IT Modernization Evaluation Report

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MEMO

Date   February 9, 2021

To   Dr. Carla Hayden
Librarian of Congress

From   Kurt W. Hyde
Inspector General

Subject   *IT Modernization Evaluation,* Report No. 2019-IT-104

This transmits our final report for the Office of the Inspector General's evaluation of the Library of Congress's Information Technology (IT) Modernization effort.

The report contains nine recommendations intended to strengthen executive oversight of the IT modernization effort, improve quality control of project management, and minimize operational and cost inefficiencies.

Based on management's written responses to the draft report, we consider four of the nine recommendations resolved (2.1, 2.3, 3.1, and 4.1). Your response provided an action plan for the implementation for those recommendation, in accordance with LCR 9-160, *Rights and Responsibilities of Employees to the Inspector General*, §6.A.

The Library disagreed with five recommendations for which we responded to each in our Executive Summary. As outlined in LCR 9-160, §7.C., we will contact the Library's audit resolution official within 15 days of the date of this report about the recommendations with which we disagree.

We appreciate the cooperation and courtesies extended by the Office of the Chief Information Officer.

cc   Principal Deputy Librarian
Chief Information Officer
Chief Financial Officer
General Counsel

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Summary

The Office of the Inspector General (OIG) engaged an independent contractor, Obsidian Global, LLC, to evaluate the Office of the Chief Information Officer's (OCIO) plan for the Library's information technology (IT) modernization efforts. Specifically, Obsidian was engaged to determine whether the Library's IT modernization plans provide a logical and measurable methodology to ensure its progress towards a modern IT infrastructure. Obsidian compared OCIO's IT modernization efforts with industry and federal best practices for project, schedule, and cost management.

Obsidian's evaluation focused on 14 IT modernization projects defined by OCIO. Obsidian did not review other OCIO activities such as the Data Center Transformation project or the IT modernization efforts of other Library Service Units[1] in this evaluation.

In December 2016, the *Program Management Improvement Accountability Act* (Act) was signed into law to improve government-wide program and project management skills. While the Library is not required to follow this Act, the law mandated that Executive Branch agencies improve government-wide program and project management skills. Based on the results of this evaluation, we believe the Library would also benefit from fully adopting these project management practices.

Obsidian makes recommendations that leverage prior work from OIG and the Government Accountability Office (GAO).[2] GAO issued a report on the Library's IT management six years ago. The Library has closed all but two of the 31 recommendations GAO made in that public report, which is a significant feat for the Library. The open recommendations pertain to the issues we address here, mainly the implementation of policies on cost estimates and project schedules. Although GAO periodically assesses the Library's attempts to close those two recommendations, the Library has not been able to take the necessary steps to satisfy GAO's requirement for appropriate implementation. This report provides a very clear analysis of the gaps that remain for the Library to achieve GAO's

approval to close the remaining recommendations. Additionally, Obsidian's evaluation made recommendations that were not duplicative of the two open GAO recommendations

What the Evaluation Found

Obsidian identified several areas in which the OCIO's Project Management Office (PMO) had taken positive steps to better align its IT modernization strategy with project management best practices. While we applaud this progress, Obsidian concluded that further improvement was needed. Most notably, greater executive focus was necessary to achieve proper alignment with industry-promulgated project management practices.

Obsidian also concluded that the Library's lack of a comprehensive IT modernization implementation plan prevented OCIO from employing a well-designed IT infrastructure modernization effort. Additionally, the absence of a comprehensive plan encumbers the Library's executive management in assessing whether its IT modernization effort is on schedule and within budget.

In its report, Obsidian reported six specific findings as follows:

1. **OCIO does not have an implementation plan for IT Modernization** – The IT Directional Plan is used as OCIO's guide for planning and implementation. The IT Directional Plan is a strategic planning document with a scope that is broader than the IT modernization effort and does not provide project-level objectives, milestones, measurable metrics, and success criterion. The absence of these metrics inhibits Library senior management from properly evaluating and managing the outcomes and budget resources dedicated to this effort.

2. **Most Key Project Management Artifacts Were Developed, but 25% Lacked Essential Information or Had Not Been Developed** – Many of the required and supplemental project management documents were missing for each of the

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[1] A separate report on the Data Center Transformation project will be released in the first quarter of FY 2021. OIG continues to perform IT modernization audits of the various Service Units.

[2] GAO-15-315, *Strong Leadership Needed to Address Serious Information Technology Weaknesses* (March 2015).

14 IT modernization projects reviewed, which inhibited PMO's ability to properly track performance. Thus, there is insufficient data to support the reports submitted to senior management, which precludes proper evaluation of the IT modernization progress and budget.

3. **Ineffective Management of Cost Estimation and Budget** – Cost estimates could not be correlated to the fiscal year 2020 budget. In addition, numerous cost estimating best practices outlined in GAO's *Cost Estimating and Assessment Guide* were not followed such as developing cost baselines.

