing, and reporting on County staff workload in any formal way. Though there is a pilot effort to track actual hours for 15 operational activities (e.g., Security Operations & Maintenance, LAN/WAN Maintenance Support), and an effort is planned for FY 10/11 to add job codes to the VTI time tracking system, CEO/IT does not currently have an accurate understanding of how its staff resources' time is actually spent. The problems that arise from the inadequate tracking of actual hours are as follows:

- CEO/IT does not have the data necessary to inform and substantiate staffing increases or decreases.
- To meet budget reduction requirements, CEO/IT might reduce (or may have reduced) staff resources in the wrong areas, negatively affecting operations.
- Bill rates for IT services to agencies/departments may not reflect the true cost of providing the service, resulting in agencies/departments being over or undercharged for services.
- Some staff resources may be under or over-utilized.

On another front, the IT Sourcing effort currently in process will change the staffing resource landscape in 2011. Going to the proposed Managed Services contract will mean that CEO/IT will no longer have responsibility for the allocation of contractor resources, which comprises the overwhelming majority of CEO/IT's staff. Without responsibility for managing contractor staff, CEO/IT may no longer need to use Clarity to the extent that is currently envisioned. Also, as part of the Sourcing effort, CEO/IT will be determining its "retained organization," which is the structure and County staff resources that will remain following the transition to the new Managed Services outsourcing model. To help CEO/IT understand its County staffing needs under this new model, CEO/IT should immediately begin tracking actual utilization for County staff, forgoing the use of Clarity if need be (note: the ability to track actual resource utilization in Clarity is not currently functional, and job codes have not yet been established in VTI).

Recommendation 17: Immediately begin tracking actual utilization for County staff, using manual tracking mechanisms (e.g., excel spreadsheets), if needed, and establish simple reports that assist management with workload and resource analysis.

Administrative and Financial Operations

Similar to its operational functions, the administrative and financial management processes of CEO/IT have made significant progress in some respects, but there are also notable opportunities for improvement, especially in the area of disclosure.

Multiple agency/department interviewees noted that the billing for services provided by CEO/IT has improved over the last few years, with greater detail available and more precise tracking of services rendered. To this end, CEO/IT has implemented a detailed planning and monitoring process to ascertain service demand from the different agencies/department. Prior to each fiscal year, CEO/IT Finance staff meets with IT Managers and Directors of Administration from the eleven largest County agencies/departments to obtain planned usage for the upcoming year across the suite of CEO/IT services (telephones, application development, network access, server maintenance, storage capacity, etc.). Specific planned service units (e.g. hours, gigabytes, number of servers per month) are recorded and monitored for all County agencies/departments throughout the year. CEO/IT Finance then revisits the eleven largest agencies/departments midway through the year to see if their demand is expected to change significantly during the second half of the year.

In conjunction with improved service demand planning and tracking, CEO/IT Finance also conducts monthly meetings with CEO/IT management in order to review in detail the budget to actual progress for each service unit within CEO/IT. This monitoring practice has been especially critical during the last two fiscal years, as agency/department demand for service has fluctuated significantly with the County's budgetary constraints.

These improvements notwithstanding, a problematic level of disclosure remains in how CEO/IT allocates, spends, and reports spending in ISF 289 and Agency 038 (Data Systems Development Projects). The following is a brief overview of ISF 289 and Agency 038:

- *Internal Service Fund 289* – This Fund is used by CEO/IT to provide and charge for a variety of IT services to County agencies/departments, such as: Internet access, telephone services, hosting of hardware at the County Data Center, staff augmentation by contractors for IT services, and IT project management. Unlike General Fund operations, whose unspent/unencumbered allocations typically flow back into the General Fund as Fund Balance Available, Internal Service Funds accumulate a separate “Retained Earnings” reserve to be used in future years. It should be noted that ISF's are funds set up for the purpose of providing

services to other County agencies/departments. As such, the controlling agency (in this case CEO/IT), has a fiduciary responsibility to manage fund resources in a transparent and accountable manner.

- *Fund 100/General Fund, Agency 038 (Data Systems Development)* – This Agency was formed to fund the planning and implementation phases of large systems development projects. Once these projects are implemented, they shift into the operations and maintenance phase, and project budgets are moved to specific agency/department operating funds for management.

Finding 18a: For ISF 289, CEO/IT has charged agencies/departments for infrastructure related services, assuming a certain level of capital/infrastructure spending, but has historically under-spent this budget by a significant margin.

For the three fiscal years 06/07 - 08/09, CEO/IT ISF 289 budgeted \$3.4M, \$5.1M, and \$3.6M, respectively, for *Maintenance of Equipment* (Object 1300) and *Equipment* (Object 4000). ISF 289 charges agencies/departments directly for anticipated equipment maintenance costs (Object 1300), and though agencies/departments are not charged directly for most planned equipment purchases (Object 4000) for the upcoming fiscal year, they are charged a depreciation amount, which is meant to be aggregated and used when new equipment is needed. For example, during the three fiscal years 06/07-08/09, ISF 289 customers were charged \$2.4M, \$2.1M, and \$2.3M, respectively, for depreciation. A review of actual spending illustrates that CEO/IT spent or encumbered \$2.4M, \$2.5M, and \$1.4M in each fiscal year, respectively. In aggregate, over the three year period, while \$12.1M was budgeted and \$9.8M was charged to agencies/departments, only \$6.2M was spent on capital infrastructure (maintenance or equipment).

One key business area that has routinely under-spent its capital budget is Telephone Services (OCTNET). For the three fiscal years 06/07 through 08/09, CEO/IT budgeted a total of \$4.1M for *Telephone Equipment* (expenditure object 4000) and *Maintenance of Equipment* (expenditure object 1300). Agencies/departments were charged a total of \$4.5M. Yet, in actuality, CEO/IT only encumbered/expended \$793K in these expenditure objects.

Any fiscal year-end surplus revenue was used by CEO/IT in one of two ways: (1) to fund other non-capital costs in the same fiscal year or (2) to further build the ISF 289 Retained Earnings balance.

Finding 18b: CEO/IT has funded the operations and maintenance of ongoing non-infrastructure initiatives and projects out of ISF 289 Retained Earnings without informing agencies/departments.

Although CEO/IT has budgeted and collected significant sums of money for infrastructure equipment and maintenance spending in each of the fiscal years FY 06/07 – FY 08/09, CEO/IT staff confirmed that there was a conscious decision made by Executive Management several years ago to cease any significant telephone-related infrastructure refresh or replacement spending. This decision is troubling from at least two standpoints: (1) the current PBX telephone system used by the County has been at the end of its useful life for a number of years, as has the current voice mail system, both of which are identified in the detailed capital refresh and replacement plan and (2) despite having no plans to make any major telephone replacements, CEO/IT has continued to over-recover its costs from its customers for the past several years.

Another important issue is the current shortage of funds to pay for the telephone upgrade (Voice over Internet Protocol) proposed for implementation in FY 10/11. One would expect that in light of the lack of capital spending during the previous three fiscal years, as well as the over-recovery on costs, there would be available funds within ISF 289 (rather than using General Fund Agency 038) to pay for telephone infrastructure refresh or replacement projects, or alternatively to jumpstart the VoIP initiative. However, the audit team has confirmed that going into FY 10/11, there are minimal (<\$1M) remaining reserves set aside to fund either of the aforementioned alternatives. As has been previously noted in both the Task I and this Tasks III-V audit report, much of the Retained Earnings (approximately \$3.6M) has already been or will be spent on the eGov project (between FY 08/09 and FY 10/11). These financial decisions have not been discussed with agencies/departments (the paying customers) or the Board.

Recommendation 18: Establish a formal policy that requires consultation with and approval from the IT Governance structure prior to the use of ISF 289 Retained Earnings.

Finding 19: The components of indirect overhead charged by CEO/IT to agencies/departments in ISF 289 have not been proactively and clearly disclosed to agencies/departments.

In addition to the use of ISF 289 Retained Earnings for projects that have not been communicated with and/or supported by agencies/departments, CEO/IT has similarly included cost elements in the indirect overhead charged to agencies/departments that apply primarily to CEO/IT-driven projects. As a result, there is general confusion and frustration among agencies/departments about the justification for CEO/IT's 12% overhead charge. One such overhead component is the ongoing costs related to the Clarity portfolio management tool. Though the upfront \$393K cost for the purchase of the software was properly paid for through Agency 038 in FY 06/07, the subsequent efforts to make Clarity more usable within CEO/IT (at an estimated cost of at least \$500K from FY 08/09 projected through FY 10/11) have been paid for out of the administrative overhead pool in ISF 289 charged to agencies/departments. To date, only CEO/IT is actively using the Clarity tool to help manage its IT operations¹⁷. To complicate matters, CEO/IT has only just begun to see some resource planning benefits within the last 12 months, and significant and costly application modifications are still in process.

Another example of problematic disclosure is the current proposal by CEO to move CEO/IT's Project Management Office (PMO) from General Fund Agency 017 (Unit 3050) to ISF 289, beginning in FY 10/11. Although CEO/IT expects that a portion of the associated staff time/salaries & benefits will be offset by charges (either back to the CIO's office, to Agency 038, or directly to agencies/departments), there is still approximately \$500K of cost that will have to be absorbed by the Overhead Cost Pool of ISF 289. Prior to this action, CEO Budget instructed agencies/departments to build their budgets assuming an 11% indirect overhead charge. However, due to this recent change, agencies/departments will be charged 12% for FY 10/11. In essence agencies/departments will be collectively paying \$500,000 of additional non-billable staff costs over the course of FY 10/11 as a result of this change. This change was not discussed via the IT Governance process; the lone means for notifying agencies/departments of the justification for this change was a reference made by CEO/IT at the April 2010 Financial Managers Forum. Agencies/departments were notified that it will be necessary to adjust their budgets as part of the 1st Quarterly Budget Report in order to account for this change.

¹⁷ The extent of agencies/departments use of Clarity is updating project information for the IT Quarterly Report. Clerk-Recorder is also looking into using Clarity for its SECURE Electronic Recording Delivery System (ERDS).

Recommendation 19: Develop a formal, annual review session of ISF 289 Administrative Overhead costs with agencies/departments.

Finding 20: CEO/IT has reallocated money between Agency 038 (Data Systems Development) projects without notifying or seeking approval from the Board of Supervisors.

General Fund Agency 038 (Data Systems Development) is a budgetary mechanism that was established to fund the planning and design phases of specific Enterprise IT system projects. Once project implementation occurs, those projects with Countywide benefit and ongoing operations/maintenance costs should transition to and become funded via ISF 289 either through building onto existing charges or through the creation of a new charge to users of the service. There are no staff positions assigned to Agency 038. The authority for allocating monetary resources in Agency 038 rests with the CIO.

As part of the Information System Request portion of the Annual Budget Process, the Board of Supervisors approves a slate of projects to be funded at specific dollar amounts during the upcoming fiscal year. Some of these projects are managed by agencies/departments (ATS, PTMS), while others are managed by CEO/IT (Disaster Recovery, eGov – Phase I, Regional Wireless). Prior to FY 06/07, monies in Agency 038 were used primarily for a few large, critical IT systems (ATS, PTMS, CAPS Legacy). However, beginning in FY 07/08, CEO/IT began to fund many more projects out of Agency 038 (noted in Task I audit report). Agency 038, like all agencies/departments, is currently permitted to make budgetary transfers between Budget Units (formerly “Orgs”) per existing accounting policies set forth by the Auditor-Controller, and such actions should be accompanied by appropriate documentation and official budget transfers in order to ensure transparency and proper disclosure.

Prior to FY 07/08, CEO/IT was responsible for executing budget adjustments within Agency 038; however, the audit team has confirmed with CEO/Budget that because of CEO/IT’s improper accrual practices (which artificially inflated the funds available in the following fiscal year), CEO/Budget took control of the budget management responsibility for Agency 038 beginning in FY 07/08. In addition, though CEO/IT submits budget transfer documents for all transfers within Agency 038, these transfers have not always been vetted with impacted agencies/departments or the Board of Supervisors, prior to the decision. Without this notification there is no method by which the Board will know that money approved for specific projects during the annual budget process is actually spent as directed.

In one instance, the ePages project managed by the Public Administrator/Public Guardian (PA/PG) Office, which was originally funded at \$500K in FY 07/08 and \$500K in FY 08/09 (total of \$1M), had its overall project funding cut by \$250K between the 2nd and 3rd Quarters of FY 07/08. The audit team confirmed that this action was taken by CEO/IT without discussing the project implications with PA/PG. In addition, no budget transfer document exists for this reduction. In another example, a review of budget transfer documents in Agency 038 demonstrates that between January 31st and February 14th 2008, two Agency 038 projects (an IT Security Audit & Threat Assessment and the Enterprise Architecture project) had over \$728,000 of funding redirected to support the escalating costs of the eGov-Phase I Project. Not only was the Board not formally notified of the reduction to these two projects prior to the transfer, but the Board was also not notified of the significant increased costs of the eGov project until February 26 (via the IT Quarterly Report), after the transfers had already taken place. In the budget transfer document from the Enterprise Architecture project, no explanation was provided by CEO/IT, and in the transfer from the IT Security Threat Assessment, the only explanation provided was, "Transfer funds between projects as required to meet business objectives."

In light of the fact that the Board of Supervisors approves specific dollar amounts for particular IT projects in Agency 038 during the annual budget process, it is important that the Board and agencies/departments are not only made aware, but are also supportive of any significant transfer of money between projects. Both the unique nature of Agency 038 (as a collection of pre-approved IT projects) and the recent history of these significant transfers calls for additional monitoring and scrutiny.

Recommendation 20: CEO/IT and CEO/Budget should implement a policy specific to Agency 038 which presents criteria and dollar thresholds for notifying or obtaining approval from the Board of Supervisors regarding proposed budget transfers between Agency 038 projects.

Task IV: Review CEO/IT Performance Measurement

As a major County cost center (over \$150 million annually), information technology demands significant scrutiny and oversight. Key to ensuring that public resources are used effectively and efficiently is the County's ability to measure its IT performance. A strong IT performance measurement program allows County leaders to align IT activities with business needs and highlight areas of improvement.

In this Task, the audit team reviews and evaluates CEO/IT's performance measurement activities in several areas:

- A. CEO/IT oversight of Countywide IT activities
- B. CEO/IT performance (including the ACS contract)
- C. CEO/IT's best practice research and benchmarking efforts

A. Countywide IT Oversight

One of the primary value-added services provided by any organization's central IT group is the continual assessment of operational effectiveness and efficiency in IT. Though CEO/IT does not directly manage agency/department IT operations in the County's decentralized IT environment, there is still a clear oversight role to play with respect to performance measurement and assessment. In a previous section of this report, the audit team discussed the fiscal oversight exercised by CEO/IT over agency/department IT expenditures. This section evaluates whether CEO/IT has sufficient metrics and monitoring procedures in place to oversee (1) Countywide IT productivity and (2) the efficiency and effectiveness of agency/department IT operations.

Finding 21: As the central organization for Countywide IT efforts, CEO/IT should be establishing performance measurement standards, templates, and targets for agencies/departments and gathering data on the performance of Countywide IT; to date, CEO/IT has not made any substantive progress in this area.

In an effective performance measurement program, an organization must establish a set of metrics and the procedures for gathering relevant data. CEO/IT has indicated that its reluctance in this area has been driven by its sensitivity to infringing on agency/department operations. However, the facilitation and collection of performance

metrics would not equate to telling agencies/department how to run their operations. Moreover, the move to a more robust, comprehensive performance measurement system is a Countywide initiative (the Balanced Scorecard) being spearheaded by the CEO's office. As such, it is entirely consistent for the CIO to assume a more proactive role in establishing IT performance metrics throughout the County, as well as in aggregating, assessing, and reporting the results. A prime opportunity to establish these metrics was the Countywide IT Strategic Plan; however, as noted in the Task II audit report, the proposed Plan document did not set out any performance metrics for assessing the success of the Countywide IT goals and strategies.

An insufficient knowledge of agency/department IT operations, as well as a lack of Countywide IT performance measure inhibits CEO/IT's ability to provide meaningful review and evaluation of agency/department requests for Board approval of IT resource allocations, and underutilizes CEO/IT's strategic position in the organization as the clearinghouse for all major IT decisions.

Recommendation 21: CEO/IT should use the IT Governance structure to collaboratively develop a set of Countywide IT performance metrics and a method/means for aggregating and reporting the results.

As a corollary to performance measures, CEO/IT could also be conducting IT performance audits/assessments of agency/department IT operations to provide suggestions for aligning these operations with industry best practices. For a short period, CEO/IT offered this service to agency/departments for the purpose of providing "continuous improvement" opportunities; however, CEO/IT no longer provides these services. This assessment or "audit" function is a valuable service that would result in several mutual benefits: (1) CEO/IT would learn agency/department IT operations in more detail, (2) a joint effort builds collaborative momentum, (3) CEO/IT can gather and aggregate important decision-making information, (4) CEO/IT can identify and share Countywide IT best practices and functional expertise, and (5) existing variations in quality and performance can be brought up to a Countywide standard.

B. CEO/IT Performance Measurement

CEO/IT has initiated some soft performance measurement activities for its own organization. For example, during 2009 CEO/IT management went through a self-assessment process, rating each of the 120+ Key Result Areas (KRA) identified in CEO/IT's Operating Plan (e.g., Board of Supervisor Communication, HR Recruiting and

Planning, IT Research and Development) based on the Capability Maturity Model Integration (CMMI)¹⁸ approach's five stages of maturity (1-Initial, 2-Managed, 3-Defined, 4-Quantitatively Managed, 5-Optimizing). Although the CEO's office spearheaded the Countywide Balanced Scorecard initiative and CEO/IT led the implementation of a performance scorecard software system to support the initiative, the CEO's office ironically (including CEO/IT) has not implemented the Balanced Scorecard or used the software¹⁹. This is concerning because CEO/IT—by the nature of its business and access to data and technology—should lead by example and be at the forefront of performance measurement.

The following sections examine CEO/IT performance measurement in more detail regarding its Project Management Office, Technical Operations, and ACS contractors.

Project Management Office (PMO)

IT Project Performance

The primary project performance measures utilized for CEO/IT-driven projects are *budget* and *schedule* metrics. Budgets and schedules for all CEO/IT-driven projects, as well as agency/department-driven projects costing more than \$250,000, are tracked using the Clarity portfolio management application. The status of all projects Countywide costing more than \$250,000 are reported to the Board of Supervisors via the IT Quarterly Report.

Finding 22: CEO/IT does not measure IT project performance beyond schedule and budget metrics. Specifically, CEO/IT does not measure actual vs. projected benefits anticipated from project business case analyses.

For all projects requesting General Fund Agency 038 monies, the Information Systems Request (ISR) process is utilized, requiring the submitting agency/department to provide a business case for the request. This includes providing the background of the project, the expected business benefits, the expected costs of the project, possible risk, Return on Investment (ROI), and payback period. In addition, regardless of funding

¹⁸ CMMI a trademarked process improvement approach that provides organizations with the essential elements for effective process improvement

¹⁹ Agencies/departments that have implemented the Balanced Scorecard software include: Probation, Treasurer-Tax Collector, OC Parks, OC Community Resources, OC Public Works, and OC Waste & Recycling (nearly complete). Agencies/departments that plan to implement that software in the near future are Registrar of Voters and Child Support Services.

type, all CEO/IT-driven projects that are estimated to take 500 or more work hours require the completion of a business case and project plan.

It is important from both a project performance and a learning perspective that CEO/IT compares the business case and project plan against actual results. By conducting this validation and tracking actual savings or benefits, CEO/IT can better estimate the costs and benefits of future projects and measure the actual success of its projects and initiatives. To date, however, most projects that are completed are not compared against the original business case, including those measurements that are most useful: actual ROI and quantifiable benefits (e.g., actual cost savings). As noted earlier in this report, post-implementation reviews have not been consistently and/or thoroughly conducted. Given that IT is a major County cost center, this evaluation process should be standard operating procedure and is a critical deficiency for CEO/IT. Without these metrics, it is difficult for stakeholders to adequately measure the success and value of an IT project, whether resources are used effectively, and whether additional money should continue to be expended on individual projects.

Recommendation 22: Develop a more rigorous project performance measurement process that includes the tracking of actual vs. projected benefits (e.g., cost savings and process improvements) in an effort to measure the actual Return on Investment of a project.

PMO Staff Performance

In total, since FY 05/06, the PMO has been engaged by agencies/departments to support a total of \$9M in Key IT Projects.

In FY 08/09, the PMO began measuring the performance of its Program/Project Managers engaged to support agency/department-driven projects. At the end of each project, agencies/departments are asked by CEO/IT to complete a Customer Appraisal Form. To date, five Customer Appraisal Forms have been completed for the following projects:

- Electronic Fictitious Business Name (Clerk-Recorder) - \$372K
- BidSync Implementation (Purchasing) - \$30K
- Court Calendar Implementation (Child Support Services) - \$172K
- Standard Data Record (SDR) Hardware Refresh (Assessor) - \$22K

- SECURE Electronic Recording Data System (Clerk-Recorder) - \$768K (total of \$3M for all four application owner counties)

With the exception of one appraisal, the performance of PMO staff based on these appraisals has met or exceeded customer expectations.

Finding 23: While CEO/IT does measure the performance of its project management staff on agency/department projects, there is no measurement of staff performance on Enterprise IT projects driven by CEO/IT.

In addition to the \$9M of agency/department-driven Key IT Projects, the Project/Program Managers in the PMO have also managed \$12M of major CEO/IT-driven Enterprise projects. Given that these Project/Program Managers spend the bulk of their time on high-dollar CEO/IT-driven Enterprise projects that involve many different County stakeholders, CEO/IT should complete customer appraisals for these projects as well.

Recommendation 23: Expand the use of post-implementation Customer Appraisals for Enterprise IT projects.

Technical Operations

In conjunction with the many process improvements that CEO/IT has made in the Technical Operations side of the organization, a number of performance metrics are currently being collected at the Data Center, especially in the Service Desk and Network Platform Services groups. In fact, a vital component of ITIL (the management framework being implemented in the Technical Operations of CEO/IT) is the measurement of Key Performance Indicators (KPIs). Some of these metrics are collected and reported in a user-friendly fashion, while others are only available for managers to view on an as-needed basis.

Two of the areas in CEO/IT Technical Operations where performance measurement is used extensively are Capacity Management (i.e., IT infrastructure is provided at the right time, in the right volume, and at the right price) and Availability Management (i.e., IT infrastructure is available for the provision of IT services). Since May 2009, the CTO has tasked ACS with assembling an Availability Report and a Capacity Management Report on a monthly basis. The groups of infrastructure that are covered in each of these reports include: Wide Area Network, Security, Storage, Email, Virtual

Environment, P595 Systems, Mainframe, Data Center Power, Data Center Space, and Telephone Services. These reports are presented to CEO/IT Executive Management and are available for viewing on an internal CEO/IT website. Aside from data charts that show metrics over time, the reports also provide contextual analysis and discussion to further inform the reader. Though the bulk of information on these reports is currently gathered manually, the creation and review of these reports is a positive step for CEO/IT Technical Operations.

An additional bright spot with respect to performance measurement is Telephone Services. AT&T, the primary subcontractor for these services, provides a monthly “Performance Summary,” which includes a variety of year-to-date workload and performance achievement data within Telephone Services.

Some areas for improvement in Technical Operations performance measures include:

Finding 24: CEO/IT does not have a robust performance measurement system in place in the area of Server hosting.

An area in need of improved performance measurement is NPS/Service Level Agreement (SLA) services (server hosting). Currently, agencies/departments have three SLA choices when they house a server at the Data Center:

- SLA1 = includes just providing power and floor space for the server
- SLA2 = includes SLA1 plus the installation of any major operating system-type patches (e.g. MS Windows)
- SLA3 = includes 24/7 monitoring/maintenance of the server by NPS staff. Within SLA 3, which is the SLA typically chosen by most agencies/departments that host servers at the Data Center, there are a number of service level tasks and associated metrics (30+)

Unfortunately, not all of these service level tasks are measured and reported on a regular basis, either to CEO/IT management or to the agency/department customers who are paying for these services. This performance reporting is an opportunity for CEO/IT Technical Operations to demonstrate the value it is providing for the price agencies/departments are paying. Historically, large agencies/departments have been reticent to relocate their servers to the OCDC because of performance, control, and cost concerns. A robust performance measurement system in this area would be a positive step toward demonstrating that performance issues should no longer be an impediment to the consolidation of servers at the Data Center.

Even in the areas of strong measurement and reporting, there are opportunities to improve the usability of the information. For example, one of the strongest areas of NPS/SLA, in terms of measurement, is incident recording via the ODCD Service Desk. When an agency has a problem associated with a hosted server under SLA3, then a customer calls into the Service Desk. Currently, there are a number of incident-related reports for NPS that are available on the Data Center Help Desk Intranet site. However, though the collection and reporting of this data is positive, much of the data either does not tie to specific SLA metrics that are established in the MOUs with agencies/departments or has not been aggregated and reported in a format that allows for trend analysis. Such analysis is vital to tracking and demonstrating performance over time, as well as establishing benchmarks going forward.

Recommendation 24: Review all existing performance metrics in the area of NPS-SLA services, add/consolidate where appropriate, and refine the reporting mechanisms for this data. (see Appendix D for examples)

Finding 25: There is no central repository for CEO/IT Technical Operations performance data.

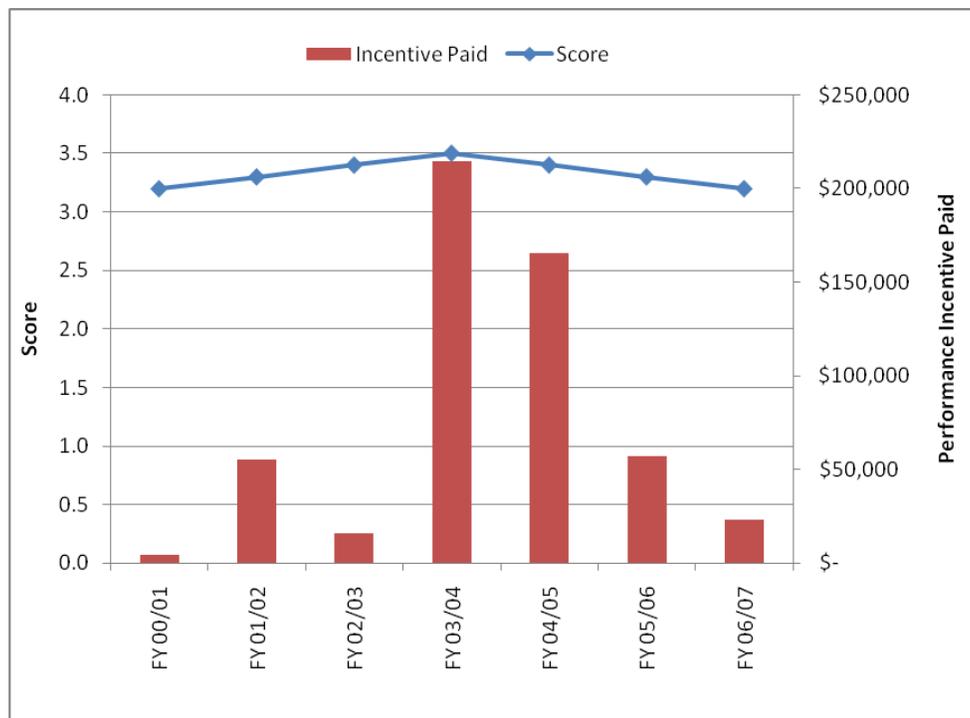
Currently, much of the performance data collected within CEO/IT Technical Operations is scattered in a number of different locations, on both the County Intranet (“Management Information Systems Reports”) and the “CTO portal,” which is a newly established website for internal use by CEO/IT Technical Operations. This situation makes it difficult for managers to track performance and aggregate comprehensive, organization-wide reports, which is a very time-intensive process. In addition, because some of the web pages with performance data have overlapping information with other web pages, there is greater chance for errors as information is being compiled. Lastly, much of this performance information, including the new Availability and Capacity reports, are not shared with agencies/departments in a proactive way. Given that these reports touch on Countywide IT infrastructure, such as the Wide Area Network and the Telephone Systems, it is important that agencies/departments receive this data.

Recommendation 25: Migrate all performance information pertaining to CEO/IT, including Technical Operations, to a “CEO/IT Performance” webpage, consolidate the existing number of CEO/IT performance-related web pages on the County Intranet, and share all relevant CEO/IT performance data with County agencies/departments.

Contractor Performance Measurement

The County currently has an 11-year, \$266 million contract with ACS, which expires in June 2011. In light of ACS’ pivotal role in CEO/IT operations and the current contract with ACS, which stipulates that an incentive payment or penalty is allocated annually based on ACS’s performance, the tracking and measurement of ACS’s performance is a critical responsibility. The contract with ACS establishes a process for performance measurement via a semi-annual survey that is sent out to all agencies/departments. The survey was developed collaboratively by ACS and CEO/IT. The annual average of these survey results determines whether ACS will receive a performance incentive (up to 1% of the estimated contract costs for the year) or be assessed a performance penalty (up to ½% of the estimated contract costs for the year). Agencies/departments rate ACS according to a number of criteria, which are weighted for importance, on a scale of 1 to 4, with 1 being the worst and 4 being the best; an aggregate score above 3 results in a performance incentive, while an aggregate score 3 or below results in a penalty. The historical performance averages of ACS and the associated compensation impacts are included in the chart below.

Historical ACS Performance Survey Results



Finding 26: CEO/IT and ACS have not conducted performance surveys as required by the contract since FY 06/07.

For the first seven years of the contract, CEO/IT and ACS worked collaboratively to refine the survey instrument and to identify responsibility for any problems noted in the survey responses. Though the contract states that ACS is responsible for the distribution of the surveys, CEO/IT and ACS had agreed that it was more appropriate for CEO/IT to send out the survey and aggregate the results in order to ensure proper independence controls. Midway through FY 07/08 (year 8 of the contract), CEO/IT decided to adhere to the specific language of the contract and instructed ACS to distribute the surveys going forward. However, in FY 07/08, no survey was distributed to agencies/departments. CEO/IT documentation demonstrates that throughout this fiscal year they communicated frequently with ACS about his problem, and yet no survey was ever sent out. Then, for the first half of FY 08/09, ACS did distribute a survey, but the survey had a number of problems, including a lack of consistency with the prior year's questions and an incorrect scoring scale. For the second half of FY 08/09, again, there was no survey distributed to agencies/departments. Consequently, ACS went for two years without a performance incentive bonus/penalty, and the CEO/IT went without a quantitative measure of its primary IT contractor's performance. Additionally, the Board of Supervisors has been without a formal performance assessment of the County's largest IT contractor for over two years. It is unclear why CEO/IT was unable to resolve this issue with ACS, despite the fact that both sides were actively involved. Clearly, the process was followed for the first seven years of the contract with CEO/IT taking the lead on survey distribution and results aggregation.

This situation is particularly troubling as some members of the CEO/IT Executive Team have expressed dissatisfaction with ACS over the last several years, in which case there is a real incentive on the part of the County to collect the survey results in order to substantiate and document any poor performance and assign the appropriate level of financial penalty. Yet, it was not until FY 09/10 that CEO/IT and ACS succeeded in collaborating to distribute a refreshed customer survey. The results of this survey are still being compiled as of the writing of this report. Other than this survey, there are no other means established for the formal performance measurement of ACS. The need for such measures will become even more compelling as CEO/IT and the County pursues a Managed Services outsourcing approach to the Data Center as well as a converged Voice/Data Network.

Recommendation 26: (a) Conduct benchmarking surveys against other organizations (private and public), to establish a robust set of performance metrics for all major contractors, especially those with critical roles in the delivery of core IT services, and (b) Report the results of these performance measurements to the Board of Supervisors and on the “CEO/IT Performance” web page on at least an annual basis, and incorporate the results into a broader Annual CEO/IT Report.

C. Research and Benchmarking

Over the past year, the Chief Technology Officer (CTO) has proactively undertaken efforts to research and benchmark CEO/IT’s infrastructure as a step toward improving Data Center performance. In July 2009, consultant Hewlett-Packard (HP) was engaged to conduct a gap analysis of CEO/IT’s infrastructure, using HP’s Adaptive Infrastructure Maturity Model (AIMM), which consists of five maturity stages²⁰. The study rated the County against both the Public Sector industry and the desired maturity level. HP examined CEO/IT’s infrastructure in four domains (Technology & Architecture, Management Tools & Processes, Culture & Staff, and Demand, Supply & IT Governance), finding that the County is currently in Stage 2 maturity (“Standardized”) for most elements of the four domains. While the target or desired stage for the County of Orange is Stage 4 (“Automated Service Oriented”), HP recommended that the County first work toward moving from Stage 2 maturity to Stage 3 maturity (“Optimized”) in the near term, aspiring to reach Stage 4 in the longer term.

In addition to the HP benchmarking study, the CTO recently procured Gartner IT Key Metrics Data, which allows CEO/IT to benchmark key spending, staffing, performance, and operational measures. An analysis of CEO/IT’s performance against these benchmarks is currently beginning.

For Enterprise strategic initiatives and projects, research and benchmarking is conducted on a project-by-project basis. For example, in conducting business cases and analyses related to the 3-1-1 Customer Service Center and Regional Wireless initiatives, CEO/IT staff and consultants researched other cities and counties that had undertaken similar initiatives to understand costs and feasibility. Similarly, a consultant was hired to conduct a gap analysis as part of the ITIL implementation.

²⁰ Stage 1: Compartmentalized, Stage 2: Standardized, Stage 3: Optimized, Stage 4: Automated Service Oriented, Stage 5: Adaptively Sourced Infrastructure

Task V: Evaluate CEO/IT Communications

A major part of the scope of work for Tasks III-V is to evaluate the quality of CEO/IT communication with the Board of Supervisors, agencies/departments, the public, and within its own organization.

Finding 27a: The quality of communication between CEO/IT and its internal/external customers has improved but still requires immediate management attention.

A. CEO/IT Communication with the Board of Supervisors

CEO/IT utilizes multiple mechanisms for communication with the Board. Examples include: monthly Board Executive Assistant briefings, IT Project Quarterly Reports, Board Meetings via Agenda Staff Reports (ASRs), memoranda, and ad-hoc meetings/briefings. The audit team interviewed staff from each of the five Board Offices regarding their perception of the quality of communication between their Offices and CEO/IT. Perceptions were consistent across a majority of Board Offices. The following is a summary of the opportunities for improvement that were expressed:

- Communications from CEO/IT to the Board tend to be unnecessarily technical, heavy on jargon, and unsuccessful in informing the audience.
- On several important IT initiatives/projects presented to the Board for approval, requests are presented as urgent, without a proper foundation laid in advance.
- Information that is provided sometimes lacks sufficient business context to help the Board make informed resource allocation decisions.
- CEO/IT has, at times, reacted in a defensive manner to input from the Board which was confirmed by leadership within the County Executive Office and within CEO/IT.
- CEO/IT should communicate how proposed IT initiatives/projects are aligned and/or linked with the Strategic Financial Plan and the Annual Budget process to ensure that each initiative/project is financially accounted for and reviewed.

The audit team evaluated two major mechanisms for CEO/IT communication with the Board: IT Quarterly Reports and Agenda Staff Reports.

IT Quarterly Reports

IT Quarterly Reports were initiated in 2005 at the request of Supervisor Campbell. Positive communication aspects of these reports include:

- The reports provide the Board with a snapshot of the current status of IT projects costing \geq \$250,000.
- CEO/IT has been responsive to requested changes in report format and content by the Board.

Identified opportunities for improvement include:

- After examining multiple examples of CEO/IT-driven projects that have been poorly planned and/or executed (eGovernment, Clarity, OCid), as detailed in the Project Management portion of this audit report, it is evident that the IT Quarterly Reports, in many cases, fail to give the Board an adequate picture of individual project status.
- As validated in the Task I audit report, not all project costs are reported in IT Quarterly reports. For example, on-going operations and maintenance costs, as well as County staff-time costs, are not reported.
- The delay between the reporting period and its presentation to the Board (CEO/IT targets 6-8 weeks, but sometimes it has been 2-3 months) has resulted in project status information being stale at the time of Board presentation. Recent examples are both the October – December 2009 quarterly report, agendized on the March 2, 2010 Board meeting, and the January – March 2010 quarterly report, agendized on the May 4, 2010 Board meeting, which state that the OCid project is “on-time and on-budget,” when it has, in fact, experienced major setbacks.
- IT projects are not numbered and, at times, project names are changed. As a result, it is difficult for the Board to track changes in project scope, schedule or costs. Additionally, all project phases are not always reported or appropriately communicated (e.g., eGov).

Agenda Staff Reports and Board Presentations

Agenda Staff Reports (ASRs) and Board presentations are utilized by CEO/IT to inform the Board about its most important activities and to provide the Board with the information it needs to make important resource allocation decisions. Unfortunately, CEO/IT has struggled with effectively writing and presenting ASRs. Recent examples include:

- CEO/IT ASRs do not always disclose all relevant information required for the Board to make informed policy and resource allocation decisions. Examples include the initial efforts by CEO/IT for Board approval of an IT Sourcing strategy that were postponed due to a lack of sufficient information provided to the Board; and the original April 20, 2010 ASR regarding a sole source contract with Vignette to migrate the eGovernment delivery system a new (P595) platform that was continued due to insufficient and inaccurate information.
- The March 2, 2010 Board meeting discussion regarding a Regional Wireless grant application demonstrated CEO/IT's lack of awareness regarding the specifics of this item.
- The March 30, 2010 Board meeting discussion regarding a proposed Countywide Social Media policy illustrated CEO/IT's inability to allay Board concerns and address specific details of the policy, resulting in the item's continuance.

Audit team interviews with CEO/IT staff at all levels also support the view that improvement needs to be made in the quality of CEO/IT communication with the Board.

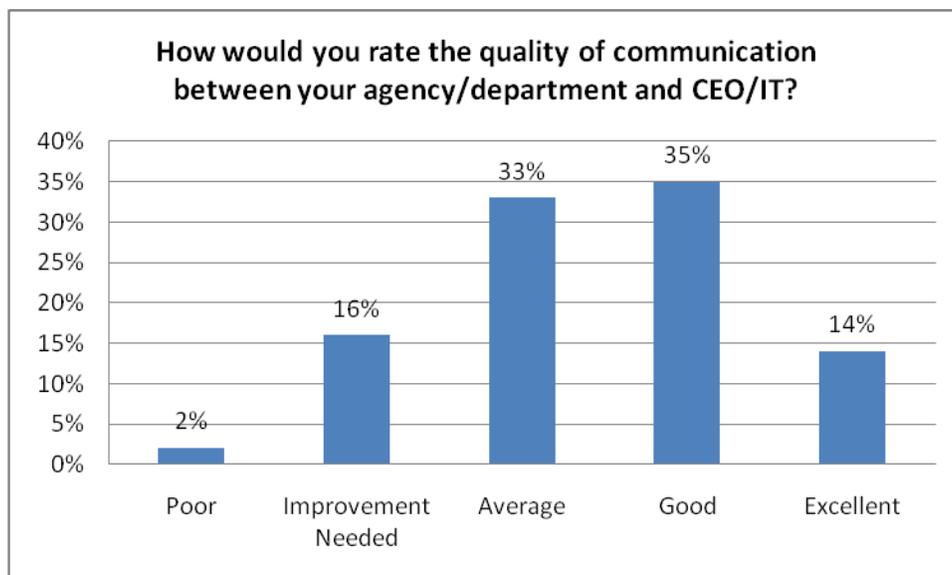
B. CEO/IT Communication with Agencies/Departments

CEO/IT management uses a variety of methods to communicate with agencies/departments, some of which include: meetings with the CIO, meetings with other CEO/IT executives (e.g., CTO), memoranda, the IT Project Review Board, and the IT Governance structure.

Audit research indicates that CEO/IT communication with agencies/departments has been a long-standing concern:

- In a July 2006 CEO/IT internal survey, CEO/IT solicitation of customer input, multiple interviews cited communication and feedback mechanisms as opportunities for improvement.
- In October 2007, CEO/IT engaged a consultant (PA Consulting, Inc.) to perform an ITIL gap analysis. As part of their analysis, PA asked County agency/department customers to list their top complaints or areas for improvement relative to IT services in order of priority. Number three on the list was “Poor Communication (internal and external);” number five on the list was “Purpose/objectives behind initiatives not transparent/suspicion of hidden agenda.”

In an effort to quantify current agency/department attitudes regarding this issue, the following question was asked in a survey of agency/department executives and IT managers: “How would you rate the quality of communication between your agency/department and CEO/IT?”



In general, agencies/departments have noted that the frequency and tone of communications between CEO/IT and themselves has improved since the prior CIO. The quality of communication is rated highest by agencies/departments that interact most frequently with CEO/IT, and by agency/department business leadership (Department Heads/Directors of Administration).

Despite this progress, audit findings also show that there remain opportunities for improvement.

First, the IT Governance structure and its individual groups were intended to serve as a forum for agency/department collaboration. However, as previously discussed in the IT Governance portion of this report there are a variety of obstacles that inhibit meaningful communication/collaboration.

Second, communication with agencies/departments was the most cited area for improvement by CEO/IT staff. Examples of specific CEO/IT employee comments include:

- Communication is the weakest part of CEO/IT; it's not the best part of what we do
- We keep shooting ourselves with a lack of transparency
- We send out ill-crafted messages and expect good results
- We need to provide a compelling reason for agencies/departments to listen to us; we owe them explanations and transparency

Third, interviews with and survey results from agency/department executive and IT management staff raised several improvement opportunities, such as:

- Some forms of communication, especially emails to agency/department executives and IT professionals regarding the implementation of new enterprise IT initiatives/projects are often presented in a heavy-handed fashion (already decided), and/or are confusing due to a lack of context.
- Proposals with a significant impact to agencies/departments are presented in a rushed, last-second manner with incomplete details or business analysis.

C. CEO/IT Communication with the Public

Like all public entities, CEO/IT is ultimately responsible to the public, which includes transparency in its use of public funds. The general method of CEO/IT communication with the public, in addition to items presented to the Board via the public agenda, is through its website on OCgov.com.

The audit team reviewed this website and found that while the site does provide the public with a high-level understanding of the role of the Chief Information Officer and the key initiatives of CEO/IT, the content on the site has not been kept up-to-date. For example, the "Key Strategic Initiatives" area of the site has not been updated since 2008 and inaccurately includes the 311 Service Center as a current initiative (note: 311

Service Center was an initiative that was discontinued after the feasibility analysis stage). As the central IT organization in the County and the champion of the eGov initiative, it is unfortunate that information on CEO/IT's own website is stale.

Finding 27b: CEO/IT does not prepare an Annual Report.

A specific question posed by the Board of Supervisors in the scope of this audit was whether or not CEO/IT has "...a separate Annual Report that describes progress in achieving its goals." The audit team has confirmed that no separate Annual Report is prepared although CEO/IT does contribute to the overall CEO Business Plan and does prepare a document that lists its key accomplishments.

D. Communication within CEO/IT

In regard to CEO/IT's internal communications, there were mixed results. It was generally acknowledged that communication in technical operational areas has improved noticeably with the implementation of the ITIL framework. Alternatively, CEO/IT staff also provided the audit team with several examples of dysfunctional internal communication practices, which is summarized below:

- Several concerns were raised regarding communication between the CIO and the rest of the CEO/IT organization. A sampling of interview comments included:
 - Typically, the CIO's decision to pursue certain IT projects is already made and the resulting request for staff input is perfunctory.
 - Many CEO/IT staff are hesitant to disagree with the CIO in internal meetings.
 - It is very difficult for the CIO to admit or communicate mistakes.
- The CIO did not provide the CTO (one of his two direct reports) a copy of the preliminary draft report during the factual review phase of the audit (two weeks). During the factual review meeting, the CIO confirmed that this was the case and subsequently provided the CTO a copy of the report.
- The current organizational structure, built around the "14 Centers of Excellence", has resulted in a more specialized workforce. As a result, some staff have perceived an increase in inefficiency due to a greater number of staff involved in any one project, leading to excessive amounts of internal communication and coordination, greatly expanding project timeframes and cost.

E. Communication Impacts from Other Tasks III-V Audit Findings

Ineffective communication continues to hamper CEO/IT's operations and performance. A cumulative examination of audit findings clearly demonstrates that this deficiency has evolved into a culture where important IT information/activities are not disclosed by CEO/IT to its customers. The findings below, which are found in other sections of this audit report, have communication elements:

- The use of the IT Governance structure to collaborate on Countywide IT activities has been wholly or partially bypassed on several occasions.
- Several formal CEO/IT communications to the Board (e.g., ASRs, Quarterly Reports, memoranda) fail to provide sufficient and/or inaccurate information to allow the Board to make informed decisions.
- CEO/IT leadership priorities are unclearly communicated and frequently change. As a result, organizational objectives are vague and individual project priorities are in a constant state of flux.
- The results of many important CEO/IT initiated consultant and project feasibility studies authorized by the Board have not been subsequently provided to the Board. Examples include: 311 Customer Service Center study, PA Consulting Review of the ACS contract, and the Plan Net of the County telephone system.
- CEO/IT billing rates have become more transparent, but overhead components and the use of ISF 289 Retained Earnings are still not proactively and clearly disclosed to agencies/departments.

These communication deficiencies have negatively impacted CEO/IT in the following manner:

- Working relationships between CEO/IT and the Board, as well as between CEO/IT and agencies/departments, continue to be strained. In some cases, the communication missteps of CEO/IT have created even more friction.
- From an efficiency standpoint, the impact of communication deficiencies leads to hours of unnecessary Board and County staff time spent working through poorly explained initiatives and projects.
- Operational decisions are pursued against the recommendations of staff and have subsequently resulted in avoidable project failures.

Recommendation 27: Improve CEO/IT communications with internal/external customers by:

- a. Taking measures to ensure that all communications to the Board and agencies/departments are sufficient, accurate, timely, and clearly articulated for a non-technical audience.
- b. Using this audit and the guidance of key managers, CEO/IT must first confirm and acknowledge its existing weaknesses and develop simple, concrete action plans that address the myriad of well-documented, critical communications shortcomings.
- c. Promoting an environment of open communication within CEO/IT, where staff input is both requested and utilized before decisions are made.
- d. Maintaining an up-to-date CEO/IT website.

Consider the value of preparing a summary level annual report that describes CEO/IT operations, performance, and plans for the future.

Appendices

Appendix A: Customer Survey Results

DEMOGRAPHICS

1. How frequently do you interact with CEO/IT staff, on average?

Daily	8	16%
Weekly	20	41%
Monthly	15	31%
Quarterly	4	8%
Annually	2	4%
Total	49	100%

2. How would you describe your level in your agency/department?

Executive (Agency/Dept. Head or Director of Administration)	25	51%
IT Manager/Supervisor	24	49%
Total	49	100%

TECHNOLOGY FOCUSED QUESTIONS

3. Please rate the quality of service provided to your agency/department by the CEO/IT (Data Center) in the following areas:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Poor	Needs Improvement	Average	Good	Excellent	N/A
Server Hosting	0 0%	1 4%	7 29%	10 42%	1 4%	5 21%
Data Network	1 4%	4 17%	3 12%	12 50%	3 12%	1 4%
Network Security	0 0%	4 17%	5 21%	10 42%	4 17%	1 4%

Excluding "N/A" responses, the results are as follows:

3. Please rate the quality of service provided to your agency/department by the CEO/IT (Data Center) in the following areas:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Poor	Needs Improvement	Average	Good	Excellent	TOTAL
Server Hosting	0 0%	1 5%	7 37%	10 53%	1 5%	19
Data Network	1 4%	4 17%	3 13%	12 52%	3 13%	23
Network Security	0 0%	4 17%	5 22%	10 43%	4 17%	23

4. Please rate the quality of service provided to your agency/department by the CEO/IT (Application Development) in the following areas:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Poor	Needs Improvement	Average	Good	Excellent	N/A
Business Analysis	1 4%	2 8%	5 21%	3 12%	0 0%	13 54%
Application Development	0 0%	2 8%	6 25%	3 12%	0 0%	13 54%
Application Implementation	0 0%	2 8%	4 17%	6 25%	0 0%	12 50%

Excluding “N/A” responses, the results are as follows:

4. Please rate the quality of service provided to your agency/department by the CEO/IT (Application Development) in the following areas:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Poor	Needs Improvement	Average	Good	Excellent	TOTAL
Business Analysis	1 9%	2 18%	5 45%	3 27%	0 0%	11
Application Development	0 0%	2 18%	6 55%	3 27%	0 0%	11
Application Implementation	0 0%	2 17%	4 33%	6 50%	0 0%	12

5. Please rate the quality of service provided to your agency/department by CEO/IT's Program Management Office (PMO) in the following areas:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Poor	Needs Improvement	Average	Good	Excellent	N/A
IT Project Planning	2 8%	4 17%	4 17%	2 8%	0 0%	12 50%
IT Project Implementation	2 8%	3 12%	5 21%	2 8%	0 0%	12 50%

Excluding “N/A” responses, the results are as follows:

5. Please rate the quality of service provided to your agency/department by CEO/IT's Program Management Office (PMO) in the following areas:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Poor	Needs Improvement	Average	Good	Excellent	TOTAL
IT Project Planning	2 17%	4 33%	4 33%	2 17%	0 0%	12 50%
IT Project Implementation	2 17%	3 25%	5 42%	2 17%	0 0%	12 50%

6. Relative to IT industry standards, how does CEO/IT compare with respect to cost in the following areas:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Less costly	In line with industry standard	More costly	N/A
Application Development	0 0%	3 12%	13 54%	8 33%
Server Hosting	1 4%	9 38%	11 46%	3 12%
Project Management Services	0 0%	1 4%	12 50%	11 46%
Data Storage	1 4%	11 46%	8 33%	4 17%

Excluding “N/A” responses, the results are as follows:

6. Relative to IT industry standards, how does CEO/IT compare with respect to cost in the following areas:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Less costly	In line with industry standard	More costly	TOTAL
Application Development	0 0%	3 19%	13 81%	16
Server Hosting	1 5%	9 43%	11 52%	21
Project Management Services	0 0%	1 8%	12 92%	13
Data Storage	1 5%	11 55%	8 40%	20

BUSINESS FOCUSED QUESTIONS

7. Of the following roles and responsibilities of CEO/IT, please provide ratings in terms of importance/value to your agency/department.

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Not important/ No Value	Minimal Importance/ Value	Average Importance/ Value	Above Average Importance/ Value	Critically Important/ Valuable
Providing reliable infrastructure services (e.g. network services, security, telephone services)	1 2%	1 2%	3 6%	16 33%	28 57%
Providing technical expertise and quality assurance for agency/department IT system/infrastructure implementations or other IT initiatives, as requested	2 4%	6 12%	13 27%	15 31%	13 27%
Providing project management resources to assist agencies/departments, as requested	10 20%	13 27%	19 39%	5 10%	2 4%
Implementing IT projects that have Countywide IT implications (e.g. E-government, OcID, Disaster Recover/Business Continuity).	3 6%	11 22%	12 24%	15 31%	8 16%
Developing Countywide IT policies, standards, and guidelines	3 6%	9 18%	19 39%	9 18%	9 18%

8. How would you rate your overall satisfaction as a customer of CEO/IT?

Poor	0	0%
Improvement Needed	11	22%
Average	14	29%
Good	18	37%
Excellent	6	12%
Total	49	100%

9. Please rate CEO/IT's overall level of knowledge of your agency/department operations and business needs.

Poor	5	10%
Improvement Needed	14	29%
Average	12	24%
Good	14	29%
Excellent	4	8%
Total	49	100%

10. How would you rate the quality of communication between your agency/department and CEO/IT?

Poor	1	2%
Improvement Needed	8	16%
Average	16	33%
Good	17	35%
Excellent	7	14%
Total	49	100%

11. Please rate the overall benefit of the established Countywide IT Governance Model to your agency/department:

No Benefit	4	8%
Minimal Benefit	11	22%
Average Benefit	25	51%
Above Average Benefit	6	12%
Critical Benefit	3	6%
Total	49	100%

12. Please rate the benefit to your agency/department of each of the 12 Strategic Initiatives listed in the Countywide IT Strategic Plan:

	No Benefit	Minimal Benefit	Average Benefit	Above Average Benefit	Critical Benefit	No Opinion
Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.						
311 Customer Service Center	7 14%	18 37%	13 27%	2 4%	1 2%	8 16%
Business Continuity/Disaster Recovery	0 0%	12 24%	9 18%	19 39%	7 14%	2 4%
Core Countywide Administrative Systems Replace (i.e. CAPS+,	1 2%	4 8%	18 37%	14 29%	10 20%	2 4%
Decision Support (i.e. Automated Data Collection, Analysis, and Reporting)	7 14%	14 29%	14 29%	3 6%	1 2%	10 20%
E-Government	8 16%	13 27%	11 22%	9 18%	1 2%	7 14%
Electronic Document Management	7 14%	16 33%	5 10%	9 18%	6 12%	6 12%
Emergency Mass Notification (Alert OC)	5 10%	9 18%	16 33%	7 14%	3 6%	9 18%
Geographic Information Systems (GIS)	11 22%	10 20%	11 22%	5 10%	1 2%	11 22%
Information Security	1 2%	5 10%	6 12%	19 39%	15 31%	3 6%
IT Infrastructure Refresh (e.g. WAN Upgrade)	2 4%	2 4%	13 27%	18 37%	9 18%	5 10%
IT Portfolio Management (Clarity)	12 24%	13 27%	10 20%	2 4%	1 2%	11 22%
Regional Wireless	15 31%	7 14%	9 18%	5 10%	2 4%	11 22%

Excluding “No Opinion” responses, the results are as follows:

12. Please rate the benefit to your agency/department of each of the 12 Strategic Initiatives listed in the Countywide IT Strategic Plan:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	No Benefit	Minimal Benefit	Average Benefit	Above Average Benefit	Critical Benefit	TOTAL
311 Customer Service Center	7 17%	18 44%	13 32%	2 5%	1 2%	41
Business Continuity/Disaster Recovery	0 0%	12 26%	9 19%	19 40%	7 15%	47
Core Countywide Administrative Systems Replace (i.e. CAPS+,	1 2%	4 9%	18 38%	14 30%	10 21%	47
Decision Support (i.e. Automated Data Collection, Analysis, and	7 18%	14 36%	14 36%	3 8%	1 3%	39
E-Government	8 19%	13 31%	11 26%	9 21%	1 2%	42
Electronic Document Management	7 16%	16 37%	5 12%	9 21%	6 14%	43
Emergency Mass Notification (Alert OC)	5 13%	9 23%	16 40%	7 18%	3 8%	40
Geographic Information Systems (GIS)	11 29%	10 26%	11 29%	5 13%	1 3%	38
Information Security	1 2%	5 11%	6 13%	19 41%	15 33%	46
IT Infrastructure Refresh (e.g. WAN Upgrade)	2 5%	2 5%	13 30%	18 41%	9 20%	44
IT Portfolio Management (Clarity)	12 32%	13 34%	10 26%	2 5%	1 3%	38
Regional Wireless	15 39%	7 18%	9 24%	5 13%	2 5%	38

13. Please provide any additional customer service-related comments or feedback that you think would be helpful for our audit of CEO/IT.

49 Responses

Comments (excludes comments that can be attributed to a particular agency/department):

Need to improve on communication with other agencies.

Would like to see: More complete billing statements & better breakdown in services. Less internal security where it makes sense (less firewalls, rules, etc).

Identify total cost of ownership (including on-going support) for all projects.

I believe that CEO-IT is getting better, but still have trouble thinking outside the box. Reviews department's Plan without optional suggestions/ideas when they are the "experts." Should have better knowledge of departments' business requirements and needs.

CEOIT is doing better and better.

When rolling out new systems, e.g. OCid, it is very important to include all stakeholders at the onset of the project and keep the communication lines open all the way through the project. Keeping the communication lines open can result in efficiencies, confidence with the integrity of the data, better working relationships and good results.

Plan/Pilot with a large and small agency to ensure you meet the needs of both. CEO IT focuses on the small agencies for pilot, when they try to implement the setup with a large agency we encounter their inability to accommodate, we must pay for custom programming to make it work for us, or a response the system doesn't work that way. If a system will be mandated by the BOS that all agencies use the system then the BOS should mandate any system must work for the largest agency down to the smallest agency. This ensures funds are spent wisely for systems that are mandated by the BOS that all agencies use the system.

More open communication on rates and fees is definitely an area for improvement. Additionally, there needs to be more of a focus on department operational needs for IT funding in addition to the Countywide projects.

CEO/IT needs to improve communication, clearly define roles and responsibilities, provide improved customer service and reduce costs.

CEO/IT typically provides excellent responses to requests for service.

The CEO's Office of Project Management has never engaged our department to support our projects.

CEO should consider their customer's needs before they expend resources on their own projects

Too many initiatives without Department input. Also seems that CEOIT already has an agenda prior to our input. CEOIT has limited expertise and will frequently use Dept. staff resources.

They do a fantastic job considering the circumstances

The most important service provided by CEO/IT is policy and best practice promulgation to ensure uniformity throughout the County to the greatest extent possible.

Mr. Ajmani and his staff have made a concerted effort to reach out to our agency in the past several months to improve communication and provide service.

Appendix B: Memo to the Board of Supervisors on IT Sourcing

Office of the Performance Audit Director

Memorandum

October 16, 2009

To: Chairman Patricia Bates
Vice-Chair Janet Nguyen
Members, Board of Supervisors

From: Performance Audit Director

Subject: Office of the Performance Audit Director Follow-up Memo on
Performance Audit of CEO/IT and the Avasant Contract Discussions

At the September 15, 2009 Board meeting, Supervisor Bates directed CEO/IT and the Office of the Performance Audit Director (OPAD) to meet and review the scopes of work for both the CEO/IT Sourcing Advisor (Avasant) and the Performance Audit of CEO/IT in order to mitigate any unnecessary duplication of effort. Each of your Offices has received our October 16, 2009 joint memo on this subject.

During those discussions, OPAD raised an additional concern that the Board will be asked to vote on a Sourcing Strategy and the release of an IT Sourcing RFP before important and pertinent elements of the CEO/IT Performance Audit are complete. My office met with CEO/IT and Avasant to discuss our additional concern. In an effort to inform your Board of current IT activities and plans, the following is a summary of the items that were discussed and their implications. In addition, following that summary, we have provided recommendations for your Board to consider.

Discussion Items

- CEO Proposed Board Presentation of a New IT Sourcing Strategy

The current ACS Sourcing contract is an 11-year, \$266 million contract, which covers both Voice/Network (Telephone) and IT Services and expires in June 2011. CEO/IT and OPAD concur that the Voice and IT Sourcing environment has changed significantly since the crafting of the current ACS contract. The expiration of the ACS Sourcing contract is an opportunity for the County to structure contract terms that are more in line with industry standards and potentially more cost efficient. Avasant is the IT sourcing advisory firm that CEO/IT has tasked with evaluating three options for IT Sourcing at the County (not inclusive of Voice/Network services):

1. Maintain the status quo. The current IT sourcing model countywide is a **Staff Augmentation** model, where individual contractors are procured for various IT services (e.g., Database Support, Desktop Support, Help Desk, Application Development) to varying degrees across County agencies/departments. CEO/IT relies heavily on the ACS contract to staff much of their operation; these contractors are managed by County staff. As noted, other agencies/departments utilize contract staff (some ACS, some not) for a variety of IT services, but typically only to augment existing in-house County IT employees.
2. Bring all IT services that are currently outsourced to ACS in-house. This IT sourcing model is called “**Insourcing**”.
3. Move to a **Managed Services** model. Like the County’s current Staff Augmentation model, a Managed Services model is also a form of outsourcing. A Managed Services model differs from a Staff Augmentation model in three key ways: 1) vendor performance/quality is measured against contractual Service Levels (i.e., minimum standards of performance for outsourced services). Failure to meet a service level typically results in a customer credit that reduces fees payable to the vendor, 2) management of contractor staff is the responsibility of the vendor rather than the County, and 3) services are procured for a fixed per-unit-supported (e.g. per server supported, per desktop supported) fee and at a mutually agreed upon level of service (e.g. each server will be up and running 99.99% of the time), rather than on a per hour basis for contract staff time.

Over the last month, Avasant has analyzed data and interviewed agency/department heads and IT managers in an effort to evaluate the three options. To augment Avasant's efforts, the CEO's office has established a governance structure composed of agency/department heads and IT managers to provide input into the development and selection of a Sourcing Strategy. With administrative support and IT expertise of a core project team, the governance teams will develop service levels, analyze risks, and review pricing and business case analysis for each of three Sourcing models.

At one of the Board meetings in November/early December (2009), the CEO's office will recommend transitioning to one of the above models in order to achieve more effective and cost-efficient IT service delivery within CEO/IT, and possibly countywide. Avasant has indicated that based on their significant experience in these types of analyses, it is most likely that the Managed Services model will be recommended. Avasant has also indicated that typically, in order to maximize cost savings, transitioning to a Managed Services model is coupled with increased outsourcing.

In light of the fact that a Managed Services model is the most likely recommended outcome—and is the most significant change for the County—it is critical for the Board be apprised of the potential implications of transitioning to this model:

- Any plan to outsource existing County positions will require lengthy and significant discussions with labor organizations.
- The majority of County agencies/departments have stated that they are amenable to exploring a Managed Services model and to “testing the waters” (i.e., examining outsourcing prices) through the release of an IT Sourcing RFP. To that end, they have provided Avasant with a preliminary list of IT services for which they would like to explore pricing. However, several wish to reserve the right to consider thoroughly the proposed pricing, as well as other important organizational ramifications before officially committing to outsource existing County positions.
- Should the Board approve a Managed Services Sourcing Strategy and outsourcing opportunities for IT services, the Board may want to clarify whether it expects agencies/departments to align with CEO/IT's new IT Sourcing Strategy and outsourcing goals, or if it will allow agencies/departments to individually decide on a level of insourcing vs. outsourcing once they have examined pricing options obtained through the RFP process. This clarification will also be an

opportunity for the Board to have a policy discussion regarding the current County “federated (decentralized) IT system”.

❑ IT Sourcing Strategy Request for Proposal (RFP)

As part of the execution of CEO/IT’s proposed IT Sourcing Strategy, CEO/IT plans on releasing two RFPs (essentially bifurcating the scope of work that is currently under the ACS contract).

The first is an expedited RFP for Voice/Network (Telephone) services (specifically, for Voice over Internet Protocol or “VoIP”), which is proposed to be released in November 2009, with the intent of having a Telephone/Network vendor in place by March 2010. Fast-tracking this RFP will likely allow the County to realize significant cost-savings. In fact, several agencies/departments have VoIP in place or have, for some time, expressed their desire to move to the less-costly VoIP technology. In moving forward, it is, however, important to note that with VoIP technology, voice and data may share the same communications medium at some points in the communications network. Therefore, any decisions regarding new VoIP technology should accommodate and not preclude future networking, functionality and capacity requirements that would be identified and proposed in the IT Sourcing process.

CEO/IT proposes to release a second RFP for IT Services (e.g., Data Center operations, Desktop Support, Help Desk) in March 2010. The development and release of this RFP will follow Board approval of the CEO-recommended IT Sourcing Strategy. OPAD believes that CEO/IT should ensure that this RFP and the subsequent vendor negotiations reflect any value-added findings/recommendations from CEO/IT Performance Audit Task I (Document and Verify Current IT Resource Allocations scheduled to be completed in October 2009), Task II (Review of CEO/IT Proposed Business Model scheduled to be completed in January 2010), and Task III (Review of CEO/IT Operational Readiness scheduled to be completed in April 2010).

The possibility of waiting to release the second RFP until after the completion of Tasks I-III of the Performance Audit was discussed in detail. During those discussions, it became clear that CEO/IT has concerns about significantly delaying the release of the second RFP. CEO/IT has stated that such a delay in soliciting for and selecting an IT Sourcing vendor will consequently delay potential cost savings to the County in the short-term. OPAD believes that the opportunity cost of waiting is outweighed by the long-term benefit of having an RFP that incorporates the

results of the Performance Audit. Moreover, OPAD believes that because the new IT Sourcing contract will be a multi-year, multi-million dollar contract, it is critically important from a long-term financial, operational and risk perspective to ensure that the RFP and selection process is as thorough as possible and consistent with countywide IT requirements.

Recommendations to the Board

1. Proceed with Voice/Network (Telephone) RFP release to expedite cost saving. However, ensure that this RFP does not inhibit future IT Sourcing options.
2. Direct OPAD to review and comment to the CEO and Board on any IT Sourcing Strategy proposal, in-concept or in detail, made by CEO/IT, prior to formal Board consideration on the public agenda.

If you have any questions or wish to discuss this matter in more detail, please contact me at your convenience.

Steve Danley

cc: Tom Mauk, CEO
Satish Ajmani, CIO

Appendix C: CEO/IT-NPS Cost Recovery

		<u>FY 08/09</u>	<u>FY 09/10</u> <u>(Projected)</u>
<u>WAN/SECURITY</u>			
	Revenues	\$7,488,053	\$6,757,605
	Expenditures	\$6,546,497	\$6,388,457
	Over/(Under)	\$941,556	\$369,148
<u>CUSTOMER DRIVEN DEMAND</u>			
SAN			
	Revenues	\$335,342	\$528,591
	Expenditures	\$305,055	\$500,266
	Over/(Under)	\$30,287	\$28,325
NPS Technical Project Support			
	Revenues	\$1,483,861	\$987,483
	Expenditures	\$1,716,342	\$1,024,128
	Over/(Under)	(\$232,481)	(\$36,645)
Server Maintenance			
	Revenues	\$1,821,569	\$1,702,189
	Expenditures	\$1,591,987	\$1,646,152
	Over/(Under)	\$229,582	\$56,037
TOTAL NPS			
	Revenues	\$11,128,825	\$9,975,868
	Expenditures	\$10,159,881	\$9,559,003
	Over/(Under)	\$968,944	\$416,865

Appendix D: IT Performance Metrics

Computer Aid, Inc.

100 IT Performance Metrics

Produced by: *Nicholas Spanos*
Principal, Solutions Consulting

Recommended Metrics

Goal: Ensure the availability of existing Processing Capabilities

The first priority of an IT organization is to ensure the business has access to the existing processing capability. The CIO should have access to performance and cost information for the operation and support of existing Infrastructure and Applications.

Infrastructure Operations and Support

Infrastructure Incidents	Evaluate the number of <u>non-desktop</u> problems that affect more than a single user and resolution time. Includes hardware and system software. Requires a consistent definition for severity.
1. Total Infrastructure Incidents (by infrastructure type excluding desktop incidents)	Graph infrastructure incidents by infrastructure type (network, server, etc.). Exclude desktop problems that only affect a single user.
2. Infrastructure Incident Resolution Index (SLA)	Incidents resolved with SLA / Total Incidents. Graph by severity.
3. Mean time to resolve (by severity)	Graph the mean time to resolve by incident severity
4. Average Nbr Affected Users by type of incident	Scope of problems ... Graph by Type
5. Max Nbr Affected Users by type	Identifies worst types problems. Graph by type
6. Maximum time to resolve (by type)	Identifies worst types of problems. Graph by Type
Infrastructure Availability	Evaluate the availability of non-desktop infrastructure during peak business hours
7. % Downtime	% Infrastructure downtime (by type) during peak and non-peak business hours? Exclude scheduled downtime.
8. Max Downtime (Peak Hours)	What is the maximum down-time during peak hours
Infrastructure Utilization & Performance	Slow response time and high utilization percentages indicate insufficient capacity. Low utilization indicates too much capacity.
9. Average System Login Time	In most systems, the login function consumes significant resources. An increase in the average login time indicates possible system capacity issues across the system.
10. Average Response Time	Average response time has little value except as a trend. A gradual increase may indicate under-capacity while a gradual decrease may indicate too much capacity.
11. Average Response Time (Peak Hours)	System utilization is highest during peak hours and poor response time
12. Peak Infrastructure Utilization %	% of infrastructure utilized during peak business hours
13. Disk Utilization	Trend Graph showing total space available vs. utilized. Rapid increases in utilization should be investigated.
14. Disk Utilization by Application Priority	Graph the disk space utilized by the application priority. Investigate low priority applications with high disk utilization.

Goal: Ensure the availability of existing Processing Capabilities (cont.)

Application Support

Application Problems	Evaluate trends related to application problems. The business priority of each application should be defined for reporting purposes.
15. Application Incidents (by application priority)	Graph Application incidents by application priority. Lower priority applications with large numbers of incidents are candidates for retirement.
16. Application Incidents (by incident severity)	Graph Application incidents by incident severity. Increasing trends of severe problems identify areas where attention is required.
17. Mean time to resolve (by incident severity)	Decreasing trend indicates increasing knowledge and greater efficiency. Increasing trend with decreasing incidents indicates simple problems are being fixed while the more complex problems remain unaddressed.
18. Maximum time to resolve (by type)	Identifies severe/complex incidents that should receive extra attention to make sure they do not re-occur.
19. Average Nbr Affected Users (by incident severity)	Increasing average trend indicates greater frequency of problems affecting multiple users. Can also be beneficial for setting SLA's.
20. Max Nbr Affected Users for a single incident	Increasing trend shows the average severity of problems is increasing. If lower severity problems are being eliminated, this may be an acceptable trend.
21. Application Incident Resolution Index	Total Incidents resolved within SLA / Total Incidents (by Severity).

Application Availability	Evaluate trends affecting application availability.
22. % Downtime (by application priority)	Graph the % of downtime for peak and non-peak hours by application priority.
23. Max Peak Downtime (by Application Priority)	

Application Utilization & Performance	Evaluate trends affecting application performance
24. Average Application Response Time	Graph average response time by peak and non-peak by application priority
25. Average Number of Users/Day	Graph average users by internal and external users. Apps with a low number of users should be investigated and possibly retired.

Goal: Utilize Available Staff Resources Efficiently

The first priority of an IT organization is to ensure the business has access to the existing processing capability. The CIO should have access to performance and cost information for the operation and support of existing Infrastructure and Applications.

Staff Resource Management

Total Staff	Report the following in a chart by type of FTE
26. Total Staff	
27. Turnover by Position	Graph the turnover for the year by the type of position. Increased turnover is an indication of management problems
28. Open Positions	The number of open positions can impact scheduled projects or support.
29. Average Duration of Open Positions	The group is over-staffed if SLA's are being met by the smaller staff for an extended duration.
30. Total Contractors	The number of contractors and the duration should be a strategic decision.
31. Average Length of Contractor Assignment	Extended contractor assignments indicate the need for increased staff.
32. Ratio of Management to Staff	
33. Average Staff Cost	
34. Average Contractor Cost	

Staff Utilization	Report the following in a chart by type of FTE
35. Available Man-Days	
36. Scheduled Man-Days	
37. Actual Hours by Type	Graph hours by type of work (Admin, Ops, Business Goals)
38. Actual Hours by Application Priority	Graph work hours by Application Priority
39. Actual Hours by Request Priority	Graph work hours by Request Priority
40. % hours for non-Working hours	Total Vacation, Holidays, Sick, Admin/Available Hours

Goal: Timely Response to Business Requests for New Features or Services

Enhancements or Projects	
41. Total Active Requests by Type	Graph by type
42. Total Backlog Requests by Type	Graph by type
43. Total Backlog Requests by Size	(< 100 hrs, < 500 hours, or > 501 hours)
44. Total Backlog Request Hours by Type	Graph by type
45. Total Completed Requests	Graph by type for the reporting period
46. % Late	% of requests that are late for the reporting period
47. % Over Budget	% of active projects that are over budget
48. Cost Performance Index	Average by type (EV/AC) < 1 means cost overrun
49. Schedule Performance Index	Total On-time divided by total complete < 1 means late projects
50. Total Scope Changes	Graph by size of request
51. Average Scope Changes per request	Graph by size of request
52. Enhancement Completion Index	Total Enhancements Completed in the period / Last Year Period total

Goal: Ensure the successful implementation of system changes

The first priority of an IT organization is to ensure the business has access to the existing processing capability. The CIO should have access to performance and cost information for the operation and support of existing Infrastructure and Applications.

Change Management

Problem Fixes	
53. Total Infrastructure Changes	Graph total infrastructure changes and total hours by type of change
54. Infrastructure Change Success Rate	Total Successful Changes / Total Changes
55. Planned Application Changes	Planned changes to repair a problem
56. Emergency Application Changes	Total Emergency Changes
57. Application Change Success Rate	Total Successful Changes / Total Changes
Enhancements	
58. Total Enhancement Changes	Graph total enhancement changes and total hours by type of change
59. Enhancement Change Success Rate	Total Successful Changes / Total Changes
Projects	
60. Total Project Changes	Graph total Project changes and total hours by type of change
61. Project Change Success Rate	Total Successful Changes / Total Changes
Change Quality	
62. Total Defects Introduced from Changes	Graph by type of change
63. Total Issues from Missed Requirements	
64. Total User Generated Tickets for Defects	User generated tickets means the problem was undetected by IT
65. Total Work Hours to Correct	Commonly referred to as Re-work
66. % Re-Work	Total re-work hours / total hours
67. Total Downtime	Total system downtime caused by the re-work problems
68. Quality Index	(Total Defects/Total Components Changed) Separate calculations for Problem Fixes, Enhancements, and Projects Graph

Goal: Manage the cost of delivering IT services to ensure that maximum value and customer satisfaction are delivered from the available resources

IT organizations have fixed budgets and capabilities and conflicting demands. IT must work with the business units to ensure that resources are deployed to support initiatives that provide the most value to the enterprise. The terminology used in this section is based on the Project Management Institute's definitions of Earned Value.

Financial Management

Operations	
69. Annual Budget	Planned Value
70. Earned Value	Estimated Costs Consumed to Date
71. Actual Costs to-date	
72. % Variance	Actual Cost / Planned Value
73. Largest Variance Line Item	Identify the budget area that has the largest \$ variance from the budgeted amount
74. Largest Variance Amount	Identify the amount of the largest variance
75. Cost Performance Index	$(EV/AC) < 1$ means cost overrun

Application Support	
76. Annual Budget	Planned Value by Application Priority
77. Earned Value	Estimated Budget Consumed to date by Applic Priority
78. Actual Costs-to-date by Application Priority	Graph actual costs-to-date by application priority
79. % Variance	Actual Cost / Planned Value by Application Priority
80. Cost to-date by request type	Graph costs by type of support problems, enhancements, etc.
81. Graph the Budget by Application Priority	
82. % Costs to resolve problems by Applic Priority	Graph the % costs to resolve problems vs. total support costs by application priority. High priority applications should have low problem costs and high enhancement costs.

Projects	
83. Planned Value	Estimated Cost

84. Earned Value	Estimate Consumed to-date
85. Actual Cost to-date	
86. % Variance	Actual Cost / Planned Value
87. Schedule Variance	Earned Value minus Planned Value
88. Cost Performance Index	(EV/AC) < 1 means cost overrun
89. Schedule Performance Index	(EV/PV) < 1 means late

Delivering Value

Customer Satisfaction	The following metrics are based on customer surveys
90. Infrastructure Availability/Reliability	Business perception of the availability and reliability of the infrastructure.
91. Operations Support	Operations staff provides support to the business and to other IT organizations. Measure the satisfaction levels relating to Operations Support.
92. Application Support	Applications support staff provides a wide variety of services including problem resolution, consultation, and work requests such as enhancements. Measure the satisfaction levels relating to the support provided by the applications areas.
93. Projects	

Business Alignment	
94. % of Hours by Business Priority	Graph by high, med, low priority
95. % Hours by Business Initiative	Graph hours by business initiative
96. Cost by Business Initiative	Graph cost by business initiative

Continuous Improvement	
97. Anticipating future benefits from technical investments	Graph the hours applied to projects that anticipate new requirements. Sample benefits of technical innovations include: Identification of new customers, implementing technology that attracts customers, improving external customer satisfaction, managing costs to fund innovation, etc.
98. % Costs for Value Added Services	Total cost of value added services (enhancements vs. cost of other types of support)
99. Cost of efficiency improvements	Graph total cost of efficiency improvements (by area)
100. Cost savings from efficiency improvements	Graph Cost savings from efficiency improvements by area

Appendix E: Documents Reviewed

External Research:

- *Defining IT Portfolio Management*; Chip Gliedman; Forrester Best Practices; September 29, 2004.
- *Top-Five Issues and Research Agenda, 2009-2010: The Chief Information Security Officer*; Gartner; 26 March 2009.
- *What is a Center of Excellence*; John Strickler; Agile Elements; October 29, 2009.
- *Establishing a Center of Excellence*; Jonathan G. Geiger; Information Management Magazine, August 2006.
- *8 Reasons to Consider a Center of Excellence*, Digital Landfill, March 2010.
- *ITIL Open Guide*, www.itlibrary.org
- *Everything you wanted to know about ITIL in less than one thousand words!*; Jane Clark; Best Management Practice for IT Service Management, October 2007.
- *An Introductory Overview of ITIL V3*, The IT Service Management Forum, 2007.
- *Cost Savings Opportunities for County Information Technology*, Report from the Orange County Grand Jury and CEO Response, FY 2002-2003.
- Various “Key IT Metrics Data,” from Gartner, December 2009
- *The Balanced Scorecard and IT Governance*, IT Governance Institute, 2000.
- *Project Summary, County of Santa Clara Information Systems Strategic Planning Project*, March 18, 2002.
- *State of California Department of Finance Feasibility Study Report*, June 2003.
- *Information Technology: The State Needs to Improve the Leadership and Management of its Information Technology Efforts*, California State Auditor, June 2001.
- *Enterprise Licensing Agreement: The State Failed to Exercise Due Diligence When Contracting with Oracle, Potentially Costing Taxpayers Millions of Dollars*, California State Auditor, April 2002.
- *Information Technology: Control Structures Are Only Part of Successful Governance*, California State Auditor, February 2003.
- *Information Technology Investment Management, A Framework for Assessing and Improving Process Maturity*, United States General Accounting Office, March 2004.
- *Information Technology, Management and Oversight of Projects Totaling Billions of Dollars Need Attention*, United States General Accounting Office, April 28, 2009.
- *Information Technology, OMB and Agencies Need to Improve Planning, Management, and Oversight of Projects Totaling Billions of Dollars*, United States General Accounting Office, July 31, 2008.
- *Internal Service Funds: Cost Structure and Budget Impact*, Office of the Legislative Fiscal Analyst, August 20, 2002.
- *Information Technology Project Oversight Framework*, Department of Finance, February 2004.

- *Performance Audit Span of Control*, City Auditor's Office, City of Kansas City, Missouri, April 2002.
- *Lack of Technology Vision Costs County \$\$\$*, Civil Grand Jury Report, Santa Clara County, 2006-2007.
- *Business Continuity Planning for County and Local Governments*, Jim Kennedy, Alcatel-Lucent, July 13, 2008.
- *Report Card: Santa Clara County, California*, The Government Performance Project, Governing Magazine, February 2002.
- *Management Audit of San Francisco's Information Technology Practices*, San Francisco Budget Analyst, October 3, 2007.

CEO/IT Documents:

- CEO/IT Operating Plans FY 2007-08, 2008-09, 2009-10
- CEO/IT Quarterly Resource Planning spreadsheets, FY 2007-08 and FY 2008-09
- CEO/IT Project Management Methodology
- CEO/IT Countywide IT-related Policies, Standards, and Guidelines
- Project documentation (311, eGov, Clarity, ePages, OCid, ERDS, Webwasher, Alert OC, Disaster Recovery)
- CEO/IT Key Accomplishments, FY 2008-09 and FY 2007-08
- Performance Management Partners report; Michael Mount; August 22, 2005
- Chief Information Officer external website on ocgov.com
- IT Governance Meeting Minutes
- IT Working Group Materials and Meeting Minutes
- Countywide Proposed IT Strategic Plan, 2008
- Various CEO/IT Agenda Staff Reports (ASRs)
- Current and Historical CEO/IT Organization Charts
- All IT Quarterly Reports from FY 2005-06 to present
- Various Incident Management, Network & Platform Services, Service Level Breach, Security Incident, and Service Desk Reports
- CEO/IT Executive Availability Reports
- CEO/IT Monthly Executive Capacity Reports
- AT&T Monthly Performance Results Reports
- CEO/IT Self Assessment – CMM Scale
- PA Consulting Group, ITIL Assessment of CEO/IT, Various Artifacts and Final Report, August-December 2007.
- Various Communications between ACS and CEO/IT
- Various Minutes and Artifacts from ACS and CEO/IT Meetings
- All CEO/IT documentation pertaining to ACS Customer Surveys, including relevant ASRs and raw score data

- All Memorandums of Understanding (MOUs) that exist between CEO/IT and County agencies/departments
- Draft CEO/IT Catalogue of Services, September 2009
- Various CEO/IT Organizational Planning presentations and artifacts, 2005 and 2006
- CEO/IT- Security and CEO/IT-Network & Platform Services Labor Analyses
- Various NPS Reorganization and Process Improvement documents
- ISF 289, FY 2009-10 Proposed Budget Presentation
- CTO Quarterly Meeting-Progress Highlights Presentation, December 2009
- Sample CEO/IT Service Design Package documents, FY 2009-2010
- Orange County Regional 3-1-1 Study, EMA, Inc., Summer 2009
- eGov Strategic Focus Plan, Fiscal Years 2009-2012, July 2009
- Data Center Facilities Review, Excipio Consulting and Unisys, August 27, 2007