



Office of the City Auditor

CONSENT CALENDAR

January 24, 2017

To: Honorable Mayor and Members of the City Council

From: Ann-Marie Hogan, City Auditor

Subject: Audit Report - City at Crossroads as Long-Standing Need for Structured Approach to Line of Business Experts Function Intersects with ERP Implementation

RECOMMENDATION

Request that the City Manager report back by July 25, 2017, and every six months thereafter, regarding the status of recommendations until reported fully implemented.

FISCAL IMPACTS OF RECOMMENDATION

Line of business experts are a vital component of the City's Enterprise Resource Planning (ERP) implementation. Failure to adequately train, prepare, and engage these individuals in the process will increase costs to the City, most likely because of a longer, more drawn out implementation involving more expenses for contractors and staff hours, and reduced system capabilities.

CURRENT SITUATION AND ITS EFFECTS

The City's line of business experts function has been in existence for approximately two decades. Coined initially as module leaders, then as application experts, the City now uses the term line of business experts to refer to individuals performing the function. While the terminology has changed, the need for a structured approach has not. The City has yet to fully develop the function, i.e., fully define its purpose, fully delineate its roles and responsibilities, and fully consider the resources required to train and develop designated personnel.

Frustration caused by this lack of a structured approach was reflected in many of the responses to our survey of the City's 38 line of business experts. Approximately 57 percent of participants surveyed said they had some level of difficulty in getting information about their roles and responsibilities, and half expressed some frustration with the lack of clarity of information provided. Only 38 percent felt they were adequately prepared for the job.

The City's implementation of its ERP project has brought the line of business experts function to the forefront. The success or failure of the multimillion dollar project will rest, at least in part, on the City's ability to engage its line of business experts as effective change agents in the process. However, in order to do so, the City must provide its line of business experts the structure and resources required to operate effectively and efficiently.

BACKGROUND

Information Technology defines a line of business expert as a subject matter expert for a particular business process who also possesses technical knowledge of the software application supporting that process. The City's line of business expert concept has its origins in the creation of "module leaders" in response to the expansion of the City's core financial and work management system, FUND\$. Over time, IT reassigned some core responsibilities previously handled by IT staff to the line of business experts in the various departments, including FUND\$ training, documentation, and configuration tasks.

ENVIRONMENTAL SUSTAINABILITY

Our office manages and stores audit workpapers and other documents electronically to significantly reduce our use of paper and ink. Although many of the audits we issue do include information about specific environmental impacts, this particular report has no identifiable environmental effects or opportunities associated with it.

RATIONALE FOR RECOMMENDATION

Implementing our recommendations will assist in developing a structured approach to the City's line of business experts function. This will put the City in a better position to fully engage its line of business experts as effective change agents in ERP implementation, and help ensure continued, consistent, and adequate support from these experts.

CONTACT PERSON

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Attachments:

1: Audit Report - City at Crossroads as Long-Standing Need for Structured Approach to Line of Business Experts Function Intersects with ERP Implementation

City of Berkeley Office of the City Auditor



City at Crossroads as Long-Standing Need for Structured Approach to Line of Business Experts Function Intersects with ERP Implementation

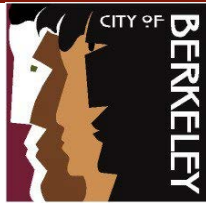
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Presented to Council January 24, 2017

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City Of Berkeley - Office of the City Auditor

City at Crossroads as Long-Standing Need for Structured Approach to Line of Business Experts Function Intersects with ERP Implementation

January 24, 2017

Purpose of the Audit

Our audit answers the question: Has the City of Berkeley developed a structured approach to its line of business experts function that defines the purpose of the function, establishes minimum qualifications and training requirements, delineates the roles and responsibilities of all parties involved, and clearly documents these elements in service level agreements between IT and its client departments?

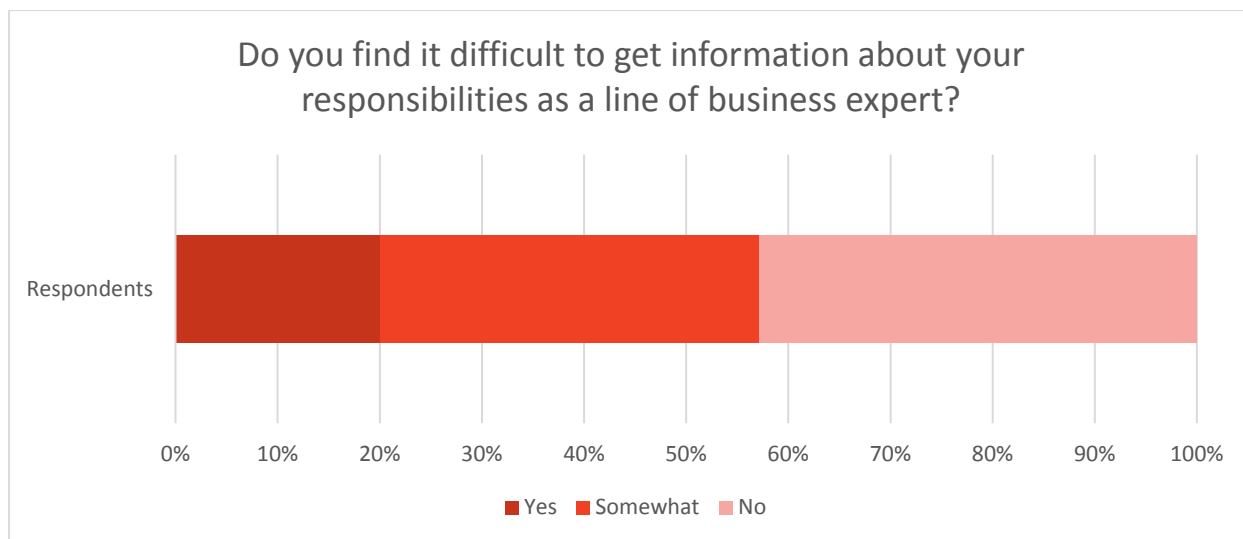
Executive Summary

Line of business expert function, though long in existence, has yet to be fully developed

The City's line of business expert function has been in existence for approximately two decades. Coined initially as *module leaders* during the first decade of the FUNDS era, then as *application experts*, the City now uses the term *line of business experts* to refer to individuals performing the function. While the terminology has changed over the years, the need for a structured approach has not. The City has yet to fully develop the function, i.e., fully define its purpose, fully delineate its roles and responsibilities, and fully consider the resources required to train and develop designated personnel.

City's long-standing need for structured approach reflected in survey responses

The frustration caused by this lack of a structured approach was reflected in many of the responses to our survey of the City's 38 line of business experts. Approximately 57 percent of participants surveyed said they had some level of difficulty in getting information about their roles and responsibilities, and half of them expressed some frustration with the lack of clarity of information provided. Three respondents were unaware of their designation as line of business experts. Only 38 percent felt they were adequately prepared for the job.



Changing landscape in City's IT infrastructure brings need for structured approach to the forefront

The implementation phase of the City's multimillion dollar Enterprise Resource Planning (ERP) project to replace its aging FUNDS infrastructure is scheduled to begin in January 2017. This event has pushed to the forefront the need for the City to clarify and develop its line of business experts function: successful ERP implementation may hinge on the City's ability to develop and engage its line of business experts as effective change agents in the process.

Multiple studies have concluded that one of the greatest contributing factors to the success or failure of ERP implementation lies in management's ability to manage change through the effective use of well-trained change agents. The new IT Director leading the City's ERP project acknowledged the need for effective change management. Toward that end, the director designated a change manager to coordinate the City's change management efforts, including the need to engage line of business experts as change agents in the ERP implementation process.

Recommendations

Our recommendations will provide the City Manager and Information Technology the framework to develop a structured approach to the City's line of business experts function:

- Clearly define the purpose, responsibilities, minimum qualifications, and training requirements for the line of business experts function.
- Establish written policies and procedures for the line of business experts function.
- Negotiate and execute service level agreements with client departments.
- Revise the job classification used to recruit portfolio coordinators to better identify the qualifications needed for the position.

*"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has."
– Margaret Mead*



*"To survive and succeed, every organization will have to turn itself into a change agent."
– Peter Drucker*

AUDIT OBJECTIVE

Our audit asks the question: Has the City of Berkeley developed a structured approach to its line of business experts function that defines the purpose of the function, establishes minimum qualifications and training requirements, delineates the roles and responsibilities of all parties involved, and clearly documents these elements in service level agreements between IT and client departments? We included this audit as part of our [2016 Audit Plan](#)¹ because of its importance to the success of the City’s Enterprise Resource Planning project.

BACKGROUND

Line of business expert: business process subject matter expert who possesses technical knowledge of systems used in the process

The Department of Information Technology (IT) defines a line of business expert as a subject matter expert for a particular business process who also possesses technical knowledge of the software application supporting that process. The City’s line of business expert concept has its origins in the creation of “module leaders” in response to the expansion of the City’s core financial and work management system, FUND\$, during the first two decades of its existence.

Purchased in 1990, FUND\$ had grown from its original core financial configuration (general ledger, accounts payable, and purchasing) into a 19-module complex of financial and operational functions by 2010. Additional functions included permitting, code enforcement, and zoning modules for the Planning and Development Department, as well as fleet management and work order modules for the Public Works Department. To assist IT in managing the day-to-day operations of this expanded system, a former City Manager directed departments to assign module leaders for each FUND\$ module used by the department.

¹ Fiscal Year 2016 Audit Plan: [http://www.cityofberkeley.info/uploadedFiles/Auditor/Level_3 - General/RPT_City%20Auditor%20Fiscal%20Year%202016%20Audit%20Plan_102715\(1\).pdf](http://www.cityofberkeley.info/uploadedFiles/Auditor/Level_3_-_General/RPT_City%20Auditor%20Fiscal%20Year%202016%20Audit%20Plan_102715(1).pdf)

The purchase of Accela licensing and permitting software in 2011 marked the beginning of the City's FUND\$ replacement efforts, which will culminate in the replacement of the FUND\$ financial core components as part of the City's multimillion dollar Enterprise Resource Planning (ERP) project.

First decade of the millennium saw a shift in workload from IT to the departments' line of business experts

IT's reliance on line of business experts grew significantly during the first decade of the new millennium, according to IT, as budgetary constraints reduced staffing available for FUND\$ technical support. From 1999 to 2009, IT reported that its employees devoted to FUND\$ programming, administration, and training dropped from six to two full-time equivalents. In response to the reduction in staffing, IT began reassigning some responsibilities previously handled by IT staff to the line of business experts in the departments, including FUND\$ training, documentation, and configuration tasks.

Prior audit reports found line of business experts function in need of a structured approach

Our office conducted two prior audits that contained findings and recommendations relevant to the line of business experts function: [FUND\\$ Change Management \(2004\)](#)² and [Customer Service – Cash Receipts/Cash Handling \(2003\)](#)³. In both audits, we identified problems associated with the module leader function, aka line of business expert function. Our recommendations generally focused on establishing a more structured approach for module leaders to ensure that individuals possess the appropriate skills, receive adequate training from IT and support within their own departments, and that all FUND\$ modules used by a particular department have a dedicated module leader.

² FUND\$ Change Management Audit: http://www.ci.berkeley.ca.us/uploadedFiles/Auditor/Level_3_-_General/ChgMgmtReportFinalWeb.pdf

³ Customer Service —Cash Receipts/Cash Handling Audit: http://www.ci.berkeley.ca.us/uploadedFiles/Auditor/Level_3_-_General/CustServReport4-8-03.pdf

FINDING AND RECOMMENDATIONS

Finding 1: Underdeveloped line of business experts function poses risks for City's ERP implementation

The City of Berkeley has long needed to develop a structured approach to its decades old line of business experts function. This includes defining the function, establishing minimum qualifications, and devoting resources for training and development. The immediacy of that need is now elevated by the City's approaching Enterprise Resource Planning (ERP) project. With a preliminary cost estimate of \$15.1 million, the replacement of the City's aging FUND\$ software represents the largest IT investment in a quarter century.

Multiple studies have concluded that one of the greatest contributing factors to the success or failure of ERP implementation lies in an organization's ability to manage change through the effective use of well-trained change agents. For the City of Berkeley, its line of business experts represent individuals well-positioned to enlist as change agents in the implementation process. To ensure a successful implementation, or more important, to avoid the heavy cost in time and resources of failed implementation, management must address this long-standing need, and do so in a timely manner. Both the City Manager's Office and the current IT Director have acknowledged this need and have taken preliminary steps to address it.

Ancillary to the line of business experts function, but vital to the structured approach, is the need for service level agreements between IT and client departments. Ideally, the agreements would provide both IT and its client departments with a platform for delineating their respective roles and responsibilities, as well as a framework for achieving their shared goals. The new IT Director has indicated that she intends to negotiate and execute service level agreements with all client departments.

Finally, IT's portfolio coordinators play a key support role for line of business experts. However, IT has had difficulty recruiting and retaining portfolio coordinators, due in part to high staff turnover, and to an outdated job classification that has not kept pace with a rapidly changing field. Portfolio coordinators serve as points of contact for line of business experts, and play a critical role in

managing the City's IT infrastructure. The new IT Director acknowledged the need for job classification revisions and said that she plans to discuss the issue with Human Resources and, then, the Personnel Board.

Management has not yet provided a framework for the City's line of business experts function

The line of business experts function has been in existence for about two decades. A prior City Manager and former IT director acknowledged the need to develop a structured approach for the function in responses to prior audit reports. However, the City did not establish a framework for setting policy or procedural guidance to define the function's purpose; set minimum qualifications, delineate roles and responsibilities; and provide for training and development.

In fiscal year 2003, we issued our [Customer Service – Cash Handling/Cash Receipts](#) audit report and recommended fundamental changes to what was then called the module leader function. This included establishing a formal structure within the City that would, among other things, define module leader duties and procedures, establish minimum qualifications and training requirements, and ensure that staff were available for timely software upgrades for testing and implementation. The former City Manager reported this recommendation as implemented. However, current management was unable to provide any policies and procedures related to the line of business experts function. Indeed, the IT Department did not have a readily available list of line of business experts. The most current list available was a fiscal year 2010 list of FUND\$ module leaders, some of whom are no longer with the City.

IT reported significant shifts in strategy concerning line of business experts workload, but no policies followed

In fiscal year 2010, the former IT Director commented in the [FUND\\$ Status Report](#)⁴ to Council that IT staffing cuts had necessitated reassigning certain FUND\$ maintenance duties to module leaders, specifically training, documentation, and configuration duties, thereby expanding the role and the importance of the function. However, there is no evidence of any policy or procedural guidance issued to document this shift in strategy and workload.

⁴ FUND\$ Status Report, June 1, 2010: [http://www.ci.berkeley.ca.us/uploadedFiles/Clerk/Level_3 - City Council/2010/06Jun/2010-06-01_Item_54_FUND_Status_Report.pdf](http://www.ci.berkeley.ca.us/uploadedFiles/Clerk/Level_3_-_City_Council/2010/06Jun/2010-06-01_Item_54_FUND_Status_Report.pdf)

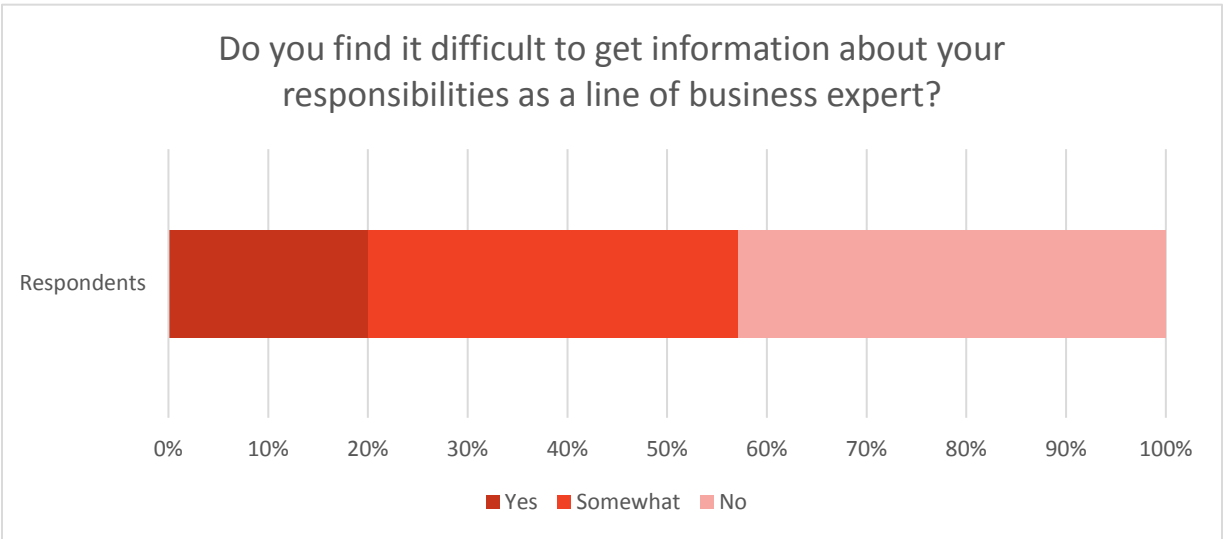
In fiscal year 2009, IT published its fiscal year 2009 – 2011 Master Plan. The plan reflects a comprehensive review that includes discussions of budget, staffing, training, and strategic initiatives. However, IT makes no mention of a plan for the line of the business experts function, even in the context of training department staff. The omission is all the more remarkable considering that the document was drafted during the same time period in which IT reported that it was reassigning some core duties, including training, to the line of business experts.

Long-standing need for a structured approach to the line of business experts function has created some confusion

The new IT Director’s recent efforts to begin addressing the need for a top-down, structured approach are a welcome change for a function that has long suffered from the lack of a strategic vision. Indeed, the term “line of business expert” itself was the source of some confusion during this audit. The term varies depending on the department and the software application in place. At present, the terms *line of business expert*, *module leader*, and *super user* are all in use to varying degrees in reference to what is essentially the same function (See Appendix C). We understand that the specific requirements of the function and the individual’s relationship with IT will vary depending on the department and the system(s) involved. However, this is all the more reason for a citywide approach to ensure that all policies and procedures, whether at the department or division level, derive from the same strategic vision.

Lack of a structured approach reflected in the line of business experts’ survey responses

The lack of a structured approach was reflected in many of the responses to our survey of the 38 line of business experts identified during the audit, 37 of whom responded (See Appendix D). Approximately 57 percent of participants indicated they found it difficult or somewhat difficult to get information about their responsibilities as a line of business expert.



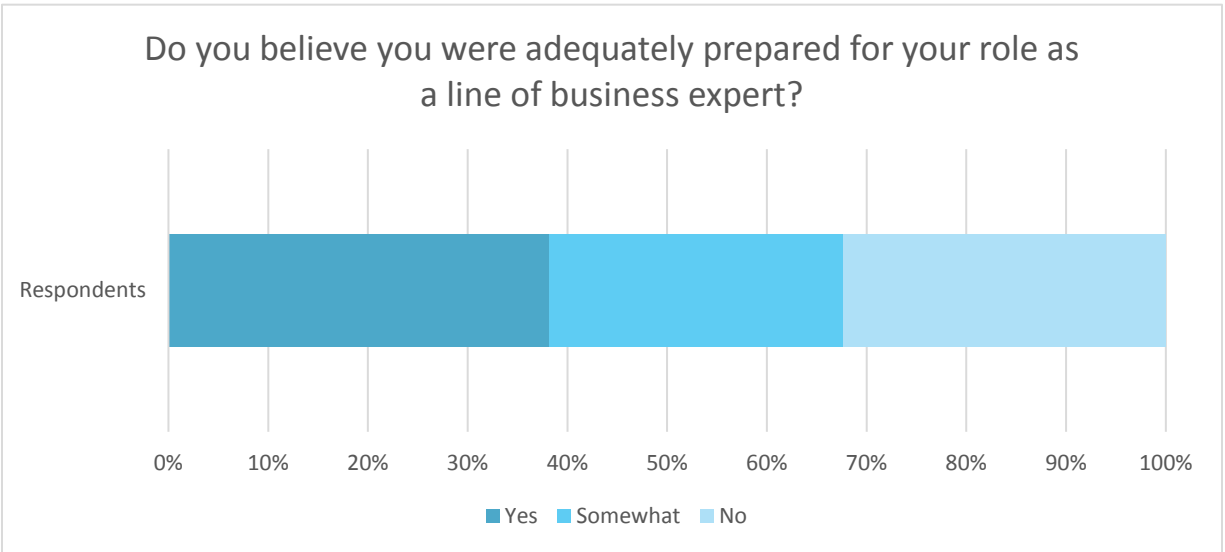
Survey reflects frustration and uncertainty among some line of the business experts

In addition, the survey revealed that:

- Half of the participants are frustrated or somewhat frustrated by the lack of clarity and guidance provided regarding their responsibilities.
- Three respondents were unaware of their designation as a line of business expert.
- 62 percent felt they were not adequately prepared or only somewhat prepared for their role as a line of business expert.

Survey reflects training for line of business experts one-time events rather than on-going process

Approximately 87 percent of survey respondents indicated they had received some training on the software system(s) from various providers, including IT, the vendor, and coworkers. On the surface, this seems to be a positive measure. However, there was significant variance in the timeliness of the training provided. One individual said they had received training more than five years ago, one in 2009, one in 2006, and another simply "a long time ago." Further, for most individuals, the training was a one-time event, rather than an ongoing process.



City faces daunting challenge and significant opportunity as ERP implementation approaches

On May 27, 2016, the City issued a Request for Proposal for Enterprise Resource Planning (ERP) software and implementation services as part of its multimillion dollar ERP project to replace its aging FUND\$ financial systems infrastructure. Project implementation is scheduled to proceed in January 2017. Currently estimated at \$15.1 million, the project represents the City’s most significant information technology investment in more than a quarter century. The ERP project implementation represents both a daunting challenge and a significant opportunity with regard to the line of business experts function.

Academic, government, and IT industry-based studies have all concluded that, among the primary factors contributing to the success of an ERP implementation, are management’s determination to provide adequate resources for training, and to develop and engage effective change agents who will carry the mantle of change management for the departments.

Line of Business Experts



IT does not have service level agreements with most client departments

With the exception of a joint, funding agreement with the Police and Fire Departments, IT has not developed or executed agreements with its client departments. The new IT Director acknowledged the need for such agreements and expressed the intent to develop and execute them with all client departments, some of which contribute significant resources to fund IT positions, e.g., portfolio coordinators. Public Works, for example contributes approximately \$1.4 million annually to fund IT positions dedicated to maintaining Public Works' systems, such as its route optimizing software, RouteSmart. Similarly, Planning and Development contributes nearly a half million annually to support systems, such as its building permit software, Accela.

While there are no laws or regulations requiring the use of service level agreements, the technology industry considers them a best practice:

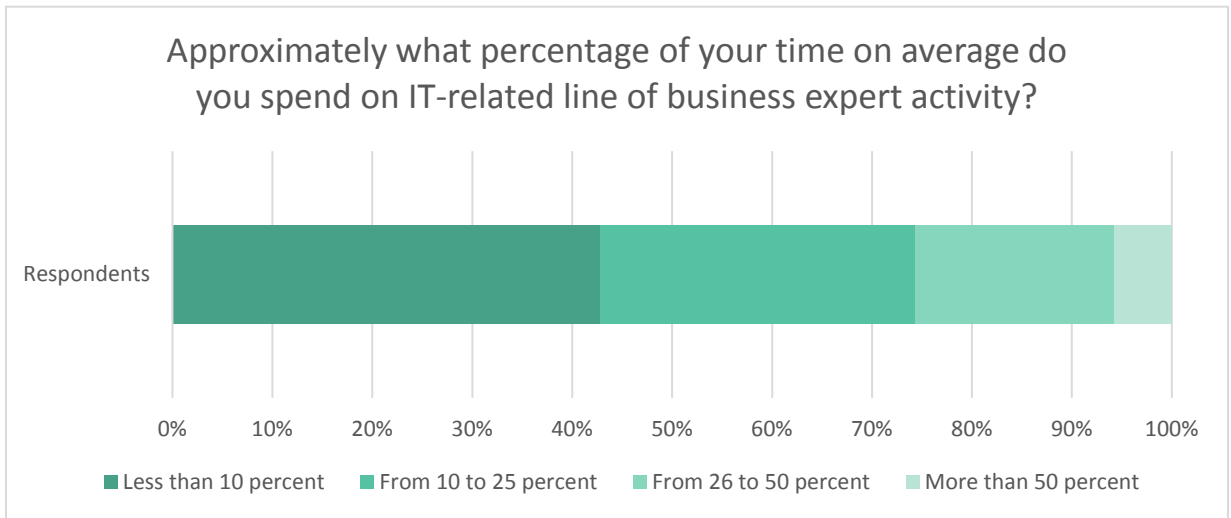
"[A] well-constructed service level agreement serves as a model for efficiency, quality, and synergy between the user and community and support group by maintaining clear process and procedures for network issues or problems."

– Cisco Systems

Service level agreements would help clarify the respective roles of IT and client department staff

With regard to the line of business experts function, service level agreements would help to bolster the structural framework by delineating the respective roles and responsibilities of IT staff and client department staff. In the absence of clearly defined roles, there is significant variation as to what is required of the role and the effort needed of staff to perform the duties. For

example, survey responses to our question about the amount of time spent on IT-related issues ranged from less than 10 percent of their time, to more than 50 percent of their time, with the majority spending greater than 10 percent of their time.



Wide variance in workload responses may be the product of an ill-defined function

There could be several reasons for this wide variance, including the complexity of the system, whether the system is new or fully implemented, or the technical proficiency of the line of business expert’s user group. However, the variance could also be a reflection of the lack of clarity and guidance regarding the function. Consequently, some individuals may be taking on responsibilities traditionally performed by IT staff, thus creating greater workloads for themselves. On the other end of the spectrum, IT staff may be taking on responsibilities that could be best be handled by line of business experts. Service level agreements would help bring consistency and clarity to these roles.

Service level agreements detail the nature, quality, and scope of services

[Business Dictionary](http://www.businessdictionary.com)⁵ defines a service level agreement as a “contract between a service provider and customer [detailing] the nature, quality, and scope of services to be provided.” Other definitions include that of a technology industry consultant, who defined the agreement as an “expectation-managing mechanism.” Toward that end, a service level agreement can be

⁵ Business Dictionary: <http://www.businessdictionary.com>

beneficial to both IT and client departments in managing expectations on several levels:

Service level agreements help to manage expectations

- As a communications tool: the process of negotiating the agreement in itself acts to open the lines of communication;
- As a conflict-prevention tool: the agreement helps to avoid or resolve disputes through shared understanding of needs, priorities, and costs;
- As a living document: the agreement should be revisited on a predetermined frequency to assess service adequacy and negotiate adjustments;
- As an objective means for assessing service effectiveness, i.e., both user and provider using the same criteria to evaluate service quality.

Effective service level agreements share elements considered best practices

The Institute of Public Administration identified key elements common to effective service level agreements that can be considered best practices. While agreements may differ in complexity and scope, they generally share these common elements:

- Status, aims, and objectives of the government;
- Delineation of responsibilities;
- Nature and level of services to be provided;
- Accountability and monitoring;
- Means of resolving disputes;
- Means of amending the agreement; and
- Means of justifying the costs of services provided.

IT's single agreement lacks best practice elements

The one existing agreement covering a shared Portfolio Coordinator position funded jointly by the Police and Fire departments contains none of the above-mentioned common elements. Instead, it focuses mainly on the budgetary implications of the Police and Fire departments' funding of the full-time equivalent for the Portfolio Coordinator position.

Portfolio coordinators play critical role in management of IT infrastructure

The Portfolio Coordinator plays a critical role in the City’s management of its IT application infrastructure. While the Information Technology Department’s Help Desk provides front-line support for the City’s software systems and computer equipment, portfolio coordinators function more as project managers for the City’s integrated and standalone systems. The IT Department defines the portfolio coordinator as being responsible for helping departments maximize their return on technology investments. Portfolio coordinators accomplish this task by helping departments prioritize, design, improve, and implement workflow systems.

Portfolio coordinators serve as points of contact for the departments’ line of business experts

Ideally, Information Technology’s portfolio coordinators serve as points of contact for line of business experts, and work closely with these individuals on system implementations and upgrades. According to the Police Department’s line of business expert, for example, he and the former portfolio coordinator would work side-by-side for days mapping out implementation plans for system upgrades.

BPD scheduled for 9-1-1 system upgrade; portfolio coordinator will play critical role in ensuring success

The portfolio coordinator for the Police and Fire departments is a particularly sensitive position because the coordinator plays a critical role in maintaining the City’s Computer Aided Dispatch system, also known as the 9-1-1 system. Failure of the system, even momentarily, could mean the difference between life and death for someone in need of emergency services. The system is scheduled for a major upgrade in fiscal year 2018. Staff described the upgrade as similar to the implementation of a new system requiring training for all staff interacting with the system, from dispatchers to patrol officers. The portfolio coordinator will play a critical role in the upgrade.

Recruiting and retaining portfolio coordinators suffers from turnover and an outdated job classification

Information Technology, just as the City as a whole, has struggled in recent years with employee turnover, including portfolio coordinator positions. At the height of its staffing shortage in December 2015, the department reached 11 vacancies, or 27 percent of its budgeted full-time equivalent staffing level. It was at this time that the Police Department lost its seasoned coordinator. IT had yet to find a permanent

replacement at the time of this audit. For the Planning and Development Department, the portfolio coordinator position has been a veritable revolving door. The department has seen six portfolio coordinators in less than two years. The shortest tenure was three months, according to Planning and Development staff.

Programmer/analyst II classification, last updated in 1994, used for recruiting portfolio coordinators

Human Resources currently uses the applications programmer/analyst II classification for recruiting portfolio coordinators. The classification was last updated in 1994 and is weighted towards programming-related skills. The portfolio coordinator position requires a project manager-oriented skills set, including soft skills such as organizing, prioritizing, coordinating, training, and communicating. Department staff believe the outdated job classification is hindering the City's ability to attract, recruit, and retain individuals with the appropriate skills set.

Palo Alto's minimum requirements focus on project management skills

The City of Palo Alto, for example, lists the following minimum requirements for its "portfolio management" position:

- University or college degree;
- 4+ years of IT Governance/Portfolio Management experience;
- 2+ years of experience in project coordination, management and/or project delivery accountability;
- Project Management Professional certification or equivalent experience;
- Excellent verbal and written communication skills; and
- Excellent critical thinking and problem-solving skills.

Berkeley's minimum requirements contain no reference to project management skills

By contrast, the City of Berkeley's applications programmer/analyst II position lists only the following minimum requirements:

- Equivalent to four year college or university graduation with major coursework in computer science, mathematics, business administration, or closely related field; and

- Two years of professional experience in systems design and analysis, systems integration, and/or programming of applications for computer systems.

The new IT Director acknowledged that the applications programmer classification, in its current form, was not the ideal tool for recruiting portfolio coordinators, and indicated that she intended to address the need for revisions with Human Resources and, then, the Personnel Board.

Recommendations

Define line of business experts function

Establish policies and procedures

Create boilerplate service level agreements

Negotiate service level agreements

Revise portfolio coordinator job classification

The City Manager's Office should:

- 1.1 Clearly define the purpose, responsibilities, minimum qualifications, and training requirements for the line of business experts function.
- 1.2 Work with Information Technology to establish written policies and procedures for the line of business experts function at the appropriate organizational level based on the guiding principles established in Recommendation 1.1.

The Department of Information Technology should:

- 1.3 Create boilerplate service level agreements that, at a minimum, define the:
 - general purpose of the agreement;
 - roles and responsibilities of the parties involved;
 - goals and objectives;
 - provisions for monitoring the agreement; and
 - procedures for amending the agreement.

The standard boilerplate should also include a cost section that allows for quantifying service charges and payment provisions in as much detail as possible to help justify costs.

- 1.4 Negotiate and execute service level agreements with client departments.
- 1.5 Work with Human Resources to revise the job classification used for the portfolio coordinator position. Minimum qualification factors might include, but are not limited to:

- IT Governance/Portfolio Management experience;
- Project Management Professional certification;
- Project coordination experience; and
- Excellent verbal and written communication skills.

***City Manager's
Response***

The City Manager agreed with the recommendations. The full response is at Appendix B.

FISCAL IMPACT

Additional resources to train and develop line of business experts will be less costly than failed ERP implementation

Line of business experts are vital players in the City's approaching ERP implementation, currently budgeted for \$15.1 million. Failure to adequately train, prepare, and engage these individuals in the process will inevitably bear a cost, most likely in the form of a long, drawn out implementation involving additional contract costs and staff hours, and reduced system capabilities.

Implementation of the City's new business license software in 2013 provides a glimpse, albeit on a smaller scale, of the potential costs associated with troubled implementation. Three years into implementation, and Finance staff still struggle with performing basic financial functions, such as refunds and overpayments. In July 2016, the City added \$59,000 to its contract with Accela to address long-standing functionality issues. This does not include the additional staff time and operational costs, such as billing delays caused by system down time. Overall contract costs for the business licensing and permitting software have risen from the original contract amount of \$240,000 to \$1.15 million. Most of these costs are attributable to expanded use of the software. However, the former IT Director indicated in a staff report to Council that implementation delays due to line of business experts' underestimation of workflows, were also a factor of the increased cost.

CONCLUSION

City must choose a path that embraces change

The City finds itself at a crossroads as the long-standing need for a top-down, structured approach to its line of business experts function intersects with the City's most significant IT investment in a quarter century. The results of our survey reflect a pool of individuals prepared to take on the mantle of change agent but lacking the authoritative support of clear policy and procedural guidance to do so. The success or failure of the City's ERP implementation efforts may depend on its ability to fully develop and engage its line of business experts as effective change agents in the process.

We appreciate and thank staff and management for their consideration and assistance

We would like to thank the IT Director for her cooperation and assistance during this audit, as well as that of her staff. We would also like to thank all of the line of business experts who participated in our survey for their timely responses and valuable input. Finally, we would like to thank the staff who met with us to discuss their processes and concerns, and who shared their time and insight. We hope that this audit will provide the City Manager and IT Director with a framework for building upon their progress in moving the City's information technology infrastructure into the 21st Century.

APPENDIX A:

Scope and Methodology

We audited the City's management of its line of business experts function during fiscal years 2012 through 2016. Specifically, we assessed management's efforts to provide a structured approach to the function by implementing policy and procedural guidance that defines the purpose of the function, delineates responsibilities, establishes minimum qualifications, and provides for training and development of line of business experts. To answer our audit objective, we:

- Met with the Information Technology Director, Information Technology staff, and department staff to gain an understanding of the line of business expert function, as well as the inter-relationship between department line of business experts and their respective IT portfolio coordinators.
- Performed a risk assessment of the internal controls over the function and identified potential weaknesses associated with management's failure to fully implement the line of business experts function.
- Reviewed our prior audits addressing the FUND\$ module leaders; various reports and Council items pertaining to the City's management of its IT infrastructure; and academic and industry research on related topics, including service level agreement best practices, end-user training, and enterprise resource planning.
- Conducted an online survey via Survey Monkey of line of business experts serving City departments with the exception of those we explicitly excluded because of a potential threat to auditor independence.
- Reached out to employees to encourage participation in our survey and compared their responses to information we received from line of business experts with whom we met during in-person meetings.

Auditor Independence

We identified possible threats to our independence related to our City Charter mandated services. This includes our Performance Audit Division staff's role as module leader for the City's Contract Management System (CMS) FUND\$ module; and our Payroll Audit Division staff's module leader role for the Payroll/Personnel FUND\$ module. Prior to starting audit work, we assessed these threats and put safeguards in place to eliminate any actual or perceived threats. To ensure our independence, we explicitly excluded from our audit work all module leader activity pertaining to the CMS and Payroll/Personnel FUND\$ modules.

Data Reliability

We obtained financial data from the City's budget reports. We used the data to provide context and background concerning budgetary planning for the replacement of FUNDS modules, and internal service funding provided to IT from client departments. However, we did not use the data to significantly support our finding, conclusion, or recommendations. Therefore, we did not perform a data-reliability assessment.

We used [SurveyMonkey](#)⁶ to conduct our line of business expert survey. We assessed the reliability of SurveyMonkey and employee data (survey responses) by testing SurveyMonkey to ensure that it worked as expected. Specifically, we created a test environment to gain an understanding of the systems functionality and to ensure ourselves that SurveyMonkey returned survey responses accurately and completely, and limited responses to one per invitee. We reviewed SurveyMonkey's security statement, privacy policy, and terms of use statement to ensure ourselves of the systems integrity and data privacy control. We also reviewed information about the company, which is widely known, used, and trusted by organizations for survey creation, data collection, and data analysis. We determined that the data were sufficiently reliable for the purposes of this report.

Standards Compliance Statement

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

⁶ SurveyMonkey: <https://www.surveymonkey.com/>

APPENDIX B

Audit Finding, Recommendations, and Management Response Summary

| Audit Title: City at Crossroads as Long-Standing Need for Structured Approach to Line of Business Experts Function Intersects with ERP Implementation | | | | | |
|--|--|-------------------|--|---|---|
| Finding and Recommendations | | Lead Dept. | Agree, Partially Agree, or Do Not Agree | Expected or Actual Implementation Date | Status of Audit Recommendations, Corrective Action Plan, and Progress Summary |
| Finding 1: Underdeveloped Line of Business Experts Function Poses Risks for City’s ERP Implementation | | | | | |
| 1.1 | Clearly define the purpose, responsibilities, minimum qualifications, and training requirements for the line of business experts function. | City Manager | Agree | June 2020 | <p>Status: In Progress</p> <p>City Manager’s Office will work with Director of Information Technology and the Enterprise Resource Planning (ERP) Project Manager to clearly define the purpose, responsibilities, minimum qualifications, and training requirements for the line of business experts function.</p> <p>Director of IT and ERP Business Project Manager will work with Client departments to identify roles and responsibilities for business experts function once the ERP vendor is selected and as various phases of the project are implemented.</p> |
| 1.2 | Work with Information Technology to establish written policies and procedures for the line of business experts function at the appropriate organizational level based on the | City Manager | Agree | June 2020 | <p>Status: In Progress – To be Implemented with ERP Project Implementation</p> <p>City Manager’s Office will work with Director of Information Technology and the Enterprise Resource Planning (ERP) Project Manager to</p> |

| Audit Title: City at Crossroads as Long-Standing Need for Structured Approach to Line of Business Experts Function Intersects with ERP Implementation | | | | | |
|--|--|------------------------|--|---|---|
| Finding and Recommendations | | Lead Dept. | Agree, Partially Agree, or Do Not Agree | Expected or Actual Implementation Date | Status of Audit Recommendations, Corrective Action Plan, and Progress Summary |
| | guiding principles established in Recommendation 1.1. | | | | <p>establish written policies and procedures for the line of business experts at the appropriate organizational level based on the guiding principles established in Recommendation 1.1.</p> <p>Director of IT and ERP Project Manager will work with the City Attorney’s Office, Finance, and Human Resources to establish written policies and procedures for the line of business experts as various phases of the ERP project are implemented. These policies and procedures will need to be approved by City Manager’s Office and Council as needed.</p> |
| 1.3 | <p>Create boilerplate service level agreements that, at a minimum, define the:</p> <ul style="list-style-type: none"> ▪ general purpose of the agreement; ▪ roles and responsibilities of the parties involved; ▪ goals and objectives; ▪ provisions for monitoring the agreement; and | Information Technology | Agree | June 2020 | <p>Status: In Progress – To be Implemented with ERP Project Implementation</p> <p>Information Technology department is working on replacing its Help Desk system and the new IT Service Management system will include the capabilities to setup and monitor the Service Level Agreements (SLA’s) for the various applications supported by IT.</p> <p>IT will work with client departments to define these SLA’s for the applications based on the priority and</p> |

| Audit Title: City at Crossroads as Long-Standing Need for Structured Approach to Line of Business Experts Function Intersects with ERP Implementation | | | | | |
|--|---|------------------------|--|---|--|
| Finding and Recommendations | | Lead Dept. | Agree, Partially Agree, or Do Not Agree | Expected or Actual Implementation Date | Status of Audit Recommendations, Corrective Action Plan, and Progress Summary |
| | <ul style="list-style-type: none"> ▪ procedures for amending the agreement. <p>The standard boilerplate should also include a cost section that allows for quantifying service charges and payment provisions in as much detail as possible to help justify costs.</p> | | | | acceptable criteria as agreed by client departments. The criteria mentioned in the recommendations will be considered to create the boiler plate agreements. |
| 1.4 | Negotiate and execute service level agreements with client departments. | Information Technology | Agree | June 2020 | <p>Status: In Progress</p> <p>Information Technology department is working on replacing its Help Desk system and the new IT Service Management system will include the capabilities to setup and monitor progress of the Service Level Agreements (SLA's) for the various applications supported by IT.</p> <p>IT will work with client departments to define these SLA's for the applications based on the priority and acceptable criteria as agreed by client departments.</p> |
| 1.5 | Work with the Human Resources Department to revise the job classification used for the portfolio coordinator position. | Information Technology | Agree | June 2020 | <p>Status: In Progress</p> <p>Information Technology department is working with Budget office to find one time budget to hire a consultant to work with Human Resources to review and classify the Information Technology Job</p> |

| Audit Title: City at Crossroads as Long-Standing Need for Structured Approach to Line of Business Experts Function Intersects with ERP Implementation | | | | |
|---|-------------------|--|---|---|
| Finding and Recommendations | Lead Dept. | Agree, Partially Agree, or Do Not Agree | Expected or Actual Implementation Date | Status of Audit Recommendations, Corrective Action Plan, and Progress Summary |
| Minimum qualification factors might include, but are not limited to: <ul style="list-style-type: none"> ▪ IT Governance/Portfolio Management experience; ▪ Project Management Professional certification; ▪ Project coordination experience; and ▪ Excellent verbal and written communication skills. | | | | Classifications including Application Programmer Analyst (Portfolio Coordinators Role). It will follow the City’s Admin regulation procedures and will need to be approved by Human Resources, Labor, and Personnel Board before changes are effective. |

APPENDIX C

Glossary of Terms

Change Agent: A change agent is a person from inside or outside an organization, who helps the organization transform itself by focusing on such matters as organizational effectiveness, improvement, and development. A change agent usually focuses efforts on the effect of changing technologies, structures, and tasks on interpersonal and group relationships in the organization. The focus is on the people in the organization and their interactions.

Enterprise Resource Planning (ERP): ERP is an information system that incorporates enterprise-wide internal and external information systems into a single unified solution. ERP systems integrate the software, hardware, and network resources essential for building an ERP information system solution. ERP systems aim to streamline business processes.

Line of Business Expert: Line of business expert can be defined as a subject matter expert in a particular business process, e.g., business licenses, who also possesses technical working knowledge of the software application that supports that process. Typically, the IT portfolio coordinator assigned to that department is the line of business expert's IT point of contact for technical issues.

Module Leader/Application Expert: Module leader and applications expert refer to a line of business expert over a particular FUND\$ module.

Portfolio Coordinator: IT defines a portfolio coordinator as someone who helps the department he or she is assigned to maximize its return on technology investments. Specifically, the portfolio coordinator helps prioritize, design, improve, and implement workflow systems for client departments.

Super User: Super user is a term used by the Planning and Development Department in reference to its line of business expert for the City's Accela permitting software.

APPENDIX D

Line of Business Experts Survey Results