4. **Inefficient Project Schedule Management** – Several scheduling best practices outlined in GAO's *Schedule Assessment Guide* were not followed such as developing schedule baselines. In addition, project schedules lacked sufficient detail to accurately track and manage performance, and IT Modernization project efforts were not being managed as a portfolio of projects. As a result, PMO's ability to accurately report the status, risks, and performance of IT Modernization projects to Library senior management was limited.

5. **Lack of Verifiable Goals and Success Criterion** – The OCIO had not defined verifiable goals, measurable metrics, and success criterion for the IT modernization effort. Absence of such information inhibits the ability of project managers to define proper project metrics, schedule milestones, and key performance indicators (KPIs). As such, OCIO is limited in its ability to ensure that actions align with its vision of a successful IT modernization effort.

6. **Inadequate Variance Tracking Methods** – The Library has very limited capability to track and assess project schedule and cost variances. Tracking methods used for project schedule and cost variances are limited to OCIO staff hours, which do not properly reflect cost performance to budgeted targets and performance objectives.

Recommendations

Obsidian made nine recommendations to the Library to address its findings.

Obsidian recommended OCIO make a dedicated effort to develop an IT Implementation Plan for the modernization effort. The IT Implementation Plan should continue to maintain and enhance the consistency of its KPI metrics that are specific, measureable, achievable, relevant, time-bound, and that align with OCIO business and operational objectives against which individual project performance can be measured. PMO should ensure these KPI metrics are incorporated into their processes and procedures using the applicable elements of the Project Management Institute's (PMI) *A Guide to the Project Management Body of Knowledge (PMBOK)* and GAO guidelines. In accordance with those guidelines, the plan should also be baselined.

Obsidian also recommended OCIO perform a gap analysis to determine the cost and schedule assessment principles and practices the Library still needs to implement and develop guidelines, checklists, and quality assurance process to ensure progress of each IT project can be accurately tracked and managed.

The PMO should also analyze and collectively manage the IT modernization projects with an integrated master schedule consisting of all IT modernization project efforts. This will allow for visibility and transparency into the status of all efforts and allow for the easy identification of interdependencies and how changes to a project affect the overall modernization effort.

Management Comments

In response to the draft report, Library senior management agreed with four of the nine recommendations (see OIG Appendix B and Obsidian's response in Obsidian Appendix D). The Library agreed to 1) perform a gap analysis to determine the PMBOK and GAO cost and schedule assessment principles and practices the Library needs to implement; 2) develop a monitoring and quality assurance process to ensure each IT project complies with PMBOK and GAO cost and scheduling guidelines; 3) develop a formal checklist containing best practices found in the *GAO Cost Estimating Assessment Guide*; and 4) develop

tactical project schedule management processes that align with PMBOK and GAO best practices.

However, the Library disagreed with the remaining five recommendations to 1) develop an IT Implementation Plan to facilitate the implementation of the IT Modernization effort and report outcomes, status, and budget to Library management; 2) implement specific guidelines all IT projects must follow to meet PMBOK and GAO standards such as developing a checklist containing guidelines; 3) analyze and collectively manage the IT modernization projects with an integrated master schedule (IMS) consisting of all IT modernization project efforts; 4) develop IT modernization goals and success criterion to align with the OCIO's business goals and objectives; and 5) track project cost variance in a manner that meets the OCIO's business objectives.

As outlined in LCR 9-160, §7.C., we will contact the Library's audit resolution official within 15 days of the date of this report about the recommendations with which we disagree.

OIG's Response

We are concerned that the Library has disagreed with five of the nine recommendations. Our role is to highlight operational inefficiencies that could also have an impact on cost. Data collected by GAO and PMI has shown that these guidelines are good practices to minimize operational and cost inefficiencies. Additionally, OIG previously stated that the Library's top executives and service unit managers need to develop better programmatic implementation skills that comport to best practices.

In its technical comments to the draft report, the Library disagreed with recommendations 1.1 and 4.2 stating the modernization projects were not related enough to have a separate, overarching, IT implementation plan and that OCIO does not manage IT modernization as one program but as separate IT modernization projects. The Library also disagreed with recommendation 5.1 to develop IT modernization goals and

success criterion to align with the OCIO's business goals and objectives in order to ensure the IT modernization effort achieves OCIO's stated objectives. The Library cited it will not implement this recommendation because there is not a single IT modernization effort. We disagree.

GAO's *Schedule Assessment Guide* highlights the usefulness of creating an IMS from individual projects that are within the purview of a single client, share resources, and yet have no logic dependencies between them.[3] Collectively, the projects that make up the Library's IT modernization effort are intended to provide the Library with a nimble, future-focused and modernized IT capability and management that enables the more efficient execution of its mission.

The Library disagreed with recommendation 2.2 to implement specific guidelines that all IT projects must follow to meet PMBOK and GAO standards. The Library stated that this recommendation was duplicative of a prