

LIBRARY OF CONGRESS IT STRATEGIC PLANNING

HEARING BEFORE THE COMMITTEE ON HOUSE ADMINISTRATION HOUSE OF REPRESENTATIVES ONE HUNDRED ELEVENTH CONGRESS FIRST SESSION

HELD IN WASHINGTON, DC, APRIL 29, 2009

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LIBRARY OF CONGRESS IT STRATEGIC PLANNING

WEDNESDAY, APRIL 29, 2009

HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOUSE ADMINISTRATION,
Washington, DC.

The committee met, pursuant to call, at 11:08 a.m., in Room 1310, Longworth House Office Building, Hon. Robert A. Brady (chairman of the committee) presiding.

Present: Representatives Brady, Lofgren, Gonzalez, Lungren, and Harper.

Staff Present: Liz Birnbaum, Staff Director; Jamie Fleet, Deputy Staff Director; Khalil Abboud, Professional Staff; Michael Harrison, Professional Staff; Matt Pinkus, Professional Staff/Parliamentarian; Kyle Anderson, Press Director; Kristin McCowan, Chief Legislative Clerk; Victor Arnold-Bik, Minority Staff Director; Katie Ryan, Minority Professional Staff; and Karin Moore, Minority Legislative Counsel.

The CHAIRMAN. I would like to call the Committee on House Administration to order.

Good morning, everyone. We are convening here this morning to continue our oversight of the Library of Congress. Today we will focus on the Library of Congress management of information technology and strategic planning. As we continue to operate an increasingly digital world, we must learn to adapt to the environment around us. Information technology must consistently evolve, often at a remarkable pace.

The Library of Congress faces particular challenges due to the large amount of information the Library stores and manages. Meeting these challenges is no small task. Ten years ago, the Library of Congress commissioned the National Research Council to study their IT strategic planning. In 2000, as a result of the study, the LC21 report provided many recommendations for the Library to make their IT systems more efficient. While the Library has implemented some of the LC21 recommendations, some areas still need to be addressed.

The Library's inspector general recently released a report on IT strategic planning at the Library. While the inspector general's findings were generally favorable, he also found room for improvement. The Library's IT system must be coordinated with the strategic plan, as recommended in the LC21 report, and the Library's chief information officer must take responsibility for overseeing the Library's IT functions in addition to participating in broader program planning.

With each day, information technology occupies a larger role in our work environment. Every year, the Library of Congress undertakes ambitious efforts to continue its mission of spreading knowledge. And while the ever-present tool of technology has allowed the Library to further this mission, we must ensure that the tool is used in the most efficient way. We look forward to the testimony from witnesses on these issues.

I would now like to recognize Mr. Harper, in place of Mr. Lungren, for an opening statement.

Mr. HARPER. Thank you, Mr. Chairman.

I would like to thank Chairman Brady for calling today's hearing.

The Library of Congress is not only the world's largest library, charged with gathering and preserving an unsurpassed universal collection of documents, but also a global leader in digital initiatives to bring educational and historical resources to the fingertips of students and scholars around the globe.

Since the National Research Council's 2000 report which assessed and outlined a digital strategy for the Library, we have seen the Library take major strides in technological advancement, including the migration from mainframe systems, standardization network infrastructure, the build-out of an alternate computing facility, and the establishment of international partnerships to develop digital collections.

While such improvements have been made to the Library's IT infrastructure over the past decade, a recent review by A-Tech Systems on behalf of the Library's inspector general identified additional steps necessary to ensure that the Library has the technological and operational wherewithal to meet the ever-growing digital demands of the 21st century.

According to the review, the IT strategic plan is currently misaligned with the Library's overarching mission, rendering digitization efforts inconsistent without clear direction. With digital initiatives and programs so vital to the Library's core mission, Library IT operations need to migrate to a more cohesive, centralized design without paralyzing the autonomy of the Library's various programs. The A-Tech report also indicates that a more comprehensive IT strategy would reduce duplicative IT costs of overlapping support systems.

Another area of concern highlighted by the review is the lack of IT security policies and enforcement. The valuable services provided by the Library's legislative information and research services are essential to the House's legislative business and are the window through which the American people view the actions of the Congress. Therefore, it is imperative that the Library's information security group has the policy tools and authority needed to ensure that systems integrity and security is maintained.

Although the IG's recent review highlights some of the Library's IT weaknesses, I would like to reiterate how valued the Library's services are, both here in Washington and across the globe. The core mission of the Library hasn't changed, but to achieve its mission the Library must adapt to today's ever-changing technological demands and challenges.

There is no question that, under the direction of Dr. Billington, the Library has made progress in its technological evolution and has often been at the forefront of digital access to information in the Internet age. I think I speak for all of my colleagues here when I offer our support to ensure that the Library has the adequate infrastructure to meet its 21st-century mission requirements.

With that, I would like to thank each of our witnesses for joining us today to discuss the current and future state of the Library's technological infrastructure. And I look forward to your testimony.

The CHAIRMAN. Thank you, Mr. Harper.

I also am being monitored here today by a few people that, if not anything, I want to make sure that they get in the Congressional Record: my wife, Debra; my granddaughter, Serena; and my granddaughter, Alexandra.

They don't believe that we do any work, and I tell them how hard we work, so they had to come down and see it for themselves.

And I thank you for your interest, and I know I have to buy lunch and I have to buy dinner.

So, with that, Ms. Lofgren, anything?

Ms. LOFGREN. I will reserve until after the testimony.

The CHAIRMAN. Mr. Gonzalez.

Mr. GONZALEZ. Waive.

The CHAIRMAN. Right now we welcome you, Ms. Laura Campbell, the chief information officer, Library of Congress; accompanied by Dr. James Billington, the Librarian of Congress; and Jo Ann Jenkins, chief operating officer, Library of Congress; and Karl Schornagel, the inspector general for the Library of Congress.

And I guess we will start with Mr. Schornagel.

STATEMENTS OF KARL SCHORNAGEL, INSPECTOR GENERAL, LIBRARY OF CONGRESS; DR. JAMES BILLINGTON, LIBRARIAN OF CONGRESS, LIBRARY OF CONGRESS, ACCOMPANIED BY LAURA CAMPBELL, CHIEF INFORMATION OFFICER, LIBRARY OF CONGRESS, AND JO ANN JENKINS, CHIEF OPERATING OFFICER, LIBRARY OF CONGRESS

STATEMENT OF KARL SCHORNAGEL

Mr. SCHORNAGEL. Chairman Brady, Mr. Lungren, and members of the committee, thank you for inviting me to speak today.

Although the Library has made substantial strides in information technology in recent years, more work needs to be done.

First, the Library's strategic planning process is not inclusive. Including staff at all levels of the formulation of a strategic plan and holding them accountable for results is a best practice and is shown to help execute the organization's mission.

Further, although individual Library components are required to participate in the AP3 planning process, they are not required to prepare a strategic plan. We also found that the Library's IT strategic plan does not align well with the Library's overall strategic plan. While the IT plan focuses on service functions and technical support, the Library focuses on higher-level IT concepts. And there seems to be no direct linkage between the two plans.

One of the consequences of unclear guidance in the IT strategic plan is divided Library components. This has created divergent

paths for digitization strategies and projects. For example, while OSI concentrates more on digitizing materials for education, Library Services is trying to digitize more public domain material. Although these two avenues are certainly not mutually exclusive, they are not coordinated so as to maximize the Library's digitization dollars and result in fragmented digital offerings.

Second, IT investments are not linked to the strategic plan, resulting in the duplication of efforts and acquisitions. There is no consistent cost-benefit analysis of alternatives, and it is difficult to track total IT costs.

There needs to be a planning and investment process where spending decisions are aligned with mission goals. This process needs to be driven by the priorities derived from the strategic plan. Cost-benefit analyses are needed to determine whether to buy or build IT systems and to evaluate alternative technologies. As an example, an in-house system developed at significant cost for the Library's new audio-visual center had to be replaced shortly after implementation with an off-the-shelf system because it did not meet the Library's needs. A well-developed planning process may have prevented this scenario.

The lack of transparency in tracking IT costs has resulted in duplication of help desk support. For example, although the IT help desk is, or should be, the domain of ITS, there are, in fact, 131 additional employees sprinkled throughout the Library engaged in IT support, at an annual cost of over \$12 million. Granted, some of these may be specialists in particular systems, but many also perform traditional help desk functions. There is no need to duplicate these infrastructures throughout the Library.

Third, the organizational structure of ITS does not foster strategic planning and good IT governance, partly because, unlike most other organizations, the CIO at the Library combines both infrastructural support and major Library program functions. The CIO is ordinarily the head of the IT function and reports directly to the top. At the Library, the actual head of the IT function, the director of ITS, reports to the CIO, who then reports to the Librarian. As a consequence, the CIO is largely perceived as a CIO in name only due to her focus on the programmatic areas. The CIO has a track record of highly successful implementations, but organizational structure should be based on function and purpose, not on individuals.

Also, the CIO is not endowed with the authority to make Library-wide decisions on IT governance. Other Library components make their own IT investment and acquisition decisions. The CIO has only limited authority to enforce Library-wide IT policy. A CIO cannot properly lead an IT organization without full authority for policy affecting IT issues, such as IT security and enterprise architecture.

Fourth, the Library is just now developing an enterprise architecture, or EA, program. An EA framework provides a high-level picture of as-is and future systems and business processes to provide a framework for making sound IT investment decisions. The Library is now embarking on an EA program but nonetheless lags significantly behind most organizations. Without an EA program, it

is difficult for the Library to adopt a global view, thus continuing the current fragmented condition of IT investment decisions.

And, finally, there are significant customer service problems, partially because the Library does not use quality-assurance mechanisms, such as service-level agreements and performance metrics. Customers have created their own IT support organizations because their needs are not being met. Part of the problem is that ITS neither defines service expectations nor provides a yardstick for measuring quality. Customers work around ITS, and some good intentions are thwarted, such as the attempt to deploy network printer/copier/scanners. After 5 years, the Library will have paid \$5.7 million for multifunction machines it uses only as basic copiers instead of making full use of their capabilities.

The Library spends hundreds of millions of dollars on IT, and collectively we are confident that our recommendations will improve the economy, efficiency, and effectiveness of the Library's IT function.

Thank you.

[The statement of Mr. Schornagel follows:]

Testimony of Karl W. Schornagel
Inspector General, the Library of Congress
Before the Committee on House Administration
United States House of Representatives
April 29, 2009

Chairman Brady, Mr. Lungren, and members of the committee, I am pleased to address with you today the issue of Information Technology (IT) Strategic Planning at the Library of Congress. This topic is critically important to the Library as it increasingly relies on IT to accomplish its core mission of making its resources available and useful to the Congress and the American people, and to sustain and preserve a universal collection of knowledge and creativity for future generations.

It is well established that IT plays an ever increasing and evolving role in both the public and private sectors, and that leading organizations need IT governance that allows for effective transformations. The needs of the Library of Congress are no different. In the 200 plus year history of the Library, the current period represents dramatic change in both the format of information, and the tools for collecting, preserving, and making accessible the Library's vast collections. Specifically, digital-born information is playing a greater role in the library and information management worlds and the change in technology has evolved in a relatively short time from centralized mainframe computers to distributed servers and Web-based and interactive technologies.

As technology advances, sound IT investment decision-making requires close attention to analysis and planning. In the past, many IT investments were based on unrealistic claims by technology providers, and many organizations seeking to implement advanced technology were without the benefit of the proven analytical methodologies and management tools that exist today. Large budget outlays were made with little accountability for results and, in many cases, consideration of long-term return on investment was an afterthought.

In today's environment, organizations must follow a sophisticated approach to plan and evaluate the return on their investments and develop enterprise architectures that will facilitate an entity-wide approach to accomplishing mission requirements. For these reasons, I decided to conduct an audit to determine whether the Library has an adequate IT strategic planning mechanism. I established the objectives, scope, and methodology for this review, but did not have sufficient resources to carry it out, so we contracted with A-Tech Systems, Inc.

The audit focused broadly on the Library's plan for managing its IT infrastructure investments. The objectives included determining (1) whether the Library's IT strategic plan aligns with its overall strategic plan, (2) the validity and integrity of the IT plan, (3) the appropriateness and effectiveness of the Library's IT organizational structure and placement, and (4) the extent to which recommendations made by the National Research Council's (NRC) LC21 report in 2000 were implemented by the Library, and whether

there were recommendations from the NRC study still relevant today that had not been fully addressed by the Library.

It is important to point out that the Library is a leader in the international digital technology arena, and has made substantial strides in transforming its IT support function since the NRC's LC21 report. The Library also has many very talented IT personnel. A-Tech's report pointed out a number of areas in which the Library has made tremendous progress in IT. But in order to remain a leader, the Library needs to take several significant steps to evolve.

The following highlights our major findings:

Strategic Planning—The Library's planning process is not inclusive of all internal stakeholders and the policy assigning responsibility for strategic planning is not clear. The IT plan does not align well with the Library's strategic plan and is not a unifying force at the Library. One of the results is that digitization efforts are unfocused.

Including frontline staff in planning and holding them accountable for goals and results aligns staff and results in better execution of organizational missions. Unclear policy leads to ambiguity and misunderstandings of authorities and responsibilities, and has divided components within the Library about priorities for digitizing content that should have been resolved through the strategic planning process. For example, there are multiple digitized groupings across the Library's Web sites with no common search and access tools and no comprehensive index or inventory. It is currently optional for individual components of the Library to develop strategic plans that tie into the Library's strategic plan which prevents continuity. Overall, the Library's strategic planning process is not as mature as many comparable federal agencies.

The IT plan focuses on service functions for workstations and technical support, while the IT component of the Library's Strategic Plan focuses on higher level concepts such as scalable technology and entity-wide architecture, with no direct linkage between the two plans. The linkage is needed to clarify IT priorities and to make the Library's strategic planning effort a unifying force.

IT Investment—IT investments are not linked to the strategic plan, resulting in the duplication of efforts and acquisitions, there is no consistent cost/benefit analysis of alternatives, and it is difficult to track IT costs. The Library has the potential to achieve dramatic improvements in investment returns, but its IT investment process is in the early stages of maturity.

There needs to be a capital asset planning and investment process where spending decisions are regarded as a whole weighted against meeting mission performance. This process needs to be driven by the priorities derived from the strategic planning process.

The lack of transparency in tracking IT costs has resulted in uncoordinated and duplicative efforts for help desk support, software, hardware, IT contractor support,

vendor support, and training. Individual Library components make purchases without using Library-wide negotiated contracts so the Library does not benefit from economies of scale, and several Library components have their own fully staffed technology offices and contractor support, in part because it is not clear who pays for IT support for the various services, and because the Library components feel that they can not rely on the Information Technology Services (ITS) component for service needs. ITS is organizationally under the Office of Strategic Initiatives/Chief Information Officer (CIO). At 131 employees at a cost of \$12.5 million, there is an unusually large number of IT positions at the Library beyond the positions in the CIO's office. The totals outside the ITS help desk are 360 staff at \$38 million.

The Library also does not consistently conduct cost/benefit analyses to determine whether to acquire externally or develop in-house IT systems, and to evaluate alternative technologies, which has resulted in considerable expenditures for unsuccessful projects. For example, an in-house system developed for the Library's new Audio-Visual Conservation Center had to be replaced shortly after implementation by an off-the-shelf system. A cost/benefit analysis of alternatives may have prevented this scenario.

There are some very positive success stories on some Library projects, but these are due to the extraordinary actions on the part of the project teams. Success is often difficult to repeat without the necessary framework in place, and it needs to be institutionalized at the Library, as it has in other federal agencies and leading business enterprises.

Organizational Structure—The organizational structure of ITS does not foster strategic planning and good IT governance. The CIO function combines both programmatic and IT support functions which detracts from good governance.

OSI is unique among the federal agencies that we researched in that along with the CIO function, it includes major programmatic functions; both the National Digital Information Infrastructure and Preservation Program and the Teaching with Primary Sources Program. The traditional IT responsibilities are taken on by ITS, with no direct representation on the Library's Executive Committee. Although the CIO has a track record of highly successful program implementations, organizational structures should be based on function and purpose, not individuals.

We found that in federal agencies and major universities with similar missions that the ITS function would normally be the CIO function and report directly to the organization or agency head. The Library's CIO is largely perceived as the CIO in name only; largely due to her focus on the major programmatic areas rather than the infrastructural IT support functions. In almost all federal agencies, the CIO has IT management duties as that official's primary duty, and these positions almost unanimously report directly to the agency head.

At the Library, the CIO is not endowed with the authority to make Library-wide decisions on IT governance, capital planning, and asset management. This is evidenced by the fact that other components of the Library make their own IT investment decisions

and, sometimes, capital planning, IT budget management, and acquisitions, and she has limited authority to enforce Library-wide security policy. A CIO cannot properly lead an IT organization without full authority and responsibility for these critical elements.

Enterprise Architecture—The Library is missing an enterprise architecture (EA) program for planning future technology. A contractor has been deployed to develop a plan, but the effort is in the early stages of maturity.

An EA framework provides a high-level snapshot of as-is and future systems and business processes to provide a framework for making IT investment decisions. EA tries to understand existing business processes and either build IT systems around them or rethink and improve business processes as IT is being planned. The Library has some fragmented aspects of an EA program, but lags behind most federal agencies. Without a sufficient program, it is difficult to link IT to the mission of the organization, it makes it harder to identify systems interface problems, and there may be fewer opportunities for economies of scale in purchasing.

Customer Service—There are significant customer service problems, at least partially because the Library does not employ quality assurance mechanisms such as service level agreements and performance metrics. There may also be opportunities for economies of scale by consolidating help desk functions.

The problem is to the extent that Library customers have created their own IT support organizations because their needs are not being met. Our count in January 2009 revealed more than 4,000 open service requests, some dating back several years. We did not investigate each open request to determine if it was still actually unfilled or simply not properly closed in the help desk system; nonetheless, this indicates to us a lack of follow-through on IT support. Part of the problem is that the current mechanisms neither define service expectations, nor provide a yardstick by which service quality can be measured.

Customers go out of their way to work around ITS or attempt and then give up pursuing projects that could be a Library-wide benefit such as the attempt to deploy networked combination printer/copier/scanners. Because of a stalemate between ITS and the Library's infrastructure component about responsibility for connecting the machines, the capability was never deployed and at the end of a five-year contract, the Library will have paid \$5.7 million without realizing the full functionality of these machines; they are now being used as just copiers. My office intends to follow up to determine the incremental cost of this capability that is not being used.

The organizational configuration and structured approach concepts in our report represent government and industry best practices for the complex tasks of evaluating the Library's current and future needs, and for making the right choices for successfully carrying out the Library's mission.

The Library spends hundreds of millions of dollars on IT and collectively, we are confident that the recommendations resulting from this audit will improve the economy,

efficiency, and effectiveness of the Library's IT transformation efforts over time. Our complete report, *Information Technology Strategic Planning: A Well-Developed Framework is Essential to Support the Library's Current and Future IT Needs*, March 2009, with the Library's response to our draft findings, can be accessed on our Web site at www.loc.gov/about/oig or from the Library of Congress Web site at www.loc.gov under 'Inspector General.'

This concludes my testimony.

The CHAIRMAN. Thank you.

We, unfortunately, live by bells, and now this year we are living by buzzers, and the buzzer is going off. We have a vote on; we have three votes. And rather than hearing all the testimony and break it up, we will have to break it up sooner or later, so we might as well do it now. And we will be back hopefully in about 45 minutes.

So we do apologize, but we have to run across and do our legislative business. And we will stand adjourned until about 12 o'clock.

Ms. LOFGREN. Mr. Chairman.

The CHAIRMAN. Yes?

Ms. LOFGREN. I have to chair a meeting at noon, so I will not be able to return. I am wondering if I could submit for the record the questions I have about the Law Library that were identified in the IG's report and ask for a written response to these questions from the Library.

The CHAIRMAN. Yes, without objection.

Ms. LOFGREN. Thank you.

[The information follows:]

Committee on House Administration
Library of Congress IT Strategic Planning

April 29, 2009

QUESTION FOR THE RECORD
Congresswoman Zoe Lofgren

Laura Campbell/Dr. Billington

I am very interested in the Law Library and ensuring that it is kept up to date and modern- including technology. The IG report found that the Law Library is interested in using technology to exchange revised legal information nationally and internationally and digitizing its rare book collection, collecting legal blogs, the permanent Congressional Records, and collecting Supreme Court nomination information to support Congress and the legal community. How do these goals fit into the new Library of Congress Digital Strategy (dated February 4, 2009)? Will the Law Library have the resources necessary and support of the Library of Congress to perform these? What are the specific steps being taken?

Karl Schornagel (follow up question)

- Do you see any indication that the new Library of Congress Digital Strategy will ensure the Law Library meets these goals?

The CHAIRMAN. Thank you.

And we will stand adjourned until around 12 o'clock.

[Recess.]

The CHAIRMAN. I would like to resume the Committee on House Administration hearing. And I apologize again, but we do live by those bells and buzzers, and we got back as quickly as we can.

We heard from Mr. Schornagel. Mr. Billington, do you have a statement? I recognize you.

STATEMENT OF JAMES BILLINGTON

Mr. BILLINGTON. Thank you, Chairman Brady and members of the committee. I am very glad to be here with all of you to comment briefly on the occasion of the committee's first hearing on Library issues in the 111th Congress. I appreciate the opportunity specifically to talk about the role of information technology in supporting the Library's mission and its current future needs to serve Congress and the American public.

I am joined by Laura Campbell, the Library's associate librarian for strategic initiatives and chief information officer, and Jo Ann Jenkins, our chief operating officer. She will shortly be providing you specific commentary on the Library's response to the recent outside review and report by the inspector general that is the subject of today's hearing.

The Library has already produced impressive results in the course of addressing the frontier challenges of the information revolution. We have, in effect, superimposed new digital processes and services on top of our continuing traditional functions. We have undertaken an unprecedented range and volume of innovative services for Congress and the American people. Let me just mention a few of the Library's leading-edge efforts that we have launched in our various divisions, bearing in mind that all of this has been accomplished with 1,000 less FTEs than we had in our peak pre-digital year of 1992.

American Memory is the heart of our national digital library. Primary documents of American history and culture are online, archived, and freely available, with more than 15.3 million important primary-source documents available, with clear territorial explanation and proven value in classrooms, libraries, and homes throughout America.

Public spaces of the Jefferson Building we have transformed into an interactive learning center, providing digital enhancement to the great original documents of the American experience. The National Digital Information Infrastructure and Preservation Program was developed under the Library's leadership, under instructions from the Congress. It is a national network of partners to save at-risk content that exists only in highly impermanent digital form, material that if we do not save will be likely lost forever. This program has so far preserved 300 terabytes of stored digital information, which is the equivalent of 300 million volumes in analog form.

Last week, we launched a path-breaking World Digital Library with material from all 192 countries of UNESCO that attracted 20 million page views in its first 4 days. The National Digital Newspaper Program, which is a joint project of the Library and the Na-

tional Endowment for Humanities, will soon put online its 1 millionth newspaper page.

The Copyright Office has developed an online system for copyright registration, and more than half of registrations are already being submitted electronically. The National Library of Service for the Blind and Physically Handicapped is in full-scheduled transition to new digital machines and flashcards to serve 800,000 Americans.

Since the mid-1990s, we have provided Congress with unique legislative information through our Congressional Research Service's Legislative Information System and serve the public with THOMAS, an online source of legislative documents and information on the work of Congress.

I will be presenting testimony just a little bit later today to the House Appropriations Committee on the Legislative Branch concerning our fiscal 2010 budget request that focuses on moving to an enterprise architecture for the Library's technical infrastructure based upon the unique knowledge and experience of the last decade in what is a one-of-a-kind institution.

So let me now introduce Laura Campbell, who has been at the Library since 1992, coming as a managing consultant from Arthur Young & Company, a CPA firm. She brought with her significant experience and expertise in strategic planning and systems integration. She has been a leader in our digitization projects and our chief information officer since 2002.

Let me just say, in conclusion, that I will be happy to answer any and all questions and look forward to continuing our regular sessions with committee staff and to keeping you and the Members and the committee informed about our technological issues and progress.

So I now turn it over to Laura Campbell.

The CHAIRMAN. Thank you.

Ms. Campbell.

STATEMENT OF LAURA CAMPBELL

Ms. CAMPBELL. Thank you. Chairman Brady, Ranking Member Lungren, and members of the committee, I would like to thank you for this opportunity to talk about the inspector general's April 22, 2009, report, "Information Technology Strategic Planning."

While the vision that has driven our Library-wide strategic plan has helped us achieve worldwide recognition, the Library faces extraordinary challenges posed by technological change. The complex, dynamic environment within which the Library must acquire, preserve, and make information available to its customers requires managing many types of fast-changing digital formats across, not one, but multiple missions and their customers.

During the last decade, by doing away with legacy equipment, we have transferred the cost savings and systems into an industry best practices organization for IT, as we have tried to keep current with the ever-changing computer technologies. We have not had an increase to our technology infrastructure since 2000.

The most challenging aspect of this work has been to address how to handle the new digital object that formerly was a physical object, such as a book, sheet music, or even a map that you could

touch. A digital object created on a Web site, maps created on the fly from databases, or documents from word processors require a whole new way of managing information, now in ones and zeros.

Traditionally structured IT operations isolated from strategic management do not lend themselves to this new frontier. The role of the chief information officer, in too many organizations, just focuses internally. They are insular; they look inside, rather than externally. IT (information technology) is isolated from the strategic planning process and the management of the overall organization. In the Library's case, we have made a concerted effort to focus on the needs of the Library customers and on changing technologies as we deliver our mission.

Dr. Billington just mentioned some of the Library's leading-edge initiatives. He just scratched the surface. All of these efforts have required state-of-the-art technology, have met mission goals of providing access to knowledge and information, and have helped us learn how to manage diverse and fast-changing technical formats for the many types of digital content.

With regard to specific areas of the IG report, let me start with strategic planning process. We share the inspector general's recognition of the importance of information technology, and the need to ensure strategic planning for IT is a unifying force at the Library. This does include alignment of service unit plans with the libraries and ensuring technology initiatives and IT planning specifically are linked and understood throughout the Library. We, in OSI, the Office of Strategic Initiatives, have done some of the most forward-thinking future-scenario planning for handling digital content in an IT environment then has been done anywhere, anywhere in the world.

The Library is in the process of updating now its 2008 to 2013 strategic plan to make sure that the Library priorities address the needs of its customers and that the synergies across programs are identified and coordinated. Strategic planning, for us, is an ongoing process.

With regard to the IT investment process, the Library is currently managing IT investments in two ways. The Library Operations Committee, chaired by Jo Ann Jenkins, our chief operating officer, is made up of service unit deputies and infrastructure directors. That includes personnel, finance and facilities. They review and approve central IT investments.

Examples over the past few years include investments that we have made by cost savings. Again, we haven't received an increase in our technology infrastructure budget. But through cost savings, we have invested through this Operating Committee in data and voice wireless systems, central management of the Library's workstations, the PCs on the desk, e-mail, and now enterprise architecture planning.

The other service units and the other infrastructure units have smaller IT budgets, and their investments have been reviewed in the second way we make investments: through the budget request process, where, ultimately, decisions are made by the Librarian and the Executive Committee about what will go forward in the budget or what we will invest in.

The Library will move to unify and formalize the process of investments, to ensure that all IT investments are under central oversight. But we do currently have two methods of investing.

The chief financial officer will develop a plan to track all Library IT expenses across appropriations to identify any duplicative information technology costs. Centralization will continue to occur where appropriate. We note that some functions are more appropriately decentralized, to meet the immediate information management needs of the individual business units within the Library. Today, increasingly so—I know many of you may feel this yourself—IT skills become part of many people’s jobs even though they weren’t trained to be in the IT business.

With regard to organizational structure, the Librarian reviewed the full report of the inspector general (IG) and has concluded—and we agree—that this limited report does not provide enough analysis by which fundamental decisions can be made about the Library’s internal structure. A decision to conduct such a restructuring will require a broader and deeper analysis.

With regard to enterprise architecture (EA)—that would be planning for the change in the way we handle our information environment across the institution—enterprise architecture, as noted in the report, the Library began the development of an enterprise architecture 2 years ago. It was suspended last year over funding availability but was restarted this past fall. We agree with the IG on the need for an enterprise architecture program, and we have contracted with what is one of the foremost authorities in this area to guide the Library in standing up such a program.

This initiative is being overseen directly by the Library’s Operations Committee and myself and involves all service and support units and business systems owners in the institution. The Library is committed to a useable and informed enterprise architecture. It is not our intention to reinvent the wheel, and we recognize the benefit of learning from the experience of other Federal agencies that are developing or have developed such architectures. Our EA team has visited several like-sized agencies, including the Government Printing Office (GPO) and this Friday they are going to be going to the Government Accountability Office (GAO).

Finally, there is customer service. The Library will continue to move forward in a number of areas to improve information technology customer services. We agree that project management, systems development lifecycle, and help desk processes need constant updating. In fact, our systems development lifecycle has been significantly revised twice since issuance of this methodology in 2003. The security policy has also been revised twice, and security directives are under constant revision.

The Library will re-evaluate our help desk contract once our chief financial officer has completed a review of help desk costs and any appropriate centralization areas that might be identified.

And, very importantly, I think most importantly, we will expand on communications and feedback with our customers, including customer surveys, talking to our users, and we have started open quarterly information meetings across the Library.

In closing, like every dynamic organization, the Library of Congress continues to look at how we can improve our business proc-

esses as we accomplish our mission-critical work. We are transitioning from isolated, content-specific applications to an information systems architecture that will allow us to be resilient, flexible, and scalable, so we can easily adapt to future technological advances as they come along and as we take in new and changing, complex content.

I am confident that we can develop the framework that is needed to support our current and future information technology needs. Our work will be informed by this report, and I thank you very much for listening.

[The statement of Ms. Campbell follows:]

TESTIMONY OF
THE CHIEF INFORMATION OFFICER OF
THE LIBRARY OF CONGRESS
BEFORE
THE HOUSE ADMINISTRATION COMMITTEE
APRIL 29, 2009

Chairman Brady, Ranking Member Lungren, and Members of the Committee,

Thank you for this opportunity to discuss the April 22, 2009 Inspector General's Report No. 2008-PA-105, "Information Technology Strategic Planning: A Well Developed Framework is Essential to Support the Library's Current and Future Needs."

I am Laura Campbell, Associate Librarian for Strategic Initiatives and Chief Information Officer. I am joined here today by Jo Ann Jenkins, Chief Operating Officer.

The report we are here to talk about is an assessment by an Inspector General contractor, A-Tech Systems, Inc. on information technology (IT) strategic planning at the Library of Congress.

We are concerned that the audit minimizes the complex dynamic environment within which the Library must acquire, preserve and make information available. As the institution faces extraordinary challenges posed by technological change, of particular concern to us is the statement in the report that the IT issues the Library faces are "not complex."

Background on the Library and IT Strategic Planning Over the Past Decade

The investment the Library already has made in addressing the frontier challenges of the information revolution have been modest for the tangible results we have delivered to date.

The vision that has driven our Library-wide strategic plan has helped us achieve world-wide recognition. Within this vision our strategic plan, updated continually, focuses on the Library's rapidly-changing needs and goals, identifying emerging technologies to help us meet those needs. It is particularly important to note that while our strategic planning efforts may not be perfect, they have been recognized by our appropriations' committees for their effectiveness in tying goals and objectives to budget requests, and by others in the federal government who seek our counsel on strategic planning.

The role of the Chief Information Officer in too many organizations focuses internally rather externally. It is isolated from the strategic planning process and the management of the overall organization. In the Library's case, we focused our efforts on the needs of the Library's customers and on the changing technologies as we deliver on our mission.

During the last decade, information technology at the Library has delivered many operational improvements and systems. Our strategy has been to transfer the cost savings made by doing away with legacy equipment and systems into an industry best practices' organization as we have tried to keep current with ever changing computer technologies. The most challenging aspect of this work has been to address how to handle the new "digital object" that formerly was a physical object such as a book, a sound recording or even a map. A digital object created on a website, from databases or word processors, requires a whole new way of managing information, now in ones and zeros. Traditionally structured IT operations, isolated from strategic management, do not lend themselves to this new frontier.

Some of the Library's leading edge efforts have included digitizing and making available on our website millions of primary documents that are freely available and historically important and useful in the classroom.

The National Digital Information Infrastructure and Preservation Program has developed a national network of partners, including the private sector, state and local governments, non-profits, research and archival institutions to save at-risk born digital content.

Last week, we launched a World Digital Library in collaboration with UNESCO and 31 partner countries and organizations. With commentary in seven languages including cultural examples from every country in the world, the goal of this project is to bring people together, deepen their understanding of each other, and help electronically-oriented young people enjoy what is best in different cultures, using new media.

The National Digital Newspaper Program, a joint project of the Library and the National Endowment of Humanities, will soon put online its one millionth newspaper page. This program provides enhanced access to historic United States' newspapers. Institutions in sixteen states – including universities, historical societies and libraries – now contribute newspaper content.

The Copyright Office has developed an on-line system for copyright registration and now more than half of registrations are being submitted electronically. The National Library Service for the Blind and Physically Handicapped is transitioning to new digital machines and flash cards to serve 800,000 Americans. The first 5000 machines are now being distributed across the country for user testing.

Since the mid-1990s, we have provided to Congress unique legislative information through the Congressional Research Service's Legislative Information System and through THOMAS, a public source of legislative documents and information on the work of Congress.

To serve the Law Library customers' – Congress and the American public – need for research and reference capabilities in foreign law, we developed in the early 1990s, the Global Legal Information Network, a public database of more than 150,000 laws,

regulations, judicial decisions, and other complementary legal sources with contributions today from 51 member nations and international organizations.

All of these initiatives have required state of the art technology, have met mission goals of providing access to knowledge and information, and have helped us learn how to manage diverse and fast-changing technical formats for the many types of digital content. These initiatives have helped the Library transform itself taking advantage of new technology.

Strategic Planning Process

We share the Inspector General's recognition of the importance of information technology and the need to ensure strategic planning for IT is a unifying force at the Library. This includes alignment of service unit plans with the Library's, and ensuring technology initiatives and IT planning specifically are linked and understood throughout the Library.

Indeed, the Library is the process of updating its 2008-2013 Strategic Plan to make sure that Library priorities address the needs of its customers, and that synergies across programs are identified and utilized. Over the past year we have been working to refresh and strengthen the Library-wide strategic planning process especially to meet significant challenges we face now and in the future. This will remain an ongoing effort as the Library seeks to address rising customer and Congressional expectations for ready access to our services and collections.

IT Investment Process

The report includes recommendations to inventory and prioritize all Library IT systems that require upgrades and new projects to create an IT portfolio, to develop a plan to review and eliminate duplicative costs, to account for all IT costs – including computer security—as part of the IT budgetary process, to develop a cost-benefit analysis for all IT investment including risk criteria, and to plan for moving through the stages of IT Investment Management.

The Library currently manages significant IT investments in two ways. The Library's Operations Committee reviews and approves IT initiatives. Examples over the past few years include investments in data and voice wireless systems, central management of the Library's workstations, email and the Enterprise Architecture. The other service and infrastructure units have much smaller IT budgets and significant expenditures are reviewed through the budget request process with ultimate investment decisions made by the Librarian and Executive Committee. The Library will move to unify and formalize the process to ensure that smaller investments are included in the oversight.

The Library is completing an inventory of all information technology systems and we do maintain a project registry of a variety of relevant information related to these systems.

All significant upgrades are treated as separate projects and subject to System Development Life Cycle and project management disciplines and controls. Prioritization of projects will continue to occur at the Library-wide level.

The Chief Financial Officer (CFO) will develop a plan to track all Library IT expenses across appropriations accounts to identify duplicative information technology costs. Centralization will continue to occur where appropriate. We note that some functions are more appropriately decentralized to meet the immediate information management needs of the individual business units within the Library. We will develop risk criteria for IT investments. The CFO will also look at opportunities to coordinate purchases.

Organizational Structure

The report includes recommendations to restructure the current information technology functions and reporting lines, reconfigure IT authority and responsibilities, and the establishment of an Office of the Chief Information Officer reporting directly to the Librarian or Chief Operating Officer.

The Librarian reviewed the full report from the OIG, and has concluded, and we agree, that this limited report alone does not provide enough analysis by which fundamental decisions can be made about the Library's internal structure. A decision to conduct such a restructuring will require a broader and deeper analysis.

The Library is looking at these recommendations with the goal of having the best governance structure for the very important IT functions of the Library. As important as "best practices" are, the Library is a one-of-a-kind institution with a mix of businesses, products and services unlike any other public or private organization. Changes to the current organizational structure must be carefully considered, planned and executed in order to continue critical services to Congress and the public.

Enterprise Architecture

The Report includes recommendations for a strong Enterprise Architecture program coupled with a strategy to provide a roadmap for implementing future technology.

As noted in the Report, the Library began the development of an Enterprise Architecture two years ago. It was suspended last year over funding availability but was restarted this past fall. We agree with the IG on the need for an Enterprise Architecture program and contracted with one of the foremost authorities in Enterprise Architecture to guide the Library in standing up this program. This initiative is being overseen directly by the Library's Operations Committee and involves all service and support units' system/business process owners.

We recognize the value of federal guidance on development of an Enterprise Architecture. The GAO's evaluative Enterprise Architecture Management Maturity Framework and OMB's Federal Segment Architecture Methodology are being taken into account as we

move forward. The Library is committed to a usable and informed Enterprise Architecture. It is not the intention of the Library to reinvent the wheel and we recognize the benefit of learning from the experiences of other federal agencies that are developing or have developed enterprise architectures. It has always been the intent of the Library to keep the processes for developing an Enterprise Architecture in line with agencies of similar size to avoid developing a process that is too complex. The Enterprise Architecture team has visited several like-sized agencies, including GPO. The team is visiting GAO on May 1st.

Customer Service

The Report includes recommendations to improve internal IT customer service including the implementation of a formal process for soliciting customer feedback for recommendations, ideas and complaints.

The Library will continue to move forward in a number of areas to improve Information Technology Services (ITS) customer service. We agree that the Project Management, System Development Life Cycle, Security and Help Desk processes need constant updating. In fact, the System Development Life Cycle has been significantly revised twice since issuance of this methodology in FY 2003. The Security policy has also been revised twice and the Security Directives are under constant revision.

We are exploring how best to use service level agreements to set standards for service and for staff evaluation, and intend to incorporate best practices for service management from organizations such as the Help Desk Institute and the Information Technology Infrastructure Library (ITIL). We will develop a set of metrics to measure Help Desk performance. Subject to available resources, we will implement a COTS enterprise Help Desk system with capabilities to get customer feedback on calls, reports on the closure rates of calls, types of calls and other metrics. Although very important, the Library's many other critical IT needs have been given a higher priority against available funding.

The Library will re-evaluate its Help Desk contract once the CFO has completed a review of Help Desk costs and any appropriate centralization areas have been identified. And very importantly, ITS will expand on communications and feedback with its customers including regular customer surveys and open informational meetings.

In closing, like every dynamic organization, the Library of Congress continues to look at how it can improve its business processes as it accomplishes its mission critical work. We are transitioning from isolated content-specific applications and information systems to a technology infrastructure that will allow us to build resilient, flexible and scalable systems that can easily adapt to future business and user requirements as well as advances in technology.

I am confident in the Library's ability to create a well-developed framework to support our current and future information technology needs. Our work will be informed by this Report. Thank you.

The CHAIRMAN. Thank you.

Ms. Jenkins, anything?

Ms. JENKINS. No.

The CHAIRMAN. Okay. Now I would open up for questions.

I have a few questions, Mr. Schornagel. If these recommendations would be implemented by the Library, how much time and how much money would you be saving?

Mr. SCHORNAGEL. That is really hard to say. We point out in the report that the vast majority of these recommendations can be implemented at no cost. It is hard to say at this point how much savings would be possible, but we think that a very substantial amount over time.

The CHAIRMAN. I guess the real question is, would it cost more money?

Mr. SCHORNAGEL. No, I don't believe so. In fact, I think any additional cost would be more than offset by the savings.

The CHAIRMAN. Okay.

Ms. Campbell, you are the CIO. Does everybody with all the departments, do they all report to you, the IT planning? Are you the central person people report to?

Ms. CAMPBELL. Yes, I have the information technology operation under me and a staff that is working on our digital strategic initiatives.

The CHAIRMAN. But you are accountable for all of them and they all report to you?

Ms. CAMPBELL. Yes.

The CHAIRMAN. If any reorganization would take place, would it be with outside contractors? It wouldn't hurt any employees that would be there now? There wouldn't be any outsourcing or—if there would be outsourcing, it wouldn't be taking jobs away from anybody that is there now?

Ms. CAMPBELL. If we were to reorganize?

The CHAIRMAN. Yes.

Ms. CAMPBELL. Probably not.

The CHAIRMAN. That is a tough word, that "probably."

Ms. CAMPBELL. I mean, without knowing how you would reorganize, it is hard for me to—

The CHAIRMAN. As soon as people start losing their jobs, then you have to come back in front of us and we have to figure out how or what we can do about that. We don't want to see any of that happen.

Ms. CAMPBELL. I understand.

Ms. JENKINS. I don't think that is the expectation—the recommendations from the IG is about restructuring existing organizations. As we move forward, we have asked Congress, for increasingly more contracting dollars, but the intent is not to do away with any of the employees that we currently have in these functions. So, no, we would not.

The CHAIRMAN. If that happens, I am telling your brother-in-law, who is from Philadelphia, by the way, who we know.

Thank you.

Any other questions? Mr. Lungren?

Mr. LUNGREN. Thank you very much, Mr. Chairman.

And I think we ought to recognize the tremendous work that has been done by the Librarian as we move more and more into this technological age and the requirements that places on the institution that we call the Library of Congress.

Mr. Inspector General, I just wondered, you sat here through the testimony of the others, anything that you didn't hear that we need to hear?

Mr. SCHORNAGEL. I don't think so. I think you can tell from the report that the Library was pretty responsive to our recommendations. I believe we made 28 recommendations and the Library agreed with three-quarters of those.

Mr. LUNGREN. Well, you can agree with them, and you can act on them.

Mr. SCHORNAGEL. Yes, exactly. And that is why—

Mr. LUNGREN. Is there anything here that bothers you about action or inaction?

Mr. SCHORNAGEL. I am always skeptical because, like you say, we make recommendations and a lot of people may agree with them then maybe they never intend to do anything about it. I think my office has a very strong record of following up on our recommendations, especially the most important recommendations. And I fully intend to do that within the next year, or perhaps even sooner on some of these.

Mr. LUNGREN. Okay. One area that is a real concern to me—and I address this to both you and Ms. Campbell—and that is the area of cybersecurity throughout government but also in the private sector.

It is no secret that we are playing catch-up in cybersecurity throughout the government and also in the private sector. Those that would do us damage or those who are just intent on mischief in some ways have gotten the upper hand, because, frankly, we have created systems without anticipation that people would just, for the heck of it, want to interfere with those systems, destroy those systems, alter those systems.

You made some recommendations with respect to security.

Mr. SCHORNAGEL. Correct.

Mr. LUNGREN. Where are we in terms of security in our IT?

Mr. SCHORNAGEL. I think we have come an awful long way. During our financial audits over the past 10 years, we have noted a lot of weaknesses in policy and applications in IT security. But since Jim Gallagher, the head of ITS, was brought in by Laura Campbell several years ago, I think we have made tremendous strides.

And my office actually did a review, conducting penetration testing of our networks about 5 years ago. And I think a lot of the holes and a lot of the patches that needed to be made then were made. But perhaps that is an area that we can follow up on.

But overall, I think the Library's IT security program is tremendously better than it was a few years ago and, by benchmarking against other Federal agencies, in pretty good shape.

Mr. LUNGREN. Okay.

Ms. Campbell, we know from public disclosure the number of attacks that take place at the Pentagon. Here, in this place, it has

been noted that in this place there are attacks on the IT system here.

Are you satisfied that the systems you have in place are detecting those attacks that may be directed at the Library of Congress in its various functions? Secondly, if you are satisfied now, how do you ensure that we continue that level of satisfaction in the future?

Ms. CAMPBELL. I am satisfied that we now have the right detection and firewalls and security up around access to the Library's data. In the future, I think that requires constant monitoring and outside tests that you would routinely do instead of monitoring—it is the checks and balances.

Mr. LUNGREN. How often do you do those tests?

Ms. CAMPBELL. We had the National Security Agency come in and set up—their white team, I believe it is—come in and help us set up our program. And we go through an annual audit, as Karl has mentioned, on our security program.

Mr. LUNGREN. Okay, let me switch to another subject. And that is, in a hearing, I don't know if it was a year or 2 years ago, that we had talking about an article that had appeared in the newspaper about lost parts of your overall inventory, and then we realized that it wasn't all lost, some of them hadn't been cataloged or they were in the process of being cataloged, and the statement was made—and I will just paraphrase it—that you were moving to a different cataloging system because you were digitizing the cataloging system.

Can you tell us where we are on that? How much of the inventory has been converted to that format?

Ms. CAMPBELL. I can't answer that. I am not the right person to answer that. But I can get an answer for you, or perhaps Dr. Billington can comment.

How much of the inventory has been cataloged?

Mr. BILLINGTON. I can't give you an exact figure, but we have made progress, and we are working on that. In fact, that is something which I am going to get into in the next hearing I have shortly. But we will get you the exact figures.

Mr. LUNGREN. Okay. And let me ask this, because one of the things I have found as we have looked at—I happen to be the ranking member on the Cybersecurity Subcommittee in Homeland Security. And one of the concerns that we have had—or one of the ways in which we see the level of importance given towards cybersecurity is whether or not there is an individual chief information officer for whom that is the only job that they have and that they report directly to the CEO. At least that is one indication that they take it seriously.

Ms. Campbell, I am still a little uncertain what strategic initiatives means as opposed to chief information officer, whether that is entirely divorced from that, whether that divides you up, and, frankly, if it does, whether that means you can give enough attention to the responsibilities of the CIO.

Ms. CAMPBELL. Let me try to respond to that. We have an IT security group that consists of seven staff and seven contractors. They have a budget of \$1.34 million per year. The IT operation has been a traditional IT shop. We have moved, over the years, from traditional business systems of finance and personnel and MIS sys-

tems and facility systems and the cataloging system to now embrace managing full digital content and all these various complex digital types of data.

The Strategic Initiatives Program was put together to tackle one of our biggest strategic challenges, and that is building a network environment within which we have many partners to help us collect important born-digital content that, if we don't get it now, it is going to be lost for future generations.

So the historical decision to put strategic initiatives with the previously isolated IT department was to "row in the same direction," so that you had an "engine" that was out there doing state-of-the-art work, pulling the regular "steady-state" train.

Mr. LUNGREN. I appreciate that. And that is an unbelievable opportunity to get three analogies into one sentence. You have a train, we are rolling together, and I forget the third one, but it conjures up all sorts of ideas in my mind. But that is what the digital age is all about.

Ms. CAMPBELL. Exactly. We are just trying to stay abreast as best we can and make certain everybody in the IT operation has a part in that future.

Mr. LUNGREN. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Mr. Harper.

Mr. HARPER. Mr. Schornagel, it looked like you were maybe reaching for the button. Did you have a response to that, too?

Mr. SCHORNAGEL. Yes, I would just like to point out that, in our report, we did mention that the IT security program at the Library is very well-structured and managed, but we feel that the function needs some teeth. One of the problems is that the IT security head is not able to enforce policy, and, in some cases, that creates a problem and sets a precedent.

Mr. HARPER. Okay.

Ms. Campbell, when I look at the organizational chart, which are always fun to look at in any agency, but when I see the information technology services down here under your side of that, are you saying that this is the best approach for IT within the Library of Congress? Or is it something that we should consider moving up, like Mr. Lungren had indicated, to possibly have that report directly to the CEO?

Ms. CAMPBELL. I have a strong bias, so I don't know that I can give you the most objective response to this. I think that is a decision that Dr. Billington will take under advisement. But I do believe strongly that you can't isolate IT.

I, as the CIO, do have responsibility for our digital strategic transformation, along with my colleagues because we are all in this business together. Someone needs to lead the IT shop. If it isn't me, somebody else needs to do it. And I report directly to Dr. Billington and sit on our executive committee. So I try to represent the IT.

Jim Gallagher, sitting behind me, sits with Jo Ann Jenkins on the Operations Committee.

Mr. HARPER. If I could see, Mr. Schornagel, your view on that question that I asked Ms. Campbell about that organizational chart and what your preference would be. And are you familiar with any

other agencies that combine an IT function with a programmatic function?

Mr. SCHORNAGEL. No, I am not. As a matter of fact, that was one of the important points in our report, is that we think that the IT function needs to report directly to the agency head. And I think Laura Campbell has her hands more than full with the programmatic side.

Mr. HARPER. And when you said that three-fourths of the 28, I believe, proposals you had they agreed with, would this have been one of the one-fourth that was not agreed with? Or was this even one of your recommendations?

Mr. SCHORNAGEL. Well, that was one that the Library deferred making a decision on until—I think the Librarian has established a separate committee, during the course of our conducting this audit, to look at strategic planning. And so, they are deferring the decision based on that.

But we have pretty strong feelings that this is very much an anomaly in not only public but in private organizations, as well, having these two functions combined.

Mr. HARPER. And I am certainly sensitive to the fact that you all have to run very soon to get to another meeting. If I could ask Ms. Campbell another question on security issues, following up on that.

If there is some type of security violation, is that going to be reported to you or Mr. Gallagher? Or how does that work, when you have some type of perceived security violation in the IT system?

Ms. CAMPBELL. It is reported to the IT director and to the deputy and to me.

Mr. HARPER. Okay. And then what action is taken from that point? Just whatever may require—

Ms. CAMPBELL. Right. It depends on the type of violation it is.

And we do, in fact, have the authority to shut down people's PCs at the Library. I think there was some confusion about that. We have exercised that authority

Mr. HARPER. Well, then I will just say what a treasure the Library of Congress is, and I appreciate you all's efforts.

And no more questions, Mr. Brady.

The CHAIRMAN. Thank you, Mr. Harper.

And thank all of you. I had my little mini tour Mr. Billington gave to me, but I want to get a major tour next time I come over. And you do do a great service for this institution and for the general public. And so, for that, I thank you. And we are here to aid in any way that we can to make sure that that service continues.

So, thank all of you.

Mr. BILLINGTON. Thank you very much.

The CHAIRMAN. The hearing is now adjourned.

[Whereupon, at 12:46 p.m., the committee was adjourned.]

[Information follows:]



The Library of Congress
Office of the Inspector General



Library-Wide

Information Technology Strategic
Planning: A Well-Developed Framework
is Essential to Support the Library's
Current and Future IT Needs

Report No. 2008-PA-105
March 2009

**PUBLIC
RELEASE**



UNITED STATES GOVERNMENT

LIBRARY OF CONGRESS

Memorandum*Office of the Inspector General*

TO: James H. Billington
Librarian of Congress

April 22, 2009

FROM: Karl W. Schornagel
Inspector General

SUBJECT: *Information Technology Strategic Planning: A Well Developed Framework is Essential to Support the Library's Current and Future IT Needs*
Report No. 2008-PA-105

This transmits our report titled "Information Technology Strategic Planning: A Well Developed Framework is Essential to Support the Library's Current and Future IT Needs," prepared by our contractor, A-Tech Systems, Inc.

Management's response to our draft report is briefly summarized in the Executive Summary and in more detail after individual recommendations. The complete response is included as an appendix to the report.

Based on the written comments to the draft report, we consider all of the recommendations resolved except for 2.C., 3.A., and 5.E., with which the Library either disagreed or did not provide a firm response, and recommendations 1.E., 2.D., 4.A., 4.B., 4.D., 5.A., with which the Library "partially agreed" but did not provide an adequate explanation as to the partial nature of the agreement. We urge the Library to consider the recommendations in this report seriously, as they point to nothing more – or less – than proven best practices in government and business. In accordance with LCR 211-6, Section 11.A, please provide, within 30 calendar days, an action plan addressing implementation of the recommendations, including implementation dates.

We appreciate the cooperation and courtesies extended by the Office of Strategic Initiatives and many other Service and Support Units throughout the Library during this review.

cc: Chief Operating Officer
Associate Librarian for Strategic Initiatives



INFORMATION TECHNOLOGY STRATEGIC PLANNING:

*A WELL DEVELOPED FRAMEWORK IS ESSENTIAL TO SUPPORT THE
LIBRARY'S CURRENT AND FUTURE IT NEEDS*

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EXECUTIVE SUMMARY

The intent of this review was to assess the effectiveness of information technology (IT) strategic planning at the Library of Congress (Library or LC). To evaluate whether the Office of Strategic Initiatives (OSI) Strategic Plan supports and implements the Library's Strategic Plan as it pertained to the IT infrastructure, the Library Office of the Inspector General (OIG) contracted with A-TECH Systems, Inc. The evaluation focused on:

1. Determining how the OSI Strategic Plan addresses the recommendations of pertinent prior recommendations made by the National Research Council in a report titled "LC21: A Digital Strategy for the Library of Congress" (the LC 21 report);
2. Verifying whether the OSI Strategic Plan meets the Library's current and future needs;
3. Validating the assumptions, data, and conclusions in the OSI Strategic Plan; and
4. Comparing the organizational placement and structure of Information Technology Services (ITS) with other government and similarly staffed corporate organizations.

Since the LC21 report was published in 2000, the Library has made many technology improvements. The technology "evolution" at the Library includes migrating from mainframe systems, standardizing network infrastructure, updating the storage architecture, building an alternate computing facility (ACF) that provides backup for all three Library data centers, building a secure financial hosting environment (FHE), instituting a project management function, implementing a system life cycle development process (SDLC), deploying a standardized Microsoft XP workstation environment, and developing a National Institute of Standards and Technology (NIST) compliant Certification and Accreditation (C&A) process. The Library has standardized internal and external websites, developed digital collections containing more than 300 terabytes of data, and built a network of national and international digital partners. The Library is often at the forefront of identifying and participating in forward thinking digital initiatives. In short, the Library has made great progress in improving its IT infrastructure and backbone.

However, the Strategic Planning process for IT at the Library of Congress is not well integrated with essential planning components, and is not instituted Library-wide, resulting in the following findings.

1. **STRATEGIC PLANNING PROCESS** - Strategic Planning for IT is not a unifying force at the Library, does not link directly to the Library Strategic Plan, and does not have a forward-looking view.

2. IT INVESTMENT PROCESS - Strategic Planning is not linked to the IT investment process, resulting in the duplication of efforts and acquisitions.
3. ORGANIZATIONAL STRUCTURE - The organizational structure of the Information Technology Services (ITS) directorate at the Library does not foster strategic planning and good IT governance.
4. ENTERPRISE ARCHITECTURE - The Library is missing an Enterprise Architecture program that should be coupled with a strategy to provide a roadmap for implementing future technology.
5. CUSTOMER SERVICE – ITS customer service needs improvement.

In our opinion, all of these findings are in large part the result of an unclear sense of how IT planning fits into the Library's mission and the roles and responsibilities of the employees, as well as a lack of linkage between the IT strategic planning processes at the Library and actual performance. Furthermore, those Library employees charged with IT planning need to adopt a holistic view of planning that incorporates and supports a clear mission view with an insight into customer goals and objectives. Although some steps have been taken towards this effort, the progress is not seen Library-wide.

We received a formal response to this report on April 15, 2009. Library management agreed with the majority of our findings and recommendations. Although management did not feel the improvements since the LC21 report were adequately addressed, we believe these improvements were sufficiently addressed in the executive summary and the conclusion of this report. Management responses and A-Tech comments are included in the report after each recommendation. The entire response can be found in Appendix E.

BACKGROUND

The Library is the nation's oldest federal cultural institution and serves as the research arm of Congress. It is also the largest library in the world, with nearly 150 million books, recordings, photographs, maps and manuscripts in its collections. The Library's mission is to make its resources available and useful to the Congress and the American people and to sustain and preserve a universal collection of knowledge and creativity for future generations.

A decade ago, the Library commissioned the National Research Council (NRC) to conduct a study to provide strategic advice concerning the Information Technology path that the Library should take over the next decade. The result of the study was the LC21 report (LC21 report or "report"). The report provided numerous findings and recommendations, which serve as a framework for the Library's transition into the Digital Age. More recently, the Library's Strategic Planning Team and working groups in each Service and Support Unit, created the Library of Congress Strategic Plan for Fiscal Years (FY) 2008-2013, with valuable feedback provided from the Library's customers and stakeholders. To support the Library's goals, the Office of Strategic Initiatives (OSI) developed the OSI Strategic Plan FY 2008-2013, a guide for ensuring more of the Library's resources are available online and collecting and preserving at-risk, born-digital content.

In FY 2001, the Librarian created – and filled – the position of Associate Librarian for Strategic Initiatives (ALSI) to support the Library of Congress' vision and strategy by directing the overall strategic planning for the Library and the national program for long-term preservation of digital cultural assets. This Executive Committee-level position originally had oversight of two major programs:

- the National Digital Library Program (with American Memory as the flagship project to make the Library's collections available to the public); and
- the National Digital Information Infrastructure and Preservation Program (NDIIPP) (responsible for the development of a national strategy, in cooperation with other institutions, for the collection, access and preservation of digital materials).

Now, the ALSI is also responsible for educational outreach, primarily the "Teaching with Primary Sources" (TPS) program, whose objective is to increase use of the Library's digital primary sources in K-12 educational settings.

In FY 2002, the ALSI was named the Library's Chief Information Officer (CIO), and charged with leading the Library's Information Technology Services (ITS) directorate, an infrastructure unit responsible for supporting the Library's IT resources. Until this point, ITS had been part of the Library's enabling infrastructure, a Support Unit reporting directly to the Deputy Librarian.

OBJECTIVES, SCOPE, AND METHODOLOGY

This review supported the Library's goal on Organization, to continuously improve quality and efficiency of delivery of products and services. Our review included an evaluation of the Library's plan for managing its IT infrastructure investments. The Library's Inspector General set forth our primary objectives, which included:

1. Assessing the manner and degree to which the OSI Strategic Plan addresses pertinent recommendations of the LC21 report. The primary sub-objectives were:
 - Determining which LC21 Report recommendations are still relevant to LC needs and if any relevant recommendations were excluded as well as the rationale for exclusion.
 - Determining which LC21 report recommendations were incorporated into the OSI Strategic Plan, and to what degree they were included and/or modified.
2. Assessing the adequacy of the OSI Strategic Plan in supporting and implementing the LC Strategic Plan. The primary sub-objectives were:
 - Determining if the OSI Strategic Plan adequately addresses the implementation of current LC IT infrastructure needs; and
 - Determining if the OSI Strategic Plan adequately addresses the identification and satisfaction of future Library IT infrastructure requirements.
3. Determining the validity and integrity of the OSI Strategic Plan. The primary sub-objectives were:
 - Determining if the elements of the OSI Strategic Plan support those of the LC Strategic Plan relative to IT infrastructure;
 - Determining if the OSI Strategic Plan was coordinated with other impacted LC Service Units;
 - Determining if the OSI Strategic Plan was based on valid data and assumptions; and
 - Determining if the OSI Strategic Plan conclusions were rationally consistent with the data and assumptions.
4. Determining the appropriateness and effectiveness of the ITS organizational structure and placement. The primary sub-objectives were:
 - Determining if ITS organizational placement is conducive to meeting the requirements of the OSI Strategic Plan and the LC Strategic Plan;

- Determining if the ITS internal structure and placement is in keeping with government best practices;
- Determining the nature and extent of any possible functional overlap with other Library Service/Support Units; and
- Determining the impact of functional overlap on Library strategic planning and implementation of the LC Strategic Plan.

The scope of our review included evaluating activities associated with short and long-term planning for technology; Enterprise Architecture; architectural development, system development and IT investments; and the organization and management of ITS. We conducted our fieldwork from October to December 2008. We verified our interview records and obtained clarification on Library standards, processes, and documentation from December 2008 to January 2009. During the report writing phase in February 2009, there was further verification of feedback received from OSI. Specific steps included:

- Interviewing appropriate Library staff about the continuing relevance of each LC21 report recommendation to the Library's current and future programs and analyzing the results of interviews;
- Reviewing LC21 report recommendations and the elements of the OSI Strategic Plan, and comparing the two documents for conformance and sufficiency;
- Interviewing appropriate staff in LC Service Units concerning the adequacy of current LC IT infrastructure and OSI's coordination of the planning effort to meet current needs. Validating interview results with LC technical staff and, as appropriate, validating through other LC officials;
- Interviewing appropriate staff in LC Service Units about the planning process for determining future requirements and identifying anticipated technologies necessary to meet future needs or if current technology can meet needs;
- Validating interview results with LC technical staff and, as appropriate, validating through other LC officials;
- Comparing the OSI Strategic Plan with strategic plans of other agencies. Assessing whether its method and approach is effective in accomplishing implementation of IT infrastructure goals;
- Reviewing the elements of the OSI Strategic Plan for consistency with those of the LC Strategic Plan and identifying sufficiency, inconsistencies, and agreements;
- Comparing the plans to assess the degree to which the elements of the OSI Strategic Plan fit in with the LC Strategic Plan;
- Interviewing OSI staff and other LC Service/Support Unit staff affected by the OSI Strategic Plan about the coordination of all LC strategic planning and analyzing interview results;
- Interviewing OSI staff that developed the OSI Strategic Plan about the plan's rationale, including the appropriateness and factual nature of the data. In addition, discussing the identification and basis for any assumptions and conclusions reached. Assessing interview results and, as appropriate, validating through other LC officials;

- Comparing data and assumptions used in formulating the OSI Strategic Plan with its conclusions and assessing for consistency and sufficiency;
- Interviewing appropriate staff about ITS efforts to meet IT infrastructure needs, comparing with related information gathered in previous LC interviews, and analyzing results;
- Researching/interviewing with other federal agencies and the IT community for best practices in terms of IT Unit placement and structure;
- Analyzing LC documents assigning functions to LC components. Validating actual functions through interviews with appropriate LC staff; and
- Interviewing appropriate LC staff concerning the impact of possible overlap on both LC strategic planning and LC support of implementation of the LC Strategic Plan.

We evaluated Library written procedures and actual practices against criteria documented in Library of Congress regulations (LCR), Government Accountability Office (GAO) guidance, and industry standards and best practices maintained by the Information System Audit and Control Association (ISACA). Specific Library and industry criteria used to evaluate evidence included:

- *LC Strategic Plan FY 2008-2013;*
- *OSI Strategic Plan FY 2008-2013;*
- *LC21: A Digital Strategy for the Library of Congress;*
- *Draft Library of Congress Digital Strategy dated February 2009;*
- *LCR 211-1, Organization of the Office of the Librarian of Congress;*
- *OSI Proposed Reorganization Packet dated January 2009;*
- *LCR 220-1: Functions and Organization of the Office of Strategic Initiatives;*
- *LCR 212-2: Functions and Organization of Information Technology Services, Office of the Librarian;*
- *LCR 213: Functions and Organization of Library Services;*
- *LCR 215-1, Functions and Organization of the Copyright Office;*
- *LCR 216-1, Functions and Organization of the Law Library of Congress;*
- *LCR 217, Functions and Organization of the Congressional Research Service;*
- *LCR 1510: Financial Management;*
- *LCR 1511: Planning, Budgeting, and Program Performance Assessment; and*
- *Control Objectives for Information and Related Technology (COBIT) 4.1 by the IT Governance Institute.*

FINDING 1 – STRATEGIC PLANNING PROCESS

We found that the strategic planning process is not a unifying force at the Library of Congress and not incorporated into the organization's culture. Specifically, we found that:

1. The Library's Strategic Planning process was not inclusive of all internal stakeholders;
2. The Library's IT Strategic Plan does not align well with the Library's Strategic Plan; and
3. The Library's digitization efforts are scattered and lacking in specific focus.

The Strategic Planning Office (SPO), located in the Office of the Chief Financial Officer (OCFO), maintains the Library's Strategic Plan, from which the IT Strategic Plan should flow.

A key component of any strategic plan is its ability to track accomplishments against predefined goals and objectives using various metrics. Although the SPO has implemented a system to track performance against the strategic plans, the development of a Service Unit/Support Unit strategic plan is a "voluntary process."¹

The "Management Review of the Library of Congress" Final Report (Booz Allen & Hamilton), May 7, 1996 found that, "[a]lthough ITS has a Strategic Plan, it does not include a vision for the future that includes IT as an enabler of the Library's mission, an integrated IRM (Information Resource Management) architecture, or performance improvement objectives that are measurable and linked to mission performance. The Library lacks a clear technology vision to support processes within the Library and the creation of networks of institutions that enable the world's knowledge resources to be shared." Since this report was published, the Library has made strides in technology; however, its planning process still lacks integration with architecture and with performance improvement objectives.

The current trend in developing strategic plans is to involve all employees in planning, making them accountable for goals and associated results. As one writer states, "[s]tructuring the strategic planning process to involve frontline staff establishes a holistic framework that encompasses and engages the whole organization rather than just upper management. It will also help develop an engaged process in which upper and lower levels of the organization are aligned to collaborate in the development of a strategic plan and direction. The end result is a stronger alignment between strategic planning and execution, which leads to greater organizational performance and capacity."²

¹ LCR 1511 Planning, Budgeting, and Program Performance Assessment Section 2.A.4. states "Service and Support Units may develop individual organizational strategic plans."

² Thomas Plant, *Public Sector Strategic Planning: An Emergent Approach*, Performance Improvement, 45.5: 5-6. ABI/INFORM Global. ProQuest, (2006).

We do not agree with the decision of the Library's leadership to make strategic planning a management-only activity. We suggest that the Library allow line employees to actively participate in the strategic planning process. The Library Strategic Plan should be part of line employee as well as management training programs. Execution of strategic planning objectives should be tied to line employee performance plans. There is evidence of an effort to link strategic planning objectives through the annual planning process, but the implementation is uneven throughout the Library. We acknowledge there is currently an effort through the Workforce Performance Management Initiative to improve this across the Library, but this effort is not fully realized. Although the Service and Support Units are not required to develop a strategic plan, they must identify program activities for Annual Program Performance Plans (AP3s) and ensure that an Internal Control Program (ICP) is in place. The automated planning system used for AP3s does allow organizations to include their strategic plans, but there is no way to enforce a linkage to their strategic plan or the Library's plan. The entire system is based on self-assessment by the Service/Support Units and has automated a paper process. To make the AP3 and the ICP processes truly effective, the SPO or other area of the Office of the Librarian must be resourced to perform an evaluation function, a best practice in other federal agencies.

Lack of Buy-in to Library's Strategic Plan Below the Senior Management Level

In interviewing Library staff, we found that most felt they had not been active participants in the development of the Library's Strategic Plan or in the IT Strategic Plan. Those interviewees who previously worked at other federal agencies felt that the Library's processes for IT strategic planning were "immature" by comparison.

Since the strategic planning process at the Library is a management-only activity, those employees below the senior management level lacked an understanding of the objectives of the Library Strategic Plan to make it actionable and relevant to their responsibilities. The LC strategic planning process included 51 senior managers and subject matter experts. Each Service and Support Unit had a working group made up of managers to develop recommendations for the Library Strategic Plan. The only exposure that line employees had to the plan before it became final consisted of Gazette articles, an employee Town Hall meeting, information meetings held at different sites to provide awareness of the plan, and a month-long opportunity to review and comment on the draft plan online. SPO received feedback from only 37 out of 4200 employees and incorporated appropriate feedback into the final version of the Library Strategic Plan. All these activities do not equate to active participation. Line employees need to participate in the strategic planning process from start to finish.

Several line employees said that there was too much of an emphasis in the LC Strategic Plan and the OSI Strategic Plan on external factors such as the World Digital Library (WDL) and NDIIPP rather than internal Library infrastructure.

Misaligned Strategic Plans and Ineffective Planning Process

We were unable to directly link the IT components of the OSI FY 08-13 Strategic Plan back to those found in the corresponding Library strategic plan. Before the Library began its efforts for the LC FY 08-13 Strategic Plan, OSI had nearly completed the development of its own FY 08-13 strategic plan. Since the OSI strategic plan was published after the Library's strategic plan, it is not known why adjustments were not made so that the proper linkages were in place. The strategic goals for the Library and OSI do not align. Furthermore, the performance indicators and representative measures between the Library of Congress Strategic Plan, OSI Strategic Plan, and the OSI AP3 do not align.

For example, in the Library's Plan, the organization goals contain measures of IT efficiency:

- user satisfaction with computer workstations, computer servers, hardware and software;
- time allotted to install computer workstations; technical support provided; and
- IT user training.

However, these performance measures were not carried forward to the OSI Strategic Plan. Instead, OSI put forth a different set of goals, objectives, and measures, and used a different methodology for the development of the Plan. Their strategies included:

- secured, available, and scalable technology infrastructure;
- defined Library of Congress technical infrastructure for shared tools and services among networked entities; and
- defined future institution-wide architecture and support for a national networked digital information architectural framework, specialized institutional digital media repository services, and preserved authentic digital content over time.

Despite developing a separate OSI Strategic Plan, IT objectives were not communicated across the Library and there was not a clear sense of vision and purpose for IT. In speaking with interviewees, most felt there was no visibility into IT priorities. In the past, ITS has developed a strategic plan separate from OSI. It is not clear why they stopped this practice.

OSI has done an excellent job of tracking future library trends, but it is not clear how these trends will result in new technology for the Library or how emerging best practices will be leveraged for internal Library programs.

The Library Does Not Have a Focused Digitization Vision

The responsibility for strategic planning is subject to confusion because an October 3, 2000 “special announcement” assigned the CIO overall responsibility for strategic planning. However, an October 30, 2002 memorandum delegated responsibility for strategic planning to the CFO. The current LCR, *Functions and Organizations of the Office of Strategic Initiatives* assigns OSI the responsibility for “digital strategic planning.” This regulation does not include a definition of “digital strategic planning” and may be subject to interpretation. Further, the memorandum dated January 14, 2003 titled *Coordination of the Library’s Digital Initiatives* assigns the CIO with broad management responsibility for transforming the Library; leaving the management control framework for digital migration open to interpretation. At that time, the Digital Executive Oversight Group (DEOG) was established, composed of Service Unit heads, to serve as the internal means for vetting, justifying, and allocating resources for the Library’s digital programs and IT initiatives.

Since then, the Digital Library Content Group (DLCG) has been created to coordinate and prioritize from an institutional perspective digital content projects and initiatives that result in materials presented to the public. It is unclear how the DLCG ties back to the DEOG.

Notably, despite many successes, the strategy for “digitizing” the Library collections seems to lack an overall Library vision. OSI sees itself as an extension of the Librarian’s Office. Indeed OSI and the other Service Units appear to be following different paths. A prime example of this problem is the Sloan Foundation Project, in which OSI and Library Services (LS) disagreed on what to digitize and whether to accept funding for the project. In the end, and although OSI is technically charged with leading the Library’s digital strategy, LS embarked on a project funded by the Sloan Foundation to digitize collections LS felt were critical.

To address a recent GAO review, which stated “The Library’s strategic plan does not clearly align the organization’s activities and resources to address digitization,”³ the Library drafted the Library of Congress Digital Strategy dated February 4, 2009. While the new digital strategy does attempt to address the different goals of each Service Unit, it is a recent document and does not currently reflect the reality on the ground. It does not address GAO’s recommendation to “articulate the roles and responsibilities of all relevant service units and offices in developing and executing the strategy. Some examples of the digital strategy paths that the Service Units are taking follow:

- Library Services (LS) is interested in digitizing its General Collections prior to the 1923 Copyright restriction, obtaining digital deposits from the Copyright system, and making arrangements with publishers to provide access to the

³ GAO Review, Objective 1: Library of Congress Collections Management, Opportunities to Improve Effectiveness through Digitization, September 2008 (Draft).

public on digital material. They are currently digitizing the talking books and the audio-visual collections.

- The Law Library (LL) is interested in using technology to exchange revised legal information nationally and internationally and digitizing its rare book collection, collecting legal blogs, the permanent Congressional Record, and collecting Supreme Court nomination information to support Congress and the legal community.
- The Congressional Research Service (CRS) wants to preserve CRS main files, research legacy files, and born-digital files to support congressional requests on recurring legislative issues. Additionally, CRS is adding born-digital congressional memoranda to its digital collections. It has digitized published CRS writings, non-distributable CRS publications, and a large collection of CRS research for specific hearings. CRS has a Web-harvesting project for legislative analysis and for archival purposes and has submitted a request to digitize the US Serials Set, 1970-1995.
- The Copyright Office (COP) is interested in digitizing 70 million hardcopy records and interfacing with LS to provide mandatory digital deposits. COP would like to implement a system to transfer files to LS while at the same time preserve the Copyright Office's eCo system security and the digital file's data integrity.

The LC21 committee recommended the creation of an external technical advisory board to advise the Executive Committee on the development and directions in IT relevant to the Library and offer advice on initiatives and enterprises with the IT vision, strategy, and research program (ITVSRP).

In September 2008, OSI convened a special conference entitled "Technology Trends & the Library of the Future." During the conference, OSI representatives met with a panel of technical experts and Library of Congress consultants "to examine driving Social, Economic, Legal, Political and Technology Trends; identify how these trends might affect future scenarios; and form the basis for a Visionary Statement for the Library of Congress of the Future." The experts were asked to become a part of the OSI Technical Advisory Board and a subset of this board would provide guidance and oversight in prototyping efforts. However, the rest of the Library was not involved in this conference. We did not find evidence of how this committee's recommendations translate into actionable requirements for the Library. In the meantime, LS representatives have sought out amazon.com representatives for technical guidance and are forming scanning and hosting contracts with the Internet Archive to provide public access to their general collections. Other areas of the Library have inquired into using the Internet Archive contracts.

Since we began our review, the Librarian formed a Library-wide committee called the Committee on Strategic Direction (COSD), which first convened in late January 2009. The COSD "seeks to promote synergies; and it will produce a single document that will enable the Library to speak with one voice to the Congress and to all other audiences about the strategic direction of the Library as a whole for the medium-

term future.” The Librarian outlined seven goals to serve as a guide to the COSD in their efforts to define the Library’s strategic direction for the remainder of the current Strategic Plan and beyond. We have received clarification from the Office of the Librarian that the COSD was developed as a think tank and the end product will contain statements of success that could be included in future Librarian Guidance and may serve as an amendment to the Library’s Strategic Plan.

Because it is a legislative branch agency, the Library does not fall under the Government Performance and Results Act (GPRA) or other guidance governing IT planning and spending. However, at a 2007 budget hearing, the Librarian stated that the Library would use a process similar to GPRA for strategic planning. Although GPRA was established in 1993, it remains the foundation for most federal IT planning guidance. For this review, GPRA and other Office of Management and Budget (OMB) guidance are considered best practices.

OMB Circular 211, Part 6, 210-220, states that, “[a]n agency’s strategic plan keys on those programs and activities that carry out the agency’s mission. Strategic plans will provide the overarching framework for an agency’s performance budget. Revisions of a strategic plan will focus on developing a performance budget, updating performance measures and targets, and implementing follow-up actions to PART (Program Assessment Rating Tool) assessments. Strategic plans should guide the formulation and execution of the budget. A strategic plan is a tool to be used in setting priorities and allocating resources consistent with these priorities. A strategic plan is not a budget request; the projected levels of goal achievement must be commensurate with anticipated resource levels.” Although the Library is not required to follow OMB guidance, we believe that it is essential that the Library look at strategic planning in this best-practice context. Currently, the linkage between Library of Congress strategic plan strategies and the performance indicators of the OSI strategic plan do not align. We believe that the Library must map out these relationships and develop a plan to resolve these issues.

The lack of a clear connection between IT Strategic Plans and agency mission and goals prevents a clear plan from emerging. All strategic plans should address the Library’s mission and should directly speak to the goals and objectives addressed in the plan. Currently, the Library’s plan is not strong in addressing IT as an enabler across all areas of the Library. The lack of linkage and clarity in the process prevents the strategic planning effort from being a unifying force.

The lack of a unified policy for digitization has resulted in scattered, sometimes conflicting, efforts by various Service Units to digitize portions of their collections they believe most important. This has resulted in multiple digitized collections, spanning multiple Library web sites, with no common search and access tools and no comprehensive index or inventory. We applaud the Librarian’s vision to create a strategic transformational guide, as it evidences recognition of the need for change in the Library’s strategic direction. We hope the COSD will cohesively link the Service and Support Unit strategic plans into the Library’s plan. To successfully

move the Library forward as a total institution with one voice, the guide should not contain only statements of success and recommendations. It should contain a plan of execution with implementable details with buy-in from the Service/Support Units.

RECOMMENDATIONS

To ensure strategic planning for IT is a unifying force at the Library, IT planning must link directly and have a forward-looking view. To accomplish this, the Library should:

- A. Create a process to ensure that organizational strategic plans align with its strategic plan; specifically, the IT Strategic Plan should align directly with, flow from, and include the same goals as the Library's Strategic Plan;

Management Response: Management agreed with our recommendation. The development of a unified policy on digitization will be initiated.

- B. Involve line employees in the strategic planning process by having them participate in Service Unit and Support working groups to develop recommendations for the Library's Strategic Plan;

Management Response: Management agreed with our recommendation. The Library will continue efforts to increase employee participation in the strategic planning process.

- C. Ensure that all initiatives concerning future library technology are shared Library-wide;

Management Response: Management agreed with our recommendation.

- D. Produce a transformational guide that contains a plan of execution to ensure that the Library moves forward as a total institution with one voice; and

Management Response: Management partially agreed with our recommendation but was unsure as to its content.

A-Tech Response: The guide needs to be a plan that includes clear, executable steps that will accomplish the required transformation.

- E. Form a cohesive, integrated, and centrally managed LC Digital Strategy Plan with all the roles and responsibilities of all relevant Service and Support Units clearly defined.

Management Response: The Library agreed with our recommendation but disagreed with the specific terminology we used. The intent of our recommendation remains the same, regardless of nomenclature.

FINDING 2 – IT INVESTMENT PROCESS

We found that the IT investment process at the Library is not linked to its strategic plan.

1. The Library's IT planning is not linked to an investment process.
2. There is duplication of costs.
3. There is no consistent Cost-benefit Analysis (Analysis of Alternatives) done by ITS.
4. The Library does not transparently track IT costs.

The LC21 report specifically proposed the formation of an IT vision, strategy, research, and planning (ITVSRP) group to lead the Library, national libraries, and world libraries into the Digital Age. The ITVSRP would be an ongoing working group of leaders from across the Library and this group would approve all significant technology investments. We found no evidence of such a group. The Digital Executive Oversight Group (DEOG), Digital Library Content Group (DLCG), the Internet Operations Group (IOG), a Metadata Group, and an ITS Configuration Control Board (CCB) are all the Library's attempts to fulfill the role of an ITVSRP in a fragmented manner, however, these groups do not perform the role of an investment approval function, either individually or collectively.

The Library has chosen to address the recommendation to approve IT investments mainly via the Management Decision Package (MDEP). According to Library of Congress Regulation (LCR) 1510 - Financial Management, this is "the tool that Service/Support Units use in submitting their budget requests to OCFO and Library Management. The MDEP provides the detail that is necessary to make sound management decisions and/or to address Congressional mandates in the House and Senate reports. The MDEP includes the details of needed resources, a narrative justification, and impact statements." The Executive Committee reviews all MDEP budget requests and as of FY 2009, all IT-related MDEPs are reviewed by ITS for impact on the Library's IT infrastructure.

No Comprehensive Library Strategy for IT investments

Despite the MDEP process, we concluded that there is not an overall Library strategy for prioritizing and budgeting for IT investments to include new projects, replacement of existing systems, hardware, software, and services support. The documents that we received for review were incomplete and did not present evidence of a systematic IT Investment Process. The FY 2010 Budget for the Library includes a technology focus, but mainly addresses a refresh of the technology infrastructure, as opposed to presenting a long-term strategic statement.

There is a perception within the Library that project funding is dependent on the relationships established with OSI/ITS management. It is significant to note that whether true or not, the widely held perception that OSI receives priority in IT

issues affects the behavior of other Service/Support units. For example, there is a clear linkage between the proliferation of IT support organizations throughout the Library and this perception: due to the expectation that their service requests will receive lower priority than OSI's, other Library entities attempt to compensate by creating their own support frameworks. We found no evidence of a prioritized "portfolio" of IT investments, where spending decisions were regarded as a whole and were weighted against criteria for meeting mission performance. We found examples of an Investment Portfolio and a Technology Roadmap for specialized OSI programs such as NDIIPP, but this is not carried forward across the Library.

In September 2008, OSI published a "Plan for Cyclical Investments in Technical Infrastructure FY 2010-2014." Although this document represents a good start for developing an overall Library technology vision, it does not encompass major systems such as financial, budgetary, facilities support, or any systems that would support the Library's overall business areas in the future. It mainly addressed the technical infrastructure for digital collections. We recognize that the Library is not required to produce Exhibit 300 documentation, which supports the budget justification and reporting requirements for major IT investments as required by OMB Circular No. A-11 Part 7, Section 300: Planning, Budgeting, Acquisition, and Management of Capital Assets. However, to create a comprehensive strategy for IT investments, this plan should contain details sufficient for implementation for major Library systems. Exhibit 300 represents a best practice example.

No Coordination of IT Costs across Library

Although the Service/Support Units recognize a need for IT Security, they are frustrated about their inability to project adequate funding to support "unfunded mandates" such as Certification and Accreditation (C&A) requirements. When the IT Security Program was first established, ITS received Congressional funding to certify and accredit the Library's mission-critical legacy systems. There is, however, no continuing funding for ongoing support of C&A requirements. Since the implementation of the Library's C&A program, system owners have incurred substantial annual IT Security and mitigation costs. Service/Support Units bear the financial responsibility for C&As of systems developed since 2004.

The Information Technology Security Group (ITSG) contractor estimated that C&As would cost the Library approximately \$270K a year. The ITSG Chief maintains that a risk assessment can be completed within two weeks and estimated an average cost of \$15-20K per system. System owners are reporting higher actual costs. The National Library Service for the Blind and Physically Handicapped (NLSBPH or NLS) has tracked its IT Security costs (actual and projected) for 2006-2009, and reported a total cost close to \$1 million (See Appendix D for more details). Service/Support Units have been advised to use their own IT funding to obtain C&A contractor support. While there is no centralized funding for C&As, the ITSG Chief has provided, on a discretionary basis, ITS-funded contractor resources to Library offices.

In addition to the costs incurred for “unfunded mandates”, we found numerous areas where there were overlaps in support services and systems. For example, LS, COP, CRS, and LL all maintain their own fully staffed technology offices. These offices include a Help Desk, utilizing their own staff and/or contractors. Sometimes they use a separate Help Desk system rather than the ITS customized Remedy Help Desk system. Other offices in the Library each have at least one IT Liaison or a small IT staff that serves as a first line Help Desk. Even the Office of the Librarian has its own IT staff. All Service/Support Units independently obtain some level of IT contractor support. End users contact their own Help Desk or IT Liaison who attempts to address problems with their own resources and contacts the ITS Help Desk for issues crossing office boundaries. The Library staff does not feel that there is a clear distinction between what ITS funding provides and what the Service/Support Units must provide out of their funding. The Library staff reported that the information they found on the ITS Intranet Site regarding IT Security Directives, the SDLC process, and products ITS supported and provided often differed from the information they received in written and verbal communications. For example, inconsistent documentation has led some offices to repeat C&As multiple times.

There is an unusually large number of IT positions at the Library beyond the positions in OSI/ITS. The Service/Support Units are funding their own positions to supplement insufficient IT support. To assess this, we extracted the 2210 occupational series, which is traditionally pure IT support rather than an analyst position. “This series covers two-grade interval administrative positions that manage, supervise, lead, administer, develop, deliver, and support information technology (IT) systems and services. This series covers only those positions for which the paramount requirement is knowledge of IT principles, concepts, and methods; e.g., data storage, software applications, and networking.” Please refer to <http://www.opm.gov/oca/compmemo/2001/2001-05A.pdf> for more information. OSI has 228 2210-series positions, costing \$25,589,654 annually. This does not include those in other computer support positions, those performing these tasks in other service units, or IT contractor support. OSI augments its staff with over 50 contractors and others are brought in on a project-by-project basis. Table 1 shows the number of 2210 series employees outside of OSI. In all, outside the framework of the ITS help desk, the Library employs about 360 IT support staff at a cost of \$38 million.

Table 1 Non-OSI 2210 Series Employee Information

OFFICE	NUMBER OF 2210 SERIES EMPLOYEES	EST TOTAL (SALARIES ONLY)
Copyright	19	\$ 1,811,528
CRS	35	2,522,007
Law Library	9	915,975
Library Services	48	5,255,587
All Other	20	2,070,647
Total 2210 Salaries	131	\$12,575,744

Inconsistent Cost-Benefit Analyses

A well-planned, rational acquisition decision requires a cost-benefit analysis. Acquisitions can have many options; for example, for hardware, there are multiple makers of equipment and multiple vendors. In addition, there are multiple possible equipment configurations, and finally, there is the option to remain with a legacy system. A cost-benefit analysis is intended to explore which option is most cost-beneficial long-term by projecting the costs and benefits for each possible option, or at least for the most likely or desirable options.

We did not see consistent evidence of cost-benefit analyses for the acquisition or in-house development of IT systems. Market surveys are used often as rationale to not conduct cost-benefit analyses and to justify making the decision to develop in-house or contract out for system development. For example, the LC Accreditation Tool Package, was internally developed to assist systems owners to complete required documents for C&A of systems. The ITSG Chief says he conducted a market survey and no products met the Library's requirements, so he did not perform a cost-benefit analysis.

ITS did not search for a COTS product when the staff decided to develop an Archive Interface Utility (AIU) for the National Audio-Visual Conservation Center (NAVCC). The AIU transfers, verifies, and copies files from the production environment to the NAVCC Archive Storage area. The development of AIU started in late 2005 and was first released in October 2007. ITS moved this system into production without full acceptance testing from the system owner. The system owner experienced ongoing performance and functionality problems with the AIU throughout FY 2008 before he replaced the AIU with a modified open source COTS product. The system owner asked LS contractors to implement the Storage and Archive Manager – Quick File System (SAM-QFS) solution. LS contractors spent two weeks testing and two weeks to implement the SAM-QFS solution as a replacement at a fraction of the cost of the abandoned AIU.

FEDLINK has searched for a replacement for its financial system for over 10 years and spent \$500K in an effort with ITS and contractors to implement Momentum without conducting a cost-benefit analysis before giving up. A cost-benefit analysis may have identified lower cost COTS options. Given the post-implementation Momentum problems experienced by OCFO, the Library should also have conducted a risk analysis prior to starting implementation efforts. Now the FEDLINK staff is working with ITS to develop a customized system. ITS is in the process of analyzing 400 pages of requirements for a system design.

Lack of Transparency in Tracking IT Costs

When requesting budget and spending information concerning IT spending across the Library, we found that as with many other government accounting systems, IT expenses cannot be accurately retrieved from the Momentum system. These costs are combined within object classes for equipment services and maintenance. We reviewed the FY 09 Library budget justification as well as proposed FY 09 IT budgets from the Service/Support Units. We included salaries for government IT staff without benefits or other compensation. We determined that the ITS proposed budget for FY 09 is \$51,987,000 (with contractor support) and the rest of the OSI's proposed budget is \$34,304,000, which funds a combination of program and support functions. The rest of the Library will augment the centralized IT support with approximately \$35,012,867 of decentralized IT Support. The IT support costs reviewed included IT government salaries, IT contractor support, vendor support, hardware, software, and IT training (See Appendix C for more details on the proposed FY 09 IT budgets).

In conducting interviews with Library staff below the senior management level, we found that most were unfamiliar or confused with the process for requesting small or unexpected IT services. OSI maintains a PC Store with standard, approved hardware and an inventory of approved software licenses. Once the PC Store or software budgets are depleted or if there are variations on a supported service/product, Service/Supports Units are expected to fund these purchases out of their budgets. We found a number of problems with this approach. First, we found that these IT expenses were often tracked as office equipment or supplies. We discovered there was no way to track these IT expenses in the Library once they were integrated into a unit's budget. Secondly, when Service/Support Units make individual purchases instead of going through a Library-wide negotiated contract, the Library does not benefit from economies of scale. Another problem with this approach is that these offices might be unfamiliar with the IT products they are purchasing and run the risk of purchasing the wrong product, from the wrong vendor. For example, a Service Unit recently purchased platinum support for its servers when a lower-priced level of support would have met its requirements. In addition, the life cycle costs of the products may not have been considered.

Although the Library's overall IT budget appears to be similar or lower than other federal agencies of similar size and mission, the IT needs of the Library are not

complex. However, with the lack of an investment process and coordinated strategy, much of the funding spent on IT is going towards uncoordinated and duplicative efforts relating to Help Desk support, software, hardware, IT contractor support, vendor support, and training. Investment decisions in IT made without doing a cost-benefit analysis often lead to unsound decisions, as discussed earlier in the NAVCC and the FEDLINK cases.

The Library as part of the legislative branch is not obligated to follow a Capital Planning and Investment Control (CPIC) process. However as one author stated, “[a]lthough compliance with federal laws and regulations is important, the more compelling reason for taking IT capital planning seriously is that an effective process can significantly increase IT return on investment. Given the fiscal constraints within which most federal programs must operate, the potential to achieve dramatic improvements in program effectiveness and efficiency through the innovative use of IT should rank at the top of any managers list of priorities.”⁴

A Library employee with prior IT capital planning experience at the Treasury Department stated that the investment process for IT was at Stage 1, possibly Stage 2 of the Information Technology Infrastructure Management (ITIM) Model (defined in Table 2). We agreed with the employee that the Library is at Stage 1 of maturity. As defined by Stage 1 of the ITIM, “there is generally little relationship between the success or failure of one project and the success or failure of another project. If an IT project succeeds and is seen as a good investment, it is largely due to exceptional actions on the part of the project team, and thus its success might be difficult to repeat. Investment processes that are important for success may be known, but only to isolated teams; this process knowledge is not widely shared or institutionalized. Most organizations with Stage 1 maturity have some type of project selection process in place as part of their annual budgeting activity. However, the selection process is frequently rudimentary, poorly documented, and inconsistently applied.” The Library should be focusing on obtaining at least a stage 2 maturity and should project the goal of reaching Stage 3 in the next few years. Stage 2 involves “Building the Investment Foundation: developing project selection criteria, benefit and risk criteria, and an awareness of organizational priorities. Stage 3 involves developing a complete investment portfolio.

⁴ Thomas G. Kessler, Patricia A. Kelley, Federal IT Capital Planning and Investment Control. *Public Manager*, 37 (4), 56-60, 2008.

Table 2 ITIM Stages of Maturity

The ITIM Stages of Maturity with Critical Processes	
Maturity stages	Critical processes
Stage 5: Leveraging IT for strategic outcomes	- Optimizing the investment process - Using IT to drive strategic business change
Stage 4: Improving the investment process	- Improving the portfolio's performance - Managing the succession of information systems
Stage 3: Developing a complete investment portfolio	- Defining the portfolio criteria - Creating the portfolio - Evaluating the portfolio - Conducting postimplementation reviews
Stage 2: Building the investment foundation	- Instituting the investment board - Meeting business needs - Selecting an investment - Providing investment oversight - Capturing investment information
Stage 1: Creating investment awareness	IT spending without disciplined investment processes

Another area that may serve to save costs is to require that an evaluation of alternatives be conducted for system purchases. According to OMB guidance, "Evaluation of Alternatives: Analyses should also consider alternative means of achieving program objectives by examining different program scales, different methods of provision, and different degrees of government involvement. For example, in evaluating a decision to acquire a capital asset, the analysis should generally consider: (i) doing nothing; (ii) direct purchase; (iii) upgrading, renovating, sharing, or converting existing government property; or (iv) leasing or contracting for services." One possible opportunity for an evaluation of alternatives is to assess the costs of digitizing special collections versus the cost of systematically digitizing the entire collection of books (for now excluding those subject to copyright protection).

RECOMMENDATIONS

Strategic Planning should be linked to the IT investment process at the Library, to eliminate the duplication of efforts and acquisitions. To that end:

- A. ITS should inventory and prioritize all existing systems that require upgrade and new IT projects to create an IT portfolio. Ideally, this should also include smaller systems and purchases that fall below the capital threshold.

Management Response: Management agreed with our recommendation.

- B. The Library should develop a plan to review and eliminate duplicative costs including Help Desks, technical liaisons in Service Units, and coordinate purchases.

Management Response: Management agreed with our recommendation. The Library's CFO will develop a plan to identify any duplicative costs in these areas.

A-Tech Comments: We did not imply that these duplicative costs arose from the perception that OSI receives a disproportionate share of ITS resources.

We wish to reiterate the intent of our recommendation, which was not to identify specific and exact duplication of IT costs, but instead to identify where Library Service and Support Units have created fully functional IT support organizations, and evaluate the possibility of significantly reducing these costs by consolidating IT support within ITS and adopting our recommendation to implement service level agreements for IT support.

- C. All IT costs including computer security should be accounted for as part of the IT budgetary process.

Management Response: Management was unclear about this recommendation.

A-Tech Comment: All IT costs should be accounted for and funded Library-wide rather than pushed down to Service and Support Unit budgets.

- D. The Library should develop a Cost-benefit Analysis (Analysis of Alternatives) Process for all IT investments and include risk criteria.

Management Response: Management partially agreed. This process should be applicable to new expenditures exceeding \$100,000 for systems, not including upgrades, etc.

A-Tech Comment: We concur with the \$100,000 threshold. However, some upgrades should be subject to cost-benefit analysis because a replacement or a delay in the upgrade may be the better option. In addition, lifecycle costs must be considered for all acquisitions, because those can frequently increase costs beyond the stated threshold.

- E. The Library should develop a methodology to maintain and track all Library IT expenses.

Management Response: Management agreed with our recommendation. The Library CFO will recommend a procedure for tracking IT expenses across appropriations.

- F. The Library should review and plan for moving forward through the stages of the ITIM.

Management Response: Management agreed with our recommendation.

FINDING 3 – ORGANIZATIONAL STRUCTURE

The organizational structure of the ITS Directorate at the Library does not foster strategic planning and proper IT governance.

1. OSI combines both IT support and other programmatic functions.
2. There is no centralized IT governance mechanism.

According to LCR 220-1: *Functions and Organization of the Office of Strategic Initiatives*, “The OSI mission is to support the Library of Congress’ vision and strategy by directing the digital strategic planning for the Library, overseeing the Library’s institution-wide digital initiatives, and leading the national program to build the required preservation network and infrastructure for the nation’s cultural digital assets. The OSI, through its Information Technology Services function, also ensures the effective delivery of information technology resources and services in support of the Library’s mission, functions, and activities... ”

LCR 220-1 also states that one of OSI’s functions is to “Manage the Library’s programs, budgets, and allocation of resources for the Digital Futures Program (domestic and international content – including American Memory, technical infrastructures and electronic outreach services), the National Digital Information Infrastructure and Preservation Program (NDIIPP), the Information Technology Services (ITS) functions, and the OSI.” OSI is also responsible for the Teaching with Primary Sources Program (TPS).

OSI Is Not Optimally Structured

OSI is unique among the federal agencies that we researched in that along with the CIO function, it includes a major programmatic function. When interviewing many OSI (non-ITS) staff, with a few exceptions it was evident that their focus was programmatic (such as NDIIPP and TPS) rather than supporting the Library as a whole. The traditional CIO responsibilities are taken on by ITS, organizationally placed within OSI with no direct representation on the Executive Committee (representation was recommended by the LC21 report). ITS was originally an Enabling Infrastructure (Support Unit) reporting directly to the Deputy Librarian. In FY 2002, however, ITS was folded into the newly created OSI, and the position of Director of ITS lost its “CIO” designation. The head of OSI, the Associate Librarian for Strategic Initiatives was named the CIO, and the director of ITS was placed below the CIO level. The CIO’s focus has primarily been on external programs such as NDIIPP and TPS, rather than on pursuing a strategic plan and vision for ITS. Although the ALSI has a track record of highly successful program implementations, organizational structures should be based on function and purpose and not individuals.

Further, because ITS is a second-level organization, it does not have the mandate or authority to enforce proper Library-wide IT governance, thus resulting in a series of optional IT security measures. As the Library begins to build an Enterprise Architecture (EA), this problem will repeat itself, as ITS will not have the authority to enforce Library-wide compliance with standards and EA governance principles. OSI has proposed a reorganization in which ITS will report not to the ALSI but to the Deputy ALSI. From a Library-wide perspective, this change has no effect on the chain of command.

Significantly, the IT Security Group (ITSG), located in ITS, lacks meaningful enforcement authority. There are not always consequences for violations of IT security because the ITSG has only limited authority to take action or to request termination of system access when it detects security violations. Effectively, the IT security program at the Library has no teeth.

It is the perception of other Service/Support Units that ITS supports OSI priorities first and others must fall in line behind them. The proposed movement of the Digital Scanning Center from ITS to OSI adds to that perception and further muddles the distinction between programmatic and support functions.

Our research of CIO functions across several legislative and executive agencies revealed that the Library's programmatic function under the CIO is unique among federal agencies. We also found in federal agencies and major universities with similar missions to the Library, the CIO of the IT organization generally reports directly to the head of the organization. In other words, the Director of ITS would traditionally be the CIO and report directly to the Librarian. We found no instances in which a CIO was in charge of both major programmatic areas and infrastructural support functions. Although the ALSI is the CIO for the Library, she is perceived by the rest of the Library as a CIO in name only. This is largely due to her focus on the major programmatic areas rather than the infrastructural IT support functions.

The CIO of an agency that is listed (in section 901(b) of title 31, United States Code) shall "have information resources management duties as that official's primary duty." The Library of Congress does not have to conform to this; however, this is a standard best practice. The CIO Council provides a wealth of information on best practices at <http://www.cio.gov/index.cfm?function=documents>.

A 2004 GAO survey found that the majority of federal agencies complied with this requirement and the CIO reported directly to the agency head. GAO commented in one of these reports, "[i]n addition to requiring that federal agency CIOs have many specific responsibilities, federal law also generally requires that these CIOs report directly to their agency heads. This requirement establishes an identifiable line of accountability and recognizes the importance of CIOs' being full participants in the executive team in order to successfully carry out their responsibilities." See <http://www.gao.gov/new.items/d04823.pdf> for more information.

A recent OMB memorandum stated, "Except where otherwise authorized by law, regulation, or other policy, the CIO has the authority to set Agency-wide IT policy, including all areas of IT governance such as an Enterprise Architecture and standards, IT capital planning and investment management, IT asset management, IT budgeting and acquisition, IT performance management, risk management, IT workforce management, IT security and operations, and information security." See <http://www.whitehouse.gov/omb/assets/omb/memoranda/fy2009/m09-02.pdf> for more information.

The ALSI is not endowed by the Library with the authority to make Library-wide decisions on IT governance, IT capital planning, and IT asset management. This is evidenced by the fact that other Service and Support Units make their own IT investment decisions and, sometimes, capital planning, IT budget management, and acquisitions. In addition, although the ALSI promulgates Library-wide IT security guidance, she has limited authority to enforce security requirements on Library areas outside OSI. A CIO cannot properly lead an IT organization without full authority and responsibility for these critical elements.

RECOMMENDATIONS

The organizational structure of the ITS Directorate needs to be realigned to foster strategic planning and IT governance at the Library. To accomplish this, the Library should:

- A. Separate the IT support functions from OSI and establish the Office of the Chief Information Officer (OCIO) from the ITS Directorate and other IT support functions of OSI. The CIO will report directly to the Librarian or Chief Operating Officer with duties, responsibilities, and authority consistent with best practices.

Management Response: Response to our recommendation is delayed until further study.

- B. Endow the CIO with the authority and responsibility for overall IT Strategic Planning, IT Capital Planning, IT Asset Management, Enterprise Architecture, and to establish a Customer Advocate role to ensure accountability; and
- C. Endow organizational function such as IT Security with appropriate enforcement authority as well as policy responsibilities.

Management Response: Management agreed "in principle" with recommendations B and C.

A-Tech Comment: We reiterate our recommendations. Both of these are industry-standard best practices to which the Library does not subscribe.

FINDING 4 – ENTERPRISE ARCHITECTURE

The Library lacks an Enterprise Architecture (EA) program.

We found that the Library has not yet implemented an Enterprise Architecture. At best, OSI has documented the Library's "as-is" architecture. The Library is behind most other federal agencies in developing an Enterprise Architecture. OSI indicated that this was due to budgetary constraints. Recently, the Library embarked on an EA project. To this end, OSI has contracted with the Gartner Group for support to develop a plan for this initiative. A core team, consisting of senior OSI and ITS managers, spearheaded by the ITSG Chief, has been meeting with Gartner to develop EA documentation. The team has conducted interviews with subject matter experts made up of OSI and ITS managers as well as Service Units. OSI is also embarking on related architecture projects such as:

- Information Architecture-User Experience as-is and possibly to-be (the Contractor will be delivering a report based on user studies and Web metrics);
- Information Architecture Services and Tools;
- Web/Delivery Architecture Web 2.0 delivery mechanisms and exploring software platforms and delivery options for a complete re-architecting/re-building of the Web environment in 2010;
- Search and Discovery Metasearch for LC home page and search engines;
- Metadata Group has established a Web site to share documents, has a charter and is finishing Use Cases for metadata requirements for multiple data sources and data used. The group is investigating automated tools (primarily open source); and
- Digital repository requirements.

OSI has brought on a project coordination contractor to provide project management, logistics support, and deliverable coordination and management for architecture-related projects. However, this fragmented approach does not represent a comprehensive EA as seen in other federal agencies.

EA provides a high-level snapshot of IT systems and business processes and provides a framework for making IT investment decisions. An EA is a living process, requiring continuous maintenance. EA is intended to help guide wise IT decisions that support business processes, rather than requiring business processes to fit into IT models.

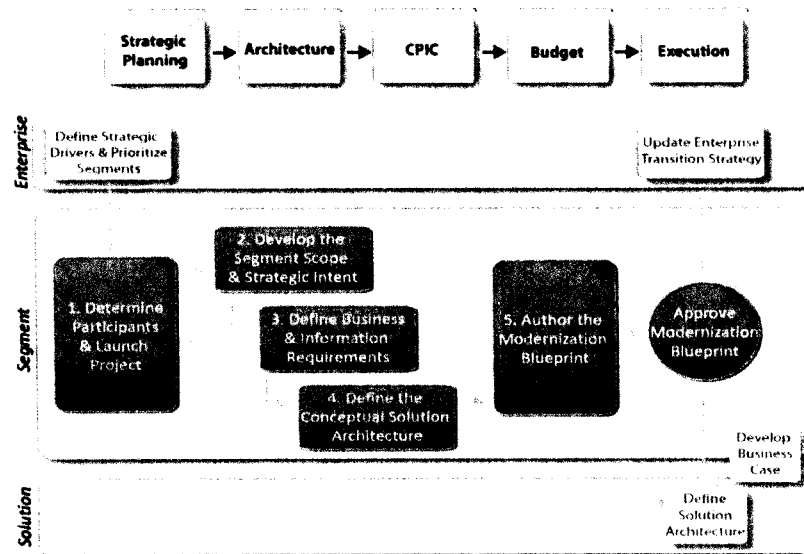
According to the GAO, "An EA is a systematically derived snapshot—in useful models, diagrams, and narrative—of a given entity's operations (business and systems); including how its operations are performed, what information and technology are used to perform the operations, where the operations are performed, who performs them, and when and why they are performed. The

architecture describes the entity in both logical terms (e.g., interrelated functions, information needs and flows, work locations, systems, and applications) and technical terms (e.g., hardware, software, data, communications, and security). EAs provide these perspectives for both the entity's current (or "as-is") environment and for its target (or "to be") environment; they also provide a high-level capital investment roadmap for moving from one environment to the other." For more information, see <http://www.gao.gov/new.items/d03959.pdf>.

GAO has developed an Enterprise Architecture Management Maturity Framework (EAMMF) to evaluate Federal Enterprise Architectures (FEA). According to our evaluation, the Library is at Stage 1, which indicates that it is in the process of creating EA awareness. This is because the Library has initiated "some enterprise architecture activity, but these efforts are ad hoc and unstructured, lack institutional leadership and direction, and do not provide the management foundation necessary for successful enterprise architecture development as defined in stage 2." See <http://www.gao.gov/new.items/d06831.pdf> for more information. GAO, OMB guidance, and federal CIO Council reports for developing an Enterprise Architecture are found at <http://www.whitehouse.gov/omb/e-gov/fea/>.

Recently, OMB developed a framework for FEA entitled the Federal Segment Architecture Methodology (FSAM), a systematic process that includes best practices from across the federal EA community. There are templates available on the FSAM Web site for this process. As defined in the OMB FEA Practice Guidance, there are core mission area, business service, and enterprise service segments. Below is a chart from FSAM guidance that shows how many of these pieces may be incorporated into a viable process. See <http://www.fsam.gov/index.php> for more information.

Table 3 FSAM Guidance



Although an EA is not a panacea for all IT issues, it does help bring a holistic view to the IT endeavor. Without an EA:

1. The Library cannot adequately link IT to the mission of the Library and provide a comprehensive framework to identify how IT assets directly enable the Library's business processes and how those processes execute the Library's mission.
2. There could be potential for interoperability problems between systems that could impact how the Library's systems interface with each other.
3. It is harder to respond to changes because there is not a comprehensive reference for the Library to assess the impact changes will have on each component within the Library's Enterprise Architecture or to ensure the components continue to run smoothly through change management.
4. It is harder to design new systems and modify existing systems because there is no frame of reference.
5. The Library may see fewer opportunities for economies of scale in purchasing.
6. It is harder to implement common security standards and security architectures.
7. The Library incurs additional technical risk by not having a technology infrastructure based on industry standard solutions and on trends of the future.

RECOMMENDATIONS

The Library needs to implement an Enterprise Architecture that could be coupled with a strategy and provide a roadmap for implementing technology in the future. To this end, the Library should:

- A. Follow the FSAM templates as a model for developing the architecture segments to avoid reinventing the wheel and use federal agency best practices for EA and use mainstream tools and processes;

Management Response: Management partially agreed with our recommendation.

A-Tech Comment: We are unclear as to the “partial” nature of management’s agreement with our recommendation, which was simply to use industry-established tools and best practices. Management did not indicate with which part of the recommendation it disagreed.

- B. Evaluate proposed plans for the development of an EA with EAMMF to ensure that the plans are in complete alignment;

Management Response: Management partially agreed: “We will use EA metrics ... which can include, and may largely coincide with, the EAMMF criteria.”

A-Tech Comment: We disagree with management’s unwillingness to use proven, published criteria for this process. The Library intends to reinvent the wheel. We disagree with this approach when there are already significant existing bodies of knowledge and experience in this subject area. The EAMMF is flexible enough to accommodate the Library’s needs without needing to be reimagined.

- C. Keep the process for developing an EA in line with similar agencies to avoid developing a process that is too complex or out of scope with agencies of similar size;

Management Response: Management agreed with our recommendation.

A-Tech Comment: The Library should review the EA infrastructures of agencies with similar missions and technical requirements.

- D. Include all EA costs in a single budget line item for the entire Library to avoid creating a burdensome or costly process for system owners; and

Management Response: Management partially agreed with our

recommendation. OSI will track all EA Program Office costs. Other costs can be accounted for in the Library's different appropriations, but not contained in a single budget line item.

A-Tech Comment: We disagree with management. We reiterate our recommendation that a centrally managed and significant project such as EA must be centrally funded.

- E. Involve all Service and Support Unit system/business process owners.

Management Response: Management agreed with our recommendation.

FINDING 5 – CUSTOMER SERVICE

ITS Customer service needs improvement.

1. The Library has IT customer support issues.
2. ITS does not leverage tools such as Service Level Agreements or Performance Metrics.

Customer Support Issues

Our review indicated that beyond long-term strategic planning issues, ITS customers were experiencing significant customer service problems. We believe that this condition is related to the lack of long-term strategic planning in that ITS does not operate on a long-term plan to monitor or improve customer service. To avoid working with ITS, Service/Support Units often purchase their own equipment and software, procure IT contractor support, develop their own systems, or outsource development/hosting, and whenever possible deploy their own software and hardware.

ITS customers say that the organization does not understand their business needs and requirements and provides inadequate support. Many customers believe that the quality of service and support they receive are based on personal relationships. Some customers believe that knowing certain individuals in ITS personally is what enables them to get the job done. People who are new to the Library have trouble obtaining help or finding the right people to answer their questions. Some customers reported limited or no contact with their ITS Research & Development (R&D) liaisons and perceive it is because they lack seniority.

The Help Desk is the primary channel through which customers request new software and hardware and service for existing equipment. Some issues we found include:

- Help Desk tickets are not always properly assigned to the person providing the service or ordering the equipment/software. A search in December 2008 revealed that there were 800+ tickets assigned to the Chief of End User Computing. It is unlikely the Chief would be personally providing services.
- Help Desk tickets are not consistently reassigned when ITS employees or the contractors leave the Library or are assigned to a different position.
- A search in January 2009 showed 4,079 tickets in an "Open" status, with original dates ranging from 1989 to 2008, and 137 tickets opened from 1996 to 2008 showed as being in a "Hold" status.
- Approved requests for equipment or service are not always fulfilled and the requestors often receive no explanation why. Sometimes ITS will deliver equipment long after the requestors have purchased their own

equipment. Often, customers will find a way to perform the service themselves. Sometimes ITS will implement services without the requestor's knowledge.

- Customers are frustrated with the high number of tickets (a minimum of five) to provide new employees with system and telecommunications access and equipment.

Users have experienced lengthy delays in the approval process for new software. Sometimes the wait time is so lengthy that a new version of the software is released before the request is approved, thereby making the original request obsolete. Sometimes, tickets are closed without resolution of the reported software deployment problem and a new ticket must be opened.

The Help Desk is staffed by contractors, whose quality is inconsistent. Help Desk contractors will often install the wrong versions of software and the customers will reinstall the software themselves. Customers have reported that instead of fixing a problem, the Help Desk contractors will frequently replace hard drives or recreate customer accounts.

Library customers have said that they created their own IT support organizations because ITS did not meet their needs. For example:

- CRS created a network separate from ITS and procures its own equipment and software;
- LL outsourced the Global Legal Information Network (GLIN);
- NLS purchased its own servers and maintains a separate data center. NLS performs system development, Web development, and system hosting services in-house or with outside contractor support;
- LS insisted on managing and outsourcing the development of NAVCC Workflow Application. LS has also insisted that the development for the overall Library repository be outsourced.

Many customers report that equipment available in the PC Store, operated by ITS, does not meet their needs. The list of items or support provided by ITS changes frequently. Customers have also reported that ITS does not maintain an inventory of spare parts for the supported equipment.

We found no evidence of the distribution of end-user surveys, Help Desk surveys, or open informational meetings with customers to obtain feedback. The Operations Committee is attended only by the technology heads. The ITS R&D liaisons interact mostly with senior management and the Workstation Configuration Control (WCC) group has a limited membership. While the information provided at WCC meetings is useful, the meeting minutes are only disseminated to its members via email or access to a special drive. Members have reported it is more of a forum for announcements rather than discussion. The IOG also has limited membership, but has received the most positive feedback. The IOG is also the only group that

disseminates the meeting minutes on the Intranet Site and follows up with members when they do not attend meetings. ITS is currently developing a communications plan to improve information dissemination to the rest of the Library and within ITS.

Service Level Agreements and Performance Metrics

Most organizations use Service Level Agreements (SLA) to manage their customers' expectations and set standards by which their service can be evaluated, and in turn, by which they can evaluate their own staff. For example, at the Library, the Office of Contracts and Grants Management (OCGM) publishes a listing of timeframes in which customers can expect their acquisitions to be completed. OCGM also uses these timeframes to assess its own performance, and further, to evaluate its staff. ITS does not use SLAs because it believes that they are best suited for contractors. ITS uses "Memoranda of Understanding" (MOU) and "Project Charters" as a way to assign roles and responsibilities. ITS customers, however, reported that the MOUs are one-way, mostly defining the customer's responsibilities, but not assigning performance standards to ITS, the service provider, and further, do not guarantee service or support.

SLAs represent a best practice for service providers, whether or not there is an exchange of funds. SLAs define service standards, manage customer expectations, and provide a yardstick by which service quality can be evaluated.

SLAs can include metrics such as hours of support, call response time, and escalation procedures. These SLAs will help end users understand the service that they can expect. Higher levels will require additional resources. We believe that the publishing of SLAs will provide the end users with more understanding of the levels of support that they can expect. We also believe that ITS should join an organization such as the Help Desk Institute to obtain best practices for customer support and in operating a Help Desk. In addition, we suggest the use of the Information Technology Infrastructure Library (ITIL) for comprehensive documentation of best practices for IT service management.

According to an article published by the Help Desk Institute, "We suggest the use of SLAs so that the end user's have a basis for knowing what service to expect. Fundamentally, the service level agreement process provides a methodology for introducing and implementing reasonable expectations for the customer community and your Help Desk or Customer Support Center. SLAs serve as a guide for establishing good, sound business relationships." For more information, please see <http://www.thinkhdi.com/library/deliverfile.aspx?filecontentid=55>.

Without SLAs or performance metrics, ITS cannot understand or manage customer expectations. Without this feedback chain, ITS has no real way of knowing if it is meeting its support objectives and customer expectations.

With respect to IT issues, it appears that the Library acts as five separate businesses instead of a single institution. There are solo and sometimes duplicative system development projects going on throughout the Library without OSI and ITS' knowledge. There is also no true system integration. The Service/Support Units compete for IT resources instead of working together to coordinate economies of scale for software, hardware, equipment, Help Desk, and system development and outsourced hosting costs.

Because of a perceived reluctance by ITS to take on ownership of IT problems or projects, customers search for ways to work around or not notify ITS of pending projects. Others will attempt and then give up pursuing projects that could be a Library-wide benefit such as the deployment of Multi-Functional Devices (MFDs or combination printer/copier/scanners). Our review indicated that Integrated Support Services (ISS) took all of the appropriate steps, including involving ITS in the requirements phase of the current contract, to enable the scanning and networking functions of the machines now in place Library-wide. However, there is a stalemate between ITS and ISS as to who is responsible for networking these MFDs, leaving them to be used throughout the Library solely as copiers. At the end of a five-year contract, the Library will have paid a total of \$5,782,870 without realizing the full functionality of these MFDs. We were unable to determine the incremental cost of leasing MFDs as opposed to plain copiers without MFD functionality.

RECOMMENDATIONS

The Library needs to implement a formal process for soliciting customer feedback for recommendations, ideas, and complaints, and implement changes to improve customer service. Specifically, ITS should:

- A. Implement Service Level Agreements to manage customer expectations;

Management Response: Management partially agreed with our recommendation.

A-Tech Comment: Once again, we are unclear as to the "partial" nature of management's agreement with our recommendation. Service level agreements can be structured in any way the Library desires, and simply establish baseline service guidelines on which management and customers can rely.

- B. Review the PM, SDLC, IT Security, and Help Desk processes and obtain feedback from the Service/Support Units to improve efficiency and effectiveness;

Management Response: Management agreed with our recommendation.

- C. Use best practices for service management from organizations such as the Help Desk Institute and ITIL and other organizations;

Management Response: Management agreed with our recommendation.

- D. Instead of enhancing the current Help Desk system, implement a COTS enterprise Help Desk system that includes capabilities for customer feedback on calls, reporting on the closure rate of calls, types of calls, and other metrics. Since CRS purchased the latest version of Remedy, ITS should use the CRS contract for this or research other COTS options;

Management Response: Management agreed with our recommendation.

- E. Negotiate a new Help Desk service contract to meet the different service level requirements of all Service and Support Units to eliminate duplicative Help Desk support services;

Management Response: Management disagreed with our recommendation. Management believes, at this time, that having some services provided to certain staff at the service/support unit level is desirable. Having a distributed model of services instead of a centralized model does not necessarily mean there are duplicative costs. The CFO will address this recommendation in his study on duplicative costs.

A-Tech Comment: The intent of this recommendation was to address the need for the Library to evaluate duplicative costs incurred by having distributed and independent help desk functions throughout its various offices.

- F. Develop a set of metrics for ongoing use to measure performance. These metrics should change and evolve over time as one area shows improvement; new metrics should be developed for other areas; and

Management Response: Management agreed with our recommendation.

- G. Conduct regular customer surveys and open informational meetings.

Management Response: Management agreed with our recommendation.

CONCLUSION

We believe that since the National Research Council issued the LC21 report in 2000, the IT support organizations at the Library of Congress have transformed themselves from IT support “shops,” to organizations which lead the country and the world in digital library technology. We were also impressed with the intelligence and technical savvy of the Library staff. It is now time for the Library to transform its management of IT from five separate businesses to a total institution. To remain a leader in the digital age, the Library must work collectively to address digital strategy, repository, and preservation; information retrieval; metadata standards; copyright deposits; IT cost accounting and metrics; IT leadership and governance; IT security; IT support/customer service; and IT investments.

Many recommendations made in this report can be implemented at a low cost and can be accomplished with existing resources. Those requiring resources could be balanced against cost saving measures. We caution that the planning process should be agile rather than burdensome, and transparent to achieve maximum buy-in. We also advise the recommendations be implemented in coordination with all the Service and Support Units as some activities will reach across multiple reporting frameworks and appropriations. The GAO Executive Guide speaks about balance in planning, “CIOs recognize that balancing short-term successes with longer-term business change initiatives is key to keeping their business customers satisfied...These CIOs are careful not to get caught in the cycle of continual planning, but take steps to ensure effective progression from planning to implementation. They return to their plans iteratively, updating them as progress is made and business needs evolve.”⁵ We recommend the Library consult with the CIOs of organizations such as the Department of Education, George Mason University, the National Institutes of Health, the National Science Foundation, the Smithsonian, and the United States Patent and Trademark Offices on their IT strategic planning processes (see references 18-24 for the IT strategic plans of these organizations).

The LC21 report made the following recommendations, which still hold true today:

“...information technology can, should, and must be taken as a strategic asset of the Library as a whole and managed strategically from the very top.”

“...there needs to be serious strategic planning. Concrete projects must be established and undertaken to make real the Library’s ability to select, acquire, preserve, and manage digital content. These initiatives must reach across the whole interlinked set of processes from copyright registration through deposit to reader services.”

We suggest that the Library continue work in these very critical areas and begin

⁵ The GAO Executive Guide, February 2001, Maximizing the Success of Chief Information Officers – Learning From Leading Organizations.

immediate implementation of our recommendations. An effective IT strategic planning process will provide the framework that is needed to assess costs and benefits, manage priorities, and plan for the future. The customer's needs, both internal and external, should drive the requirements and be the foundation for determining project success.

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APPENDIX B - ACRONYMS

AIU – Archive Interface Utility
 ALSI – Associate Librarian for Strategic Initiatives
 AP3 – Annual Performance Program Plan
 ASL – Associate Librarian
 C&A – Certification and Accreditation
 CCB- Configuration Control Board
 CFO – Chief Financial Officer
 CIO – Chief Information Officer
 CIPC – Capital Planning and Investment Control
 CMM – Capability Maturity Model
 COBIT – Control Objectives for Information and Related Technology
 COO – Chief Operating Officer
 COP – Copyright Office
 COSD – Committee on Strategic Direction
 COTS – Commercial-Off-The-Shelf
 CRS – Congressional Research Service
 DLCG – Digital Library Content Group
 EAMMF – Enterprise Architecture Management Maturity Framework
 FEA – Federal Enterprise Architecture
 FSAM – Federal Segment Architecture Management
 GAO – Government Accountability Office
 GIPRA – Government Performance and Results Act
 GPO – Government Printing Office
 ICP – Internal Control Program
 IOG – Internet Operations Group
 IT – Information Technology
 ISS – Integrated Support Services
 ITIL – Information Technology Infrastructure Library
 ITIM – Information Technology Infrastructure Management Model
 ITSG – IT Security Group
 ITS – Information Technology Services
 ITVRSP – IT vision, strategy and research program
 Library or LC – Library of Congress
 LC21 report – LC21: A Digital Strategy for the Library of Congress
 LCR – Library of Congress Regulation
 LL – Law Library
 LS – Library Services
 MDEP – Management Decision Package
 MFD – Multi-Functional Device
 MOU – Memorandum of Understanding
 NAVCC – National Audio-Visual Conservation Center
 NDIIPP – National Digital Information Infrastructure Preservation Program

NDLP – National Digital Library Program
NIST – National Institute of Standards and Technology
NLS or NLSBPH – National Library Service for the Blind and Physically Handicapped
NRC - National Research Council
PART – Program Assessment Rating Tool
OCFO – Office of the Chief Financial Officer
OIG – Office of the Inspector General
OMB – Office of Management and Budget
OPM – Office of Personnel Management
OSEP – Office of Security and Emergency Preparedness
OSI – Office of Strategic Initiatives
SAM -QFS – Storage and Archive Manager – Quick File System
SLA – Service Level Agreement
SPO – Strategic Planning Office
TPS – Teaching with Primary Sources
VPN – Virtual Private Network
WCC – Workstation Configuration Control
WCM – Workstation Configuration Management

APPENDIX C - PROPOSED FY 2009 IT BUDGETS

Proposed FY 2009 OSI Budget & IT Budgets for other Service & Support Units		
Office of Strategic Initiatives Proposed Budget		
OSI Fulltime & Other government salaries (without Benefits)	\$11,146,000	
OSI Non-Pay	\$23,158,000	
Total OSI Budget without ITS	\$34,304,000	
Breakdown of ITS Directorate Proposed Budgets		
ITS Pay Fulltime & Other government salaries without Benefits	\$21,762,000	
ITS Non-Pay	\$30,225,000	
Total ITS Budget	\$51,987,000	
Total OSI Fulltime & Other Pay without Benefits	\$32,908,000	
Total Non-Pay	\$53,383,000	
Office of Strategic Initiatives Total	\$86,291,000	
Breakdown of OSI Directorate Proposed Budgets		
Digital Initiatives:	\$22,970,000	
\$13,284,000 Pay - FT Permanent & Other		
\$9,686,000 Non Pay		
Information Technology Services:	\$57,333,000	
\$27,108,000 Pay Fulltime (FT), Other, Benefits		
\$30,225,000 Non Pay		
National Digital Information Infrastructure:	\$7,511,000	
Teaching With Primary Sources:	\$7,170,000	
\$1,209,000 Pay FT Other, Benefits		
\$5,961,000 Non Pay		
Office of Strategic Initiatives Total with Benefits	\$94,984,000	
Proposed IT Support Budgets For OSI/ITS Customers		
Copyright	\$5,756,576	
Congressional Research Service	\$7,770,530	
Law Library	\$1,989,792	
Library Services	\$11,969,843	
Human Resource Services	\$1,498,073	
Integrated Support Services	\$1,560,411	
Office of The Chief Financial Officer	\$3,381,000	
Office of The Librarian	\$675,973	
Office of The Inspector General	\$117,219	
Office of Security And Emergency Preparedness	\$283,450	\$293,450
Total For Office of Strategic Initiatives/Information Technology Services Customers	\$35,002,867	To \$35,012,867
Breakdown of Service/Enabling Infrastructure Units Proposed IT Budgets"		
Copyright		
IT government support salaries without Benefits	\$2,171,502	
IT contractor support:		
Oracle 8.1 And Analytics Implementation	\$1,400,000	One Time
COP Repository Feasibility Study	\$300,000	One Time
eCo support Contractors (Catapult, Central Printing, Adobe)	\$720,479	

Proposed FY 2009 OSI Budget & IT Budgets for other Service & Support Units		
Help Desk	\$700,000	
Metasearch Project	\$15,000	
Hardware Purchase/Replacement:		
Pre-Product Environment	\$75,000	
Scanners	\$12,800	
Video Cards	\$2,970	One Time
Vendor support (E.G. Maintenance On Servers/Network) Seibel And Scanners	\$49,000	
Software Purchase/License	\$259,324	
IT Training/Conferences (Eco Training, Accuate & MS Project Course, Voyager Conference)	\$50,500	
Copyright Total	\$5,756,576	
Congressional Research Service		
IT government support salaries (without Benefits)	\$4,560,530	
IT contractor support:	\$1,300,000	
Hardware Purchase/Replacement	\$600,000	
Vendor support (E.G. Maintenance On Servers/Network)	\$1,200,000	
Software Purchase/License	\$100,000	
IT Training/Conferences	\$10,000	
Congressional Research Service Total	\$7,770,530	
Law Library		
IT government support salaries (W/O Benefits)	\$915,975	
IT contractor support For GLIN	\$997,002	
Hardware Purchase/Replacement (Non-GLIN)	\$745	
Vendor support For GLIN	\$63,847	
Software Purchase/License (Non-GLIN)	\$12,223	
IT Training/Conferences:	\$0	
Law Library Total	\$1,989,792	
Library Services		
IT government support salaries (without Benefits)	\$6,514,093	(Includes salaries for the Automation Contacts, Does not include Future NAVCC FTEs)
Technology Policy		
IT contractor support (Tech Audit)	\$100,000	
TP Sub-Total	100,000	
Automation Planning Liaison Office:		
IT contractor support	\$35,000	
Hardware Purchase/Replacement	\$170,685	One Time Hardware \$73,580
Vendor support	\$23,200	
Software Purchase/License	\$255,965	
IT Training/Conferences:	\$20,000	
Automation Planning Liaison Office Sub-Total	\$504,850	
National Library Service For The Blind Physically Handicapped:		
IT contractor support	\$1,108,900	Note 1: includes Software Maintenance on in-house developed software applications. Note 2: Just completed major upgrade to systems due to the Digital Conversion and implementing a new Website This Year. Office considers figure unusually high for

Proposed FY 2009 OSI Budget & IT Budgets for other Service & Support Units		
		a typical year.
Hardware Purchase/Replacement	\$141,000	Due to Workstation Configuration Management (WCM) initiative, NLS is aggressively replacing computer hardware not certified for windows XP. Purchasing additional PC's due to WCM repair process and new it security requirements. Figure high for a typical year.
Vendor support (E.G. Maintenance On Servers/Network)	\$40,000	Expense includes a \$30k payment made every three years to its for hardware replacement for our digital archiving system and \$10k maintenance that was prepaid in FY 2008 .
Software Purchase/License	\$85,500	Due to WCM initiative, we are getting our software licenses in order. Making purchases to support engineering for the DTB player (such as CAD software). Figure considered unusually high for a typical year.
IT Training/Conferences	\$25,500	
BPH Sub-Total	\$1,400,900	
National Audio-Visual Conservation Center:		
IT contractor support - NAVCC Software Applications	\$200,000	Total Contract value was \$400,000 for 2 year support
Hardware Purchase/Replacement	\$2,750,000	
Vendor support (E.G. Maintenance On Servers/Network)	\$500,000	
Software Purchase/License	\$0	
IT Training/Conferences	\$0	
National Audio-Visual Conservation Center Sub-Total	\$3,450,000	
Library Services Total	\$11,969,843	
Human Resource Services		
IT government support salaries (W/O Benefits)	\$519,978	
IT contractor support	\$0	
Hardware Purchase/Replacement	\$14,724	
Vendor support (E.G. Maintenance On Servers/Network, Which May Not Apply To COP.)	\$893,102	
Software Purchase/License	\$58,880	
IT Training/Conferences	\$11,389	
Human Resource Services Total	\$1,498,073	
Integrated Support Services		
IT government support salaries (without Benefits)	\$371,411	
IT contractor support	\$770,000	
Hardware Purchase/Replacement	\$37,000	
Vendor support (E.G. Maintenance On Servers/Network)	\$0	
Software Purchase/License	\$281,000	
IT Training/Conferences	\$101,000	
Integrated Support Services Total	\$1,560,411	
Office of The Chief Financial Officer		

Proposed FY 2009 OSI Budget & IT Budgets for other Service & Support Units		
IT government support salaries (without Benefits)	\$606,069	
IT contractor support For Momentum	\$2,757,722	
Hardware (Significantly More Spent In Past Years.)	\$1,000	
Vendor support	\$0	
Software Purchase/License	\$0	
IT Training/Conferences	\$16,209	
Office of the Chief Financial Officer Total	\$3,381,000	
Office of The Librarian		
IT government support salaries (without Benefits)	\$624,430	
IT contractor support	\$0	
Hardware Purchase/Replacement	\$34,543	
Vendor support	\$0	
Software Purchase/License (No Annual Fees)	\$15,000	
IT Training/Conferences	\$2,000	
Office of the Librarian Total	\$675,973	
Office of The Inspector General		
IT government support salaries (without Benefits)	\$116,419	
IT contractor support	\$0	
Hardware Purchase/Repair	\$800	
Software Purchase/License		
Vendor support	\$0	
IT Training/Conferences	\$0	
Office of the Inspector General Total	\$117,219	
Office of Security Emergency Preparedness		
IT government support salaries (without Benefits)	\$178,450	
IT contractor support For MC Dean IT Related Library's Police Communications Center (PCC) For One-Year Period Ending May 1, 2009.	\$50,000	
Hardware Purchase/Repair	\$25,000	
Vendor support & Software For Personnel Security Program Office Database"	\$25,000	To \$35,000
IT Training/Conferences	\$5,000	
Office of Security Emergency Preparedness Total	\$283,450	To \$293,450

APPENDIX D – NLS IT SECURITY EXPENSES

IT Security Expenses for the NLS						
Year/Description of expense	Total NLS Hours	NLS Cost	Staff	Hardware Cost	Consultant Cost	TOTAL COST
FY 2006						
Work involved in creating initial PICS C&A	245	\$16,057			\$4,000	
Work involved in estimate for PICS POAM fixes	20	\$1,344			\$4,000	
Work involved in IT security test - accommodating blind staff problems	15	\$1,008			\$500	
Process IT security waiver documentation	30	\$1,934				
Lost work due to VPN problems & inefficiencies	60	\$3,786			\$3,500	
TOTAL FY 2006	370	\$24,129		\$0	\$12,000	\$36,129
FY 2007						
PICS C&A Annual update	40	\$2,816				
PICS Phase 2 - research/documentation creation to accommodate IT security rules	75	\$5,279			\$10,000	
PICS Phase 2 - effort involved in accommodating IT security rules	120	\$8,447				
PICS Phase 2 - hardware purchased as a result of IT security accommodations	30	\$2,112		\$49,236		
Workstation Configuration management (WCM) preparations	100	\$6,430				
Research into possible use of VMware	52	\$3,254				
Process IT security waiver documentation	30	\$2,010				
Work involved in IT security test - accommodating blind staff problems	30	\$2,112			\$500	
Preparations/Research for Comprehensive Mailing List System and Blind and Physically Handicapped Inventory Control System (CMLS/BPHICS) and C&A	100	\$7,039				
Effort and expenses associated with ensuring NLS computer room compliant with IT security rules (platform, lock)	35	\$2,109		\$3,500		

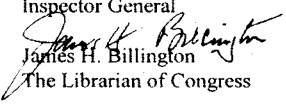
IT Security Expenses for the NLS						
Year/Description of expense	Total NLS Hours	NLS Cost	Staff	Hardware Cost	Consultant Cost	TOTAL COST
Lost work due to VPN problems & inefficiencies	60	\$3,818			\$4,000	
TOTAL FY 2007	672	\$45,425		\$52,736	\$14,500	\$112,661
FY 2008						
Production Inventory Control System (PICS) C&A Annual update	40	\$2,917				
Re Estimate PICS Plan of Action and Milestones (POAM) fixes	40	\$2,917				
Effort to set up firewall rules for NLS producers	40	\$2,917				
PICS Phase 2 - Impacts of accommodating IT security rules (coding)	240	\$17,502			\$55,000	
PICS Phase 2 - redo C&A package	200	\$12,556			\$59,670	
Effort spent working on acquiring NLS test networks	150	\$10,184				
Acquisition of Network hardware to accommodate test networks	50	\$2,961		\$30,000		
Process IT security wavier documentation	60	\$3,792				
Effort spent on Workstation Configuration management (WCM) preparations for 64 bit engineering workstations	315	\$19,532				
Work involved in IT security test - accommodating blind staff problems	35	\$2,210			\$500	
Effort spent on Workstation Configuration management (WCM) preparations - software inventory, documentation(outside of regular XP upgrade)	510	\$31,124			\$15,000	
Lost work due to VPN problems & inefficiencies	70	\$4,122			\$8,000	
TOTAL FY 2008	1750	\$112,735		\$30,000	\$138,170	\$280,905
FY 2009 - estimated:						
PICS C&A Annual updates	50	\$3,532				
PICS - redo C&A to include download website	160	\$9,994			\$8,000	

IT Security Expenses for the NLS						
Year/Description of expense	Total NLS Hours	NLS Cost	Staff	Hardware Cost	Consultant Cost	TOTAL COST
Effort to maintain firewall rules for NLS producers	35	\$1,348				
Effort spent on Workstation Configuration management (WCM) Implementation (outside of regular XP upgrade)	500	\$29,906			\$17,000	
Process IT security wavier documentation	40	\$2,701				
Extra computers to deal with possible problems with WCM rebuilds (extra computers, lost staff time)	90	\$5,479		\$8,000		
Work involved in IT security test - accommodating blind staff problems	35	\$2,245			\$500	
Effort spent on Workstation Configuration Management (WCM) preparations for 64 bit engineering workstations	70	\$4,927				
Time spent by NLS staff testing applications as part of WCM requirements	140	\$8,789			\$15,000	
Lost work due to VPN problems & inefficiencies	45	\$1,639			\$6,000	
TOTAL FY 2009	1165	\$70,561		\$8,000	\$46,500	\$125,061
Items pending funding:						
Fixing PICS POAM items		?			\$438,000	0
Possible Future expenses:						
C&A on CMLS/BPHICS		?		?	?	?
C&A on XESS		?		?	?	?
C&A on Network Database		?		?	?	?
C&A on READS		?		?	?	?
C&A on IMS		?		?	?	?
TOTAL Pending Funding		\$0		\$0	\$438,000	\$438,000
Overall TOTAL FY 2009	1165	\$70,561		\$8,000	\$484,500	\$563,061
GRAND TOTAL FYs 2006-2009 plus pending funding	2792	\$252,851		\$90,736	\$649,170	\$992,756*

* There is a \$1 discrepancy due to rounding.

APPENDIX E - LIBRARY RESPONSE TO REPORT

UNITED STATES GOVERNMENT

Memorandum*Office of the Librarian
Library of Congress***TO:** Karl W. Schornagel
Inspector General**DATE:** April 15, 2009**FROM:** 
James H. Billington
The Librarian of Congress**SUBJECT:** Information Technology Strategic Planning: A Well Developed Framework is Essential to Support the Library's Current and Future IT Needs (Report No. 2008-PA-105)

I am pleased to respond to your draft report on Information Technology Strategic Planning. Your transmittal memorandum has been addressed both to me and the Associate Librarian for Strategic Initiatives. I am responding for both.

I appreciate and share your recognition of the importance of information technology and the need for careful planning and decision making in charting the Library's future. Your report contains recommendations that can help us meet the challenges and opportunities before us.

I will first provide what I believe is a necessary context for the information planning judgments in the report, commenting on what we have been doing with information technology in the overall landscape at the Library of Congress. I then respond to the report's individual recommendations.

The draft report, in some cases, appears to rely on anecdotes or on several statements from individuals to support a recommendation. Some of the report's major recommendations, such as those proposing a significant organizational restructuring, require in-depth analysis and/or empirical data in order for me to responsibly act upon them. I have indicated such instances in my responses to individual recommendations.

I. Transforming the Institution

It is surprising and regrettable that there was scant attention paid in the report to the transformational work that the Library has accomplished since the National Research Council's report, *LC21: A Digital Strategy for the Library of Congress*, published nearly a decade ago. The inclusion of a discussion in the report would give the reader a more accurate view of and appropriate confidence in the Library's current capabilities.

When I was appointed Librarian in 1987, I promised to "get the champagne out of the bottle," that is, I pledged to find ways to make our unparalleled collections more widely available to the American people. At that time, of course, the technology that we have today was just a distant glimmer, but I recognized that technology would be the mechanism by which I could deliver on that promise. Early in my tenure, I initiated a program—American Memory—that

converted primary source materials related to American history into digital files that could be distributed to libraries and schools on CD-ROMs. The Internet was not yet a reality, but we were already in the business of making our legacy resources widely available to students, teachers, schools and libraries across the country. When the Internet came into general use, it became far easier to make these resources available throughout the United States and beyond.

I gave a small group of people the assignment of sharing our collections with people everywhere. I found talented, energetic staff to work on the assignment, and I focused on results. I believed then, as I believe now, that incrementalism cannot lead to transformation. I urged the staff to be bold, to think big, and to deliver programs and products that were worthy of the National Library. When I set the ambitious goal of converting five million items to digital form, I did not know if that could be done, but the staff responded to the challenge, and with that accomplishment behind them, they have continued to find innovative ways to deliver “champagne” to the world.

Now, the Library’s Web site contains more than 15.3 million primary documents that are freely accessible and are both historically important and interesting. We have created educational resources for teachers that make this National Digital Library/American memory material more useful in the K-12 community. We have added cultural materials – poetry, music, and the performing arts – to our already robust online American historical collections. We have also established the World Digital Library in collaboration with UNESCO, which we will put online next week with commentary in seven languages and including cultural examples from every country in the world. This multi-medial Web site is aimed at promoting inter-cultural understanding among young people, especially.

The Law Library has developed the Global Legal Information Network, a public database of more than 150,000 laws, regulations, judicial decisions, and other complementary legal sources contributed by 32 member nations and international organizations.

In the mid-1990s Congress directed the Library to establish a public website of Congressional legislative information. THOMAS is the Nation’s primary public source of information about the public legislative documents and the work of Congress. The Congressional Research Services’ Legislative Information System was developed solely for use by the Congress and its staff to provide access to information on past and current legislation through all facets of the legislative process. The Copyright Office has developed an online public system for copyright registration. The National Library Service for the Blind and Physically Handicapped is transitioning to digital machines and books in a national network that serves 800,000 Americans.

With all these efforts underway, the Library has been transforming activity in almost all its varied internal processes to account for the increasing creation of knowledge in exclusively digital formats. All of this change has been accomplished with 1000 fewer FTEs than in 1992.

These achievements of Library managers and staff give me confidence in the Library’s ability to continue to chart a clear path ahead and effectively execute transformative change.

Responses to Individual Recommendations

1. Strategic Planning Process

A. Create a process to ensure that organizational strategic plans align with its strategic plan; specifically, the IT Strategic Plan should align directly with, flow from, and include the same goals as the Library Strategic Plan.

Response: Agree. We will work to ensure this alignment of organizational strategic plans and the Library's strategic plan. The Library's information technology strategic plan will have goals that support the goals of the Library's strategic plan.

The development of a unified policy on digitization will be initiated.

B. Involve line employees in the strategic planning process by having them participate in Service Unit and Support working groups to develop recommendations for the Library's strategic plan.

Response: Agree. The report notes the many actions taken to involve employees in the development of the Library's current strategic plan. We will continue our efforts in that respect and endeavor to develop new ways to encourage participation.

We have already greatly increased participation at the service unit level in strategic planning. For example, Library Services, the largest unit, involved more than 250 staff in working groups and internal discussions in developing its strategic plan.

C. Ensure that all initiatives concerning future library technology are shared Library-wide.

Response: Agree. This is already standard practice. All significant Library-wide technology initiatives are currently coordinated through the Library's Operations Committee. These include such efforts as the wireless voice network, wireless data networks, centralized workstation, security programs and the migration of e-mail systems. Other major efforts are coordinated through the Configuration Management Committee and service and support unit liaisons with Information Technology Services.

Work on the Library's enterprise architecture will require a tailored system of communication Library-wide. We are establishing mechanisms for this important effort.

D. Produce a transformation guide that contains a plan of execution to ensure that the Library moves forward as a total institution with one voice.

Response: Partially agree. I recognize the need to articulate a plan for transformation with measurable results. It is not clear from the report what would be contained in a "guide;" however regular instructional and informational documents in this area will be produced.

E. Form a cohesive, integrated and centrally managed LC Digital Strategy Plan with all the roles and responsibilities of all relevant service and support units clearly defined.

Response: Partially agree. Meeting the Library's historic mission now requires the adding of digital activity into all aspects of our operations. We best ensure this by integrating digital works into our overall strategic plans and not dealing with them as separate entities. Our digital strategy should be integrated into overall Library strategic goals and objectives. We need separate *plans* for digital aspects of our work, but one all-encompassing *strategy* for the Library as a whole.

2. IT Investment Process

A. ITS should inventory and prioritize all existing systems that require upgrade and new IT projects to create an IT portfolio. Ideally, this should also include smaller systems and purchases that fall below the Capital Threshold.

Response: Agree. The inventory work is largely being done, and ITS maintains a project registry that tracks all projects, production systems and services. It includes start dates, end dates, responsible persons, etc. All significant upgrades are handled as projects and are subject to the System Development Life Cycle and project management disciplines. Prioritization of projects will be done at the Library-wide level.

B. The Library should develop a plan to review and eliminate duplicative costs including Help Desks, Technical Liaisons in Service Units and coordinate purchases.

Response: Agree. Truly duplicative service costs, i.e. paying more than once for the same service being offered to the same unit or individual, should be eliminated. I have asked the Library's Chief Financial Officer to develop a plan to identify any duplicative costs in these areas.

Service and support units have had IT staffs since the early 1990s. They were created to support the local area networks at a time when servers were decentralized due to the immaturity and undependable nature of telecommunications networks. They were not, as the report seems to suggest, developed in response to OSI getting a disproportionate share of ITS resources.

C. All IT costs, including computer security, should be accounted for as part of the IT budgetary process.

Response: This recommendation is not clear. It appears to be aimed at the costs of certification and accreditation, which is clearly an IT cost and is currently a mandate without dedicated funds.

D. The Library should develop a cost-benefit Analysis (Analysis of Alternatives) Process for all IT investments and include risk criteria.

Response: Partially agree. This process should be applicable to new expenditures exceeding \$100,000 for systems, not including upgrades, etc.

E. The Library should develop a methodology to maintain and track all Library IT expenses.

Response: Agree. I have asked the Library's Chief Financial Officer to recommend a procedure for tracking such expenses across the Library's appropriations accounts.

F. The Library should review and plan for moving forward through the stages of the Information Technology Infrastructure Management (ITIM).

Response: Agree.

3. Organizational Structure

A. Separate the IT Support functions from OSI and establish the Office of the Chief Information Officer (OCIO) from the ITS Directorate and the other IT support functions of OSI. The CIO should report directly to the Librarian or COO with duties, responsibilities, and authority consistent with best practices.

Response: No response until further study. As noted earlier, this recommendation requires in-depth analysis to fully judge its merit. I do not want to rely simply on a best practices reference in making such an important organizational change in a one-of-a-kind institution. I will, however, note and return to this recommendation as our strategic planning and infrastructure work proceeds.

B. Endow the CIO with the authority and responsibility for overall IT strategic planning, IT capital planning, IT asset management, enterprise architecture, and to establish a customer advocate role to ensure accountability.

C. Endow the organizational function, such as IT security, with appropriate enforcement authority as well as policy responsibilities.

Response to B and C: Agree in principle. These two recommendations are similar. I agree with the desirability of central governance of key IT management. However, given the long-established IT structures in several service units, and the differences in their IT requirements, a transition to centralized governance must be carefully planned and executed so that IT systems critical to Congressional and public services are sustained during this transition. I anticipate this central governance question will be addressed in our strategic and IT planning work.

4. Enterprise Architecture

A. Follow the FSAM templates as a model for developing the architecture segments to avoid reinventing the wheel and use federal agency best practices for EA and use mainstream tools and processes.

Response: Partially agree. We will certainly continue to refer to best practices and use mainstream tools and processes for EA development. We recognize that there has been

substantial evaluation of federal EA efforts and we will take advantage of this work. The Library will review the Federal Segment Architecture Methodology (FSAM) Versions 1.1, released in mid-December, to determine the desirability of its full or partial use in our EA efforts.

B. Evaluate proposed plans for the development of an EA with EAMMF to make sure that the plans are in complete alignment.

Response: Partially agree. We will use EA metrics focused on ensuring alignment, which can include, and may largely coincide with, the EAMMF criteria.

C. Keep the process for developing an EA in line with similar agencies to avoid developing a process that is too complex or out of scope with agencies of similar size.

Response: Agree. Our processes are generally in line with that of similar agencies.

D. Include all EA costs in a single budget line item for the entire Library to avoid creating a burdensome or costly process for system owners.

Response: Partially agree. OSI will track all EA Program Office costs. Other costs can be accounted for in the Library's different appropriations, but not contained in a single budget line item in one appropriation.

E. Involve all service and support units' system/business process owners.

Response: Agree. We have established this as a primary objective of the work now underway.

5. Customer Service

A. Implement service level agreements to manage customer expectations.

Response: Partially agree. We are exploring the use of service level agreements and will look to implement several in FY2010.

B. Review the PM, SDLC, IT Security and Help Desk processes and obtain feedback from the service/support units to improve efficiency and effectiveness.

Response: Agree. This is currently taking place. The Project Management (PM), System Development Life Cycle (SLDC), security and Help Desk processes are constantly under review. The SDLC process has been revised twice since its first development. The PM process has also undergone review and updating. The IT Security Office has revised the IT Security Policy once and security directives numerous times. Most of these changes have been based upon feedback from service and support units and the experiences they have had. We agree that improvements are needed in the Help Desk area, and we are working on them now.

C. Use best practices for service management from organizations such as the Help Desk Institute and ITIL and other organizations.

Response: Agree. We are reviewing relevant guidance.

D. Instead of enhancing the current Help Desk system, implement a COTS enterprise Help Desk system that includes capabilities for customer feedback on calls, reporting on the closure rate of calls, types of calls, and other metrics. Since CRS purchased the latest version of Remedy, ITS should use the CRS contract for this or research other COTS options.

Response: Agree. Implementation of this recommendation will depend on resource availability.

E. Negotiate a new Help Desk service contract to meet the different service level requirements of all Service and Support Units to eliminate duplicative Help Desk support services.

Response: Disagree. As stated previously, we agree that truly duplicative service costs, paying more than once for the same service being offered to the same unit or individual, should be eliminated. We do believe at this time, however, that having some services provided to certain staff at the service/support unit level is desirable. Having a distributed model of services as opposed to a centralized model does not necessarily mean there are duplicative costs.

Implementation of this recommendation can be taken only after analysis that duplicative costs exist. This will be informed by the previously noted study I have asked the Chief Financial Officer to undertake (Recommendation 2.B.).

F. Develop a set of metrics for ongoing use to measure performance. These metrics should change and evolve over time as one area shows improvement; new metrics should be developed for other areas.

Response: Agree. This will be a segment of the study to improve the Help Desk.

G. Conduct regular customer survey and open information meetings.

Response: Agree. ITS has begun quarterly information meetings with IT managers from across the Library. They will look into the options and costs of conducting regular customer surveys.