El Dorado County 2016-2017 Grand Jury
Legacy Application Migration and
Mainframe Decommissioning Success
Challenged by EDC Organization and Management

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SUMMARY

The El Dorado County Grand Jury became interested in conducting this study of the El Dorado County (EDC) Information Technology (IT) Department projects to migrate applications to a new computing platform and decommission the mainframe computing platform, because the Fiscal Enterprise and Information Exchange (FENIX) Project has been delayed as reported by the 2015-2016 Grand Jury. The decommissioning of the mainframe should result in net savings to EDC. It is unclear as to how much of this savings is required for investment in other areas of the IT department.

"If you fail to plan, you are planning to fail"[1] County-wide strategic planning is absent at EDC. A County-wide strategic planning process is valuable as it provides vision and focus, sets direction, and communicates these to the organization. It sets the tone and organizational goals that support departmental strategic planning that is aligned with EDC's goals and objectives.

EDC evolved into a complex IT operating environment created by using multiple platforms (software and hardware) that require diverse IT skills sets and are expensive to maintain. There are multiple decentralized IT operations with independent management, policies, practices, and procedures.

Elected Officials functioning as departments directors that are not accountable to the Board of Supervisors (BOS) or Chief Administrative Officer (CAO) cannot be directly compelled to comply with the demands of the application migration.

The organizational structure and management practices of EDC create significant challenges to the migration and success is not assured.

[1] Benjamin Franklin

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BACKGROUND

The El Dorado County (EDC) 2015-2016 Grand Jury reported on the status of the Information Technology (IT) FENIX Project. The findings of that report indicated that there was a risk to the successful and timely implementation of the project. The 2016-2017Grand Jury decided to investigate the status of FENIX and specific applications on the Mainframe Computer to permit its decommissioning. Additional issues were discovered that touched on the maintenance of separate IT functions and hardware by several county departments and the effects and costs of those independent operations.

The mainframe platform (i.e. hardware and operating system software) has its roots in the 1950's and 60's. The technology is expensive to maintain and requires people with skill sets that are increasingly scarce. This is because the operating environment and the focus of providers of mainframe technologies are geared toward customers with very large scale computing and transaction processing requirements. These requirements are typically found in Fortune 1000 Companies and large government entities. EDC computing requirements are not of this scale.

There are lower cost solutions (new software) and computing platforms (server hardware and software) available to support the scale of EDC's operating environment. The higher cost to maintain and support a mainframe platform provides a significant financial incentive to replace the applications with new, lower cost IT solutions via application migration. The County decided in 2011 to replace its old applications and mainframe and migrate to new applications installed on the new computing platform using servers. This allows for the decommissioning of the mainframe.

METHODOLOGY

- Interviewed IT department team members
- Interviewed current and past members of the Board of Supervisor
- Interviewed EDC Department directors
- Interviewed EDC elected officials
- Reviewed EDC IT organization chart (Appendix I)
- Reviewed Mainframe annual costs (Appendix II)
- Reviewed FENIX Project plan and current project status

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DISCUSSION

The FENIX Executive Sponsors have reported that they have finalized best business practices with their vendor, Tyler. The team has run multiple reviews, and the members are pleased with the results. The conversion of EDC's Chart of Accounts[2] has gone through the first review. It appears the FENIX project should meet the first phase target date of October 2017. There are inconsistencies across County labor memoranda of understanding and personnel rules that need to be resolved through the meet and confer processes with the appropriate bargaining units. EDC needs to complete class and compensation studies. These are critical issues that may delay phase II (HR/Payroll) which is currently scheduled for January 2018.

The replacement of legacy (older) IT applications with new applications and hardware is difficult, fraught with delays, restarts, and all too frequently cost overruns, failure, and disappointment. The older the applications and IT platform (mainframe) being replaced, the greater the perceived need and the more challenging the change. There are good reasons for the challenges associated with, what is referred to as, application migration. These may include the effectiveness or level of:

- Organizational leadership, commitment and accountability
- IT leadership
- Staff/user commitment to change
- Resources and dedicated staff availability to support change
- Project planning, management, and communication
- Vendor support and expertise

The degrees of the following amplify challenges:

- Organizational (EDC-wide) resistance to change
- Level of workflow or process re-engineering and improvement (complexity of change)
- "Scope Creep" expanding the complexity of change
- "Feature creep", i.e. the number of modifications required by users to enhance or change the system to fit the current environment after the initial design.

Application migration[3] has been compared to changing the tires on a car while traveling at freeway speed. The existing systems, workflows and processes must continue while the staff responsible for business continuity is being retrained and often absorbing significant levels of change to their work. In addition, the IT department must continue to support and maintain the current mainframe and legacy applications until the migration is complete and for months thereafter.

EDC has encountered many of the same difficulties that every entity runs up against when replacing IT solutions (application software and operating platform). The history of the EDC IT department adds to the difficulty and complexity of the project. In the early 1990s[1,] there was a failed implementation of an IT solution for the Courts and Sheriff. The then-Sheriff decided to pursue the acquisition of a standalone solution for the Sheriff's Department. In support of allowing the segregation of the Sheriff's IT

[2] A **chart of accounts** (COA) is a financial organizational tool that provides a complete listing of every account in an **accounting** system. An account is a unique record for each type of asset, liability, equity, revenue and expense.

[3] http://searchcio.techtarget.com/definition/migration

Department, the then-Sheriff took the position that his IT systems contain sensitive information that required controlled and limited access. This position added to the perception and belief by decision-makers that the Sheriff should have a separate IT system and support team. However, the reality is that the County IT systems directed by the District Attorney/Chief Technology Officer also contain highly sensitive information that requires controlled and limited access (e.g. Health Information requiring HIPAA compliance, Human Resources, and Payroll information). In the early 1990s,[4] the Board of Supervisors (BOS) acceded to the then-Sheriff's requests and created a separate IT department for his agency. Around this time[2] the BOS mandated a 25% cut to County IT department's budget which required it to reduce the support services for its client departments to achieve those cost reductions. IT client departments, realizing required services were being eliminated, began to transfer IT department employees, or hire their own IT support staff to provide the IT services. The Sheriff's Office currently has six full-time IT positions. Over the years this has led to the selection of various IT solutions using different platforms. Currently EDC is maintaining five different IT platforms.

These platforms and operating systems require IT personnel with different skills and have created a fragmented IT structure. The County IT Director's position has been a revolving door. Witnesses indicated that they had 20 or more IT Directors over 25 years.

Management challenges were compounded by organizational, physical and infrastructure issues within the County IT Department. These were fundamental problems such as water leaking under the raised floor of the County data center and an inoperable backup power generator. Inefficiencies exist in the current organization structure. The Board of Supervisors possesses a limited ability to hold elected directors of operational departments accountable.

The EDC District Attorney was appointed Chief Technology Officer to provide stability and focus for the IT Department. The hope was that he would manage many of the issues and could reach consensus with the other elected department heads for the Application Migration and Mainframe Decommissioning Program which includes the FENIX project. That appointment overlooked the lack of IT operational and managerial expertise possessed by the DA.

The senior individuals currently setting the IT policy and direction for EDC and their respective departments are:

- The County District Attorney as the Chief Technology Officer,
- The County Surveyor
- The Sheriff

There has been no central authority managing the technology infrastructure, policies, and IT security for the County. In addition, IT strategic planning has been absent at EDC. A five-year IT Strategic Plan[5] that is maintained through an on-going process of formalized strategic planning would provide many benefits to EDC. It is a tool that gives focus, measurable progress, and helps ensure long-term success. Such a plan and process communicates direction and context to the organization that allows departmental alignment with EDC goals and objectives.

[4] Witnesses provided different years in the period 1990-1994

[5] http://smallbusiness.chron.com/strategic-importance-organizations-corporate-strategy-12246.html

An IT Strategic Plan[6] supports the following:

- SCOPE: A Statement of Direction and Codification of IT Department Goals
- EDC Context: IT Department alignment with the EDC Strategic Plan and Operational Drivers
- IT Principles: Statements of purpose provide guidance
- Metrics: Time-specific measures to track progress toward goals (i.e. write SMART[7] objectives that map the progress to achieving goals)
- Review: Strategic Plans are living documents that require review and update at least once a year

The IT Director position had been a revolving door, creating a lack of confidence and direction in the IT Department and need to provide some stability of IT leadership. A professionally managed and operated IT organization will create, manage, and maintain a secure environment with the necessary application isolation, access control, auditing and reporting required to protect all user information. Furthermore, there are advantages to enterprise-wide IT planning, policies, practices, and security.

EDC's organizational structure and lack of department management accountability creates an additional challenge to the success of EDC-wide system migration and IT practices. Most departments are engaged in the migration of the legacy applications and the full commitment of every department is required to facilitate the change. Several departments are led by elected officials more accountable to the voters than to the Board of Supervisors or the CAO. The BOS and CAO do not have the authority to hold these elected department managers accountable for the progress of the project. This leads to conflicts and independent actions that have hampered the current migration process as well as the overall sustainability of the County's IT infrastructure. As conflicts arise and demands on departmental staffs increase to support the application migrations, department managers are placed in a position of deciding to allocate their human resources either to operations or the "IT Migration Project." The elected department manager may focus staff on servicing the voters of EDC as opposed to making sacrifices to service levels so the staff can continue to work on the IT Migration Project.

Enterprise-wide IT systems replacements (migrations) are enterprise-wide projects require enterprise-wide commitment, planning and execution. There is a project plan for the FENIX Project that has achievable timelines and the attention of EDC leadership. However, as identified in this report, there are many areas of risk and potential for delay and increased cost. Finally, while FENIX is the largest part of the migration, there are additional functions that require relocation from the Mainframe.

[6] http://www.cio.com/article/2437285/business-alignment/anatomy-of-an-it-strategic-plan.html

[7] **SMART** = **S**pecific **M**easurable **A**ttainable **R**elevant **T**ime sensitive

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FINDINGS

The Grand Jury finds the following:

F1. Absent an IT strategic plan, supported by the BOS and senior leadership of EDC, the IT department lacks solid direction and the ability to manage projects to successful completion.

F2. EDC has a complex IT operating environment, created by using multiple platforms (software and hardware), that requires diverse IT skills sets and is expensive to maintain.

F3. Having the IT functions decentralized provided an uncoordinated leadership that has created complexity, the risk to operations and increased operating costs.

F4. The lack of a single senior, professional, Chief Information Officer (CIO) with county-wide IT responsibility has created an environment where department heads set policy and direction at odds with county-wide priorities and needs.

F5. The lack of support from various departments for the IT migration project creates roadblocks to IT's success.

F6. Elected Officials functioning as Departments Directors that are not accountable to the BOS or CAO cannot be required to comply with the demands of the application migration.

RECOMMENDATIONS

R1. The BOS should require IT, in coordination with the CAO (aligned with the EDC Strategic Plan) to develop a five-year IT Strategic Plan that is approved by the Board.

R2. The five-year strategic plan should provide for the consolidation of a fully integrated, countywide, IT Organization that can achieve all the goals and objectives of the five-year Strategic Plan.

R3. The BOS should make the IT Director (CIO) position, reporting to the CAO, responsible for countywide IT and the consolidation of the fragmented IT functions under one centralized county IT Department.

R4. To the maximum extent allowed by state law the BOS should grant the CAO the authority over all EDC operating departments, either through amendment of the El Dorado County Charter or via the Board's own budget allocations. To ensure the cooperation and full participation of all departments with the five-year Strategic Plan.

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REQUEST FOR RESPONSES

Pursuant to Penal Code section 933.05, the Grand Jury requests responses as follows:

From the following governing bodies:

- Board of Supervisors, El Dorado County, as to all Findings and Recommendations.

Address responses to: The Honorable Suzanne N. Kingsbury Presiding Judge of the El Dorado County Superior Court 1354 Johnson Blvd. South Lake Tahoe, CA 96150 The Presiding Judge of the El Dorado County Superior Court additionally requests that the responses be sent electronically as a Word or PDF file to facilitate the economical and timely distribution of such responses. Please email responses to the El Dorado County Grand Jury at: courtadmin@eldoradocourt.org.

Reports issued by the Grand Jury do not identify individuals interviewed. Penal Code section 929 requires that reports of the Grand Jury not contain the name of any person or facts leading to the identity of any person who provides information to the Grand Jury

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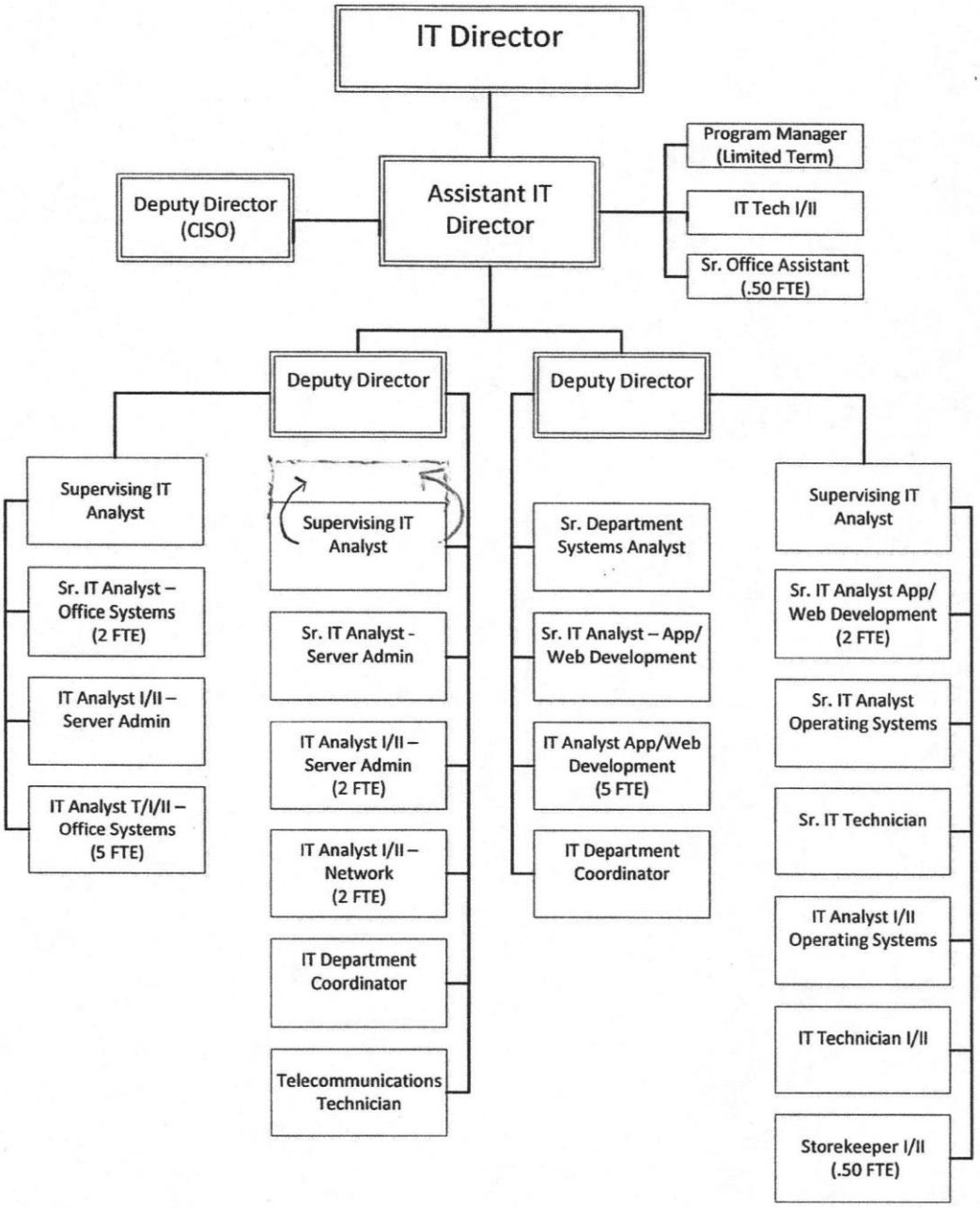
Appendix I



40 TOTAL FTE

Appendix II
Mainframe Annual Costs

Mainframe – Summary of Costs			
Vendor	**Description**	**Annual Cost (Approx)**	**Comments**
Cogsdale	Financial Mangement System (FAMIS/ADPICS/BPREP)	$ 112,537.80	Service to be cancelled for FY 16/17
Computer Associates, Inc (CA Technologies)	Mainframe software maintenance and licensing for the zBC12 Mainframe computer	$ 45,338.00	
Computer Corporation of America	M204 Database & User Language (Property System)	$ 136,746.00	Rocket
Compuware	File Aid: Batch/SPF (Development, testing and problem solving)	$ 5,292.00	
Glasshouse Systems	Provide IBM hardware maintenance	$ 64,555.00	Initial purchase of $410,924.00; Maintenance being amortized over five year period
IBM	Mainframe Operating System & Sub Systems Components and Hardware Maintenance (for IT, Sheriff and Surveyor)	$ 302,566.08	payments vary - quarterly and yearly
Infor (US)	HR/Payroll System	$ 97,201.26	
Levi, Ray & Shoup	Mainframe printing license for mainframe remote printers	$ 18,128.00	
Mackinney Systems	Annual Maintenance for CICS/JSUB product	$ 150.00	
SDI USA, Inc	TN3270 Plus Maintenance and Support subscription (connects all users to the mainframe)	$ 4,163.00	
Labor Costs			
El Dorado County	Mainframe Direct Labor	$ 954,413.02	
Annual Cost (Approx)		**$ 1,741,090.16**	