

2001-2002 SANTA CLARA COUNTY CIVIL GRAND JURY

REVIEW OF THE SANTA CLARA COUNTY KEYBOARD PROJECT

ABSTRACT

Santa Clara County is making a major investment to improve the efficiency and quality of the process used by all county agencies and departments to communicate requests for action and to document decisions by the board of supervisors (board). This process is also a future key element of public participation in board of supervisors' meetings. Both the meeting agenda and the preparation of the public documentation packets are outputs from this process. The board's meeting agenda is presently available at the county Website (<http://www.santaclaracounty.org>).

As authorized under Section 925 of the California Penal Code, the 2001-2002 Santa Clara County Civil Grand Jury reviewed the cost, benefits, savings and implementation process of this effort.

The project, called KEYBOARD, involves efforts to improve the process through elimination, modification, or the combination of process steps, as well as the implementation of electronic document management systems and software controls. The Grand Jury examined numerous KEYBOARD project documents and interviewed several county employees and a member of the board of supervisors. The Grand Jury came to the following conclusions:

- 1) KEYBOARD is a major undertaking to address the improvement of a countywide process. The county is commended for the understanding that more effective flow of information within the county has potential for improving county efficiency and public

services. While the Grand Jury found little evidence of measurable savings from the project, it agrees with the county that the process improvements are an investment for the future and they should accrue future benefits to both the county employees and residents of Santa Clara County.

- 2) The KEYBOARD project will cost more than \$5.6 million and require four years to implement. This is more than 58 percent higher cost and a year longer in schedule than originally planned.
- 3) The project implementation, which involved the initial contracting of software integration, subsequent contract cancellation and then the staffing for in-house software development, resulted in higher development costs and schedule delays. The implementation could have been improved by the county's use of a more traditional phased engineering approach.

Several Grand Jury recommendations have been addressed to the board of supervisors delineating improvements for the implementation of future large re-engineering and system development projects.

INTRODUCTION

The 2001-2002 Santa Clara County Civil Grand Jury (Grand Jury) conducted a review into the costs, benefits, savings and implementation schedule of the Santa Clara County (County) effort to electronically generate the county board of supervisors' (board) agenda. This project, called KEYBOARD (KEY information for the BOARD), also had the goals to improve the efficiency and the quality of the agenda process. The Grand Jury's three-month review started in November 2001. The Grand Jury conducted interviews with five county employees, a county supervisor and the software vendor involved with a portion of the project. The Grand Jury also examined approximately 20 KEYBOARD project documents. Authorization for this inquiry is provided by California Penal Code Section 925.

BACKGROUND

The agenda process is the communications channel through which the board, the county's elected governing body, formally conducts business with the county's more than 20 agencies and departments. The board meets two to three times per month, with about 70 to 80 actions to be addressed at each meeting. Prior to each board meeting, the clerk of the board creates the detailed meeting agenda listing all requested board actions to be scheduled and also prepares both board and public information packets. The required collection of documents for each board action is referred to as the transmittal. The transmittal can have numerous documents: the originator's statement of the requested board action; statement of fiscal implications; reason for recommended action; background; consequences of negative action; steps following approval; associated documents e.g., contracts, prior contracts, leases, deeds,

reports, building plans, bids, Environmental Impact Reports, and other supporting documents that are not part of the final transmittal. Prior to the clerk of the board placing a transmittal on the board agenda, the transmittal is circulated throughout the county for comments from such staff as finance and county counsel, and for review by several county standing committees. Approximately 800 county employees are involved with the transmittal origination and review process. The county estimated it spent approximately \$10 million to process transmittals during 1999. This is based on a consultant figure developed for other counties that showed the estimated cost to process a transmittal is \$4,000. The county had no estimated cost or measures of efficiency for the transmittal process before KEYBOARD.

The agenda life cycle process is the term the county uses to define the entire board decision process, from the creation of a transmittal by the originating department through the circulation for review by county staff and standing committees, the placement on the agenda, the creation of information packets, the board decision, the inclusion of the decision in the board meeting minutes, and the archival of the documentation.

The KEYBOARD project's ultimate goal was to re-engineer and automate the agenda life cycle process, as well as to provide other features and related capabilities associated with the business of the county, such as improved future public access to county information. Re-engineering is the improvement of the efficiency and quality of an administrative process by a methodical approach of examining each step for improvement through elimination, modification, or combining with other steps. Automate, as defined by the county, means replacing the existing non-guided, paper-based, mailed or hand-carried agenda process

with a computer guided process incorporating electronic document management, electronic signatures and document archiving and retrieval.

In the mid-1990's, a prototype agenda application was developed for the clerk of the board in conjunction with a consultant and was a successful proof of concept for re-engineering the process. Subsequently, it was determined that the software platform and data transmission methodology employed in the prototype system would not support the volume of agenda items.

In October 1998, designated representatives of 13 county agencies and departments met to form the nucleus of an ongoing user group to define the project. In 1998, the board approved \$1,233,000 in initial funding for the county to develop a system that moved beyond the limitations of the prototype. A steering committee was formed and a project manager was hired. The clerk of the board's office focused on the requirements of the transmittal and agenda users and allowed the information services department to define the system implementation requirements. The steering committee served to balance and trade off user and system needs. This is the first effort by the county to improve a countywide business process through both re-engineering and software development.

The KEYBOARD project was defined by early 1999 as a three-year, \$3,547,493 development effort. The implementation was divided into three interconnected phases to support the goal to improve the entire agenda life cycle:

- 1) Transmittal Origination—Origination of transmittals by agencies and departments.

- 2) Agenda Creation, Processing, and Review—Review, processing, and creation of board agendas based upon the transmittals, and the board's decision process and actions required as a result of those decisions.
- 3) Records Management, Archiving and Knowledge Management (records management)—The archiving of transmittal and agenda documents in a records management system with retrieval access for future reference and research.

FACTS

The following Grand Jury findings of fact are organized in chronological order from 1998 through 2002:

- 1) In 1998, the board established a goal to develop a countywide electronic system for the entire board agenda life cycle. A steering committee was formed and a project manager hired. Initial development funding of \$1,233,000 was approved for fiscal year 1999 (the attachment, KEYBOARD FUNDING AUTHORIZATION SUMMARY, summarizes the series of seven KEYBOARD funding authorizations by the board).
- 2) The KEYBOARD project was conceived, owned and developed jointly by the clerk of the board's office and the county information services department.
- 3) The Grand Jury requested from the county documentation of the original KEYBOARD goals, technology strategy and business case. One of the documents supplied was a portion of the technology funding request approved by the board as part of the Fiscal year 2000 budget process in June 1999. The highlights of the reviewed documents were:

- A. The KEYBOARD objective was, "...to enhance processes surrounding the generation of transmittals and board life cycle through re-engineering of business processes and implementation of an end-to-end, countywide information system to efficiently support these processes."
- B. Development expense of \$3,547,493 projected over three years.
- C. Ongoing annual net maintenance expense of approximately \$400,000.
- D. An estimate, described as conservative, for a \$2 million annual *soft* savings to the county was based on an assumed 20 percent reduction in the effort to produce the board agenda. The details of the reduction were not established and no management mechanisms to measure the expected improvements were established. By describing the KEYBOARD savings as *soft*, the county concluded that the savings could not be redirected toward other budget needs.
- E. The KEYBOARD technology assumption was to purchase existing document management software and then to hire a software integration contractor to integrate and customize the software to the county's requirements.
- F. The original target date for KEYBOARD to produce the agenda was September 1999, although few of the technical details of the project were available.
- 4) In June 1999, the board approved an additional \$1,568,893 for KEYBOARD development as part of the fiscal year 2000 county budget cycle. Due to countywide budget constraints, this was \$500,000 less than the \$2,068,193 amount requested by the clerk of the board and the information services department. This brought the cumulative total approved development funding to \$2,801,893.
- 5) The one-year contract for the software integration contractor was signed in June 1999.
- 6) In November 1999, within terms of the contract, the software integrator contract was terminated without specification of cause. The county paid the contractor for the project milestones delivered. The staffing for an in-house development effort was initiated.
- 7) In order to maximize the efficiency improvement from KEYBOARD, an additional \$1,197,245 was approved by the board in February 2000 for production printers and scanners. Based on interviews with project personnel, due to the competitiveness of the printer and scanner bid process only approximately \$600,000 of the authorization was required for the hardware purchased. The balance of the authorization was transferred to the continuing development effort. This brought the cumulative total approved development funding, including the printers and scanners, to \$3,999,138.
- 8) In June 2000, the board approved an additional \$1,094,000 of KEYBOARD development funding as part of the fiscal year 2001 county budget cycle. Funding for the KEYBOARD's records management project phase was deferred to fiscal year 2002 due to county budget constraints. This brought the cumulative total approved development funding,

- including printers and scanners, to \$5,093,138.
- 9) The in-house development team consisted of 14 county and contract full-time members. Due to the competitive nature of the market in Silicon Valley for software engineers, there were difficulties maintaining the development staffing at the required level. From October 2000 through January 2001, the county was unable to fill two critical positions despite an extensive recruitment effort.
 - 10) Due to staffing issues and technical problems in the application infrastructure, an additional \$187,423 in project funding was requested and approved by the board in February 2001. This brought the cumulative total approved development funding, including printers and scanners, to \$5,280,561.
 - 11) In early 2001, the board approved \$129,487 of KEYBOARD development funding for the records management project phase as part of the Fiscal year 2002 county budget cycle. This brought the cumulative total approved development funding, including printers and scanners, to \$5,410,048.
 - 12) In September 2001, the board approved a request that an additional \$195,000 be transferred to KEYBOARD. The funds were made available by combining two other independently funded projects into one. The additional funds were needed due to schedule delays resulting from the loss of two critical development team members in July and August 2001 and unexpected system performance tuning problems. The cumulative total approved development funding, including printers and scanners, was \$5,605,048.
 - 13) In September 2001, the county began use of the KEYBOARD transmittal and agenda capability. Use of the KEYBOARD agenda and minutes capability began in January 2002.
 - 14) As of February 2002, the estimated date and cost of completion of the KEYBOARD total software development effort, including the purchase of printers and scanners, was June 2002 at a total development cost of \$5,605,048.
 - 15) Based on county executive interviews, key measurable KEYBOARD process improvements are the ability to complete the board agenda one day earlier and reduce the number of manual approval documents for the typical transmittal from 30 to one. This would allow more time for supervisor and staff review. The expected improvement in the quality of the transmittals is not measurable.
 - 16) The Grand Jury interviewed a county employee who is using KEYBOARD. As of February 2002, the employee described the transmittal efficiency improvement within that agency as not apparent. The user was experiencing some important benefits and also some problems. Benefits included the ability to fully access all board transmittals along with each of their associated documents. The problems involved the KEYBOARD user interface and system stability. The problems are expected to be reduced with several planned system changes. The employee also expected significant benefit from the KEYBOARD records management capability when it is completed by June 2002.
 - 17) In early 2002, the clerk of the board initiated a KEYBOARD user satisfaction survey. The result will not be analyzed by

the consultant until after the Grand Jury ends its review.

- 18) Since July 2001, the county has received \$2.1 million from the State of California for reimbursement of KEYBOARD development expenses under the original provisions of Senate Bill 90 (1972) and the subsequent passage of Proposition 4 (1979). These state provisions have established the Commission on State Mandates which reviews claims that allege the state legislature has imposed a reimbursable state mandate upon a local government. The county has submitted a claim that the KEYBOARD development expenses are a result of the provisions of the Ralph M. Brown Act, requiring open public meetings with agendas provided at least 72 hours before the meeting. The money received is being held in a county reserve account awaiting final state commission reviews.

FINDINGS

- 1) The county failed to define the KEYBOARD system requirements before issuing a request for proposals to software integration contractors.
- 2) The KEYBOARD project, involving the concurrent processes of re-engineering and software development, created the difficult requirement to manage evolving user requirements while working within the restrictions of a software contractor on a fixed price contract. This situation created project complexity and high risk and contributed to schedule and cost problems.
- 3) The board did not request a management mechanism to capture the county's conservatively estimated 20 percent increased productivity and resultant cost

savings from the large investment in KEYBOARD.

- 4) The decision to terminate the software integration contract and to establish the project development in-house exposed the county to the risk of delays and cost increases.
- 5) The KEYBOARD project, based on the outlook as of February 2002, will deliver the function to the county approximately one year later and at 58 percent higher development cost than the three years and the \$3,547,493 development cost originally planned. The board approved a total of seven funding requests for the project. Two of the project funding requests were deferred or reduced due to county budget constraints. Testimony to the Grand Jury indicated, however, that none of the project schedule delays were attributable to the budget constraints.
- 6) Based on documents reviewed, the Grand Jury finds that the board was presented the project status at regular intervals.
- 7) The county is aggressively pursuing reimbursement of KEYBOARD development expenses from the state.

CONCLUSION

The KEYBOARD project was viewed by the county as a visionary improvement needed for the 21st century by both the government and the public realities of the information age. While the measurable savings from the project were few, the Grand Jury agrees with the county that the agenda process improvements in quality, information availability and timeliness will accrue future benefits to the county. The decision to develop the software in modern client-server network architecture with high-level implementation languages

offering future portability and maintenance ease is commendable.

KEYBOARD is the first county project to address a countywide process in terms of process improvement and software systems development. The risks that this project would deliver the original goals in terms of function, costs and schedule were large. These risks were enhanced when the request for proposals to software integration contractors was issued without complete definition of requirements that resulted in the contract termination.

As a result of the review, the Grand Jury concludes the county performed admirably under the project conditions it created. For future development efforts the county could reduce its risk exposure by following a more traditional phased engineering approach and do the following:

- 1) Perform re-engineering efforts and clearly define the user requirements of the work to be done
- 2) Write the project system requirements document based on the re-engineering effort
- 3) Issue a contract that reflects the system requirements document

With this approach, the county can develop detailed system requirements documents and establish a realistic, firm, fixed-price contract. Due to the risks of schedule delay and cost escalation, the Grand Jury also concludes that the county would be better served to utilize software engineering contractors as opposed to hiring software engineers.

RECOMMENDATIONS

The 2001-2002 Santa Clara County Civil Grand Jury recommends that the Santa Clara County Board of supervisors:

1. Require that comprehensive project system requirements be completed before beginning implementation of future system developments. [Ref. Findings #1 & 2]
2. Establish a policy that the county shall contract for software development, integration and delivery for all large software development projects. [Ref. Findings #2 & 4]
3. Require a formal assessment of both large re-engineering and system development projects at their conclusion, identifying project elements that were successful and those that were not. [Ref. Finding #5]
4. Require a formal assessment of KEYBOARD project by the end of year 2002. [Ref. Finding #5]

KEYBOARD FUNDING AUTHORIZATION SUMMARY
(TOTAL DEVELOPMENT EFFORT WITH PRINTERS AND SCANNERS)

CALENDAR AUTHORIZATION

<u>DATE</u>	<u>AMOUNT</u>	<u>CUMULATIV</u>	<u>TYPE</u>	<u>COMMENTS</u>
1998	\$1,233,000	\$1,233,000	Fiscal Year Budget	FY 1999 Technology
June 1999	\$1,568,893	\$2,801,893	Fiscal Year Budget	FY 2000 Technology *
Feb 2000	\$1,197,245	\$3,999,138	Special Request	Printers and Scanners
June 2000	\$1,094,000	\$5,093,138	Fiscal Year Budget	FY 2001 Technology
Feb 2001	\$187,423	\$5,280,561	Special Request	Delays: staffing/tech problems
June 2001	\$129,487	\$5,410,048	Fiscal Year Budget	Phase 3 Records Management
Sept 2001	\$195,000	\$5,605,048	Special Request	Delays: staffing/tech problems

* NOTE: The KEYBOARD total three-year development cost estimate prepared as part of the FY 2000 Budget was \$3,547,493.

BIBLIOGRAPHY

Budget Modification Request for the KEYBOARD Project Report, provides the rationale for the KEYBOARD Project's FY 2002 \$195,000 budget modification, dated September 25, 2001, 4 pages.

FY 2001 Mid-Year Budget Review, Attachment P section provides the rationale for the KEYBOARD Project's \$187,423 FY 2001 budget modification, dated February 1, 2001, 5 pages.

General Requirements for KEYBOARD Phase 1 (Version 1.0), includes project's external design specifications, dated November 7, 2000, 92 pages.

General Requirements for KEYBOARD Release 2 (Version 2.04), includes project's external design specifications, dated January 7, 2002, 130 pages.

<http://www.santaclaracounty.org>, Website for Santa Clara County where the Board of supervisors' agenda can be found.

KEYBOARD PROJECT: Funding Summary, presentation handout on November 27, 2001, dated October 30, 2001, 1 page.

KEYBOARD PROJECT: Funding Summary, same as October 30, 2001 summary except the inclusion of actual expenditures, dated December 3, 2001, 1 page.

Non-Stores Requisition – Documentum Product Software Procurement, includes project's software product requirements document, project's software product RFP document, and vendor responses that resulted in the software product selection, dated April 29, 1999, 36 pages.

Request for Proposals (RFP) Systems Integration Services for Product Customization, issued April 5, 1999, 86 pages.

Request for Technology Funding – KEYBOARD, identifies the KEYBOARD Project's original goals including a development cost estimate, cost savings, and project payback analysis, dated April, 1999, 16 pages.

Santa Clara County Code of Ordinance Section A34-80, outlines county requirements for software technology purchases, dated December 14, 2001, 1 page.

Transmittal Memorandum, background section and Attachment 1 provide a discussion of the KEYBOARD project's original technical approach, dated January 20, 1999, 8 pages.

Transmittal Memorandum, provides the rationale for the KEYBOARD Project's FY2000 \$1,197,245 budget modification for the purchase of printers and scanners, dated February 1, 2000, 17 pages.

PASSED and **ADOPTED** by the
Santa Clara County Civil Grand
Jury this 14th day of March, 2002.

Bruce E. Capron
Foreperson

Norman N. Abrahams, DDS
Foreperson Pro Tem

Joyce S. Byrne
Secretary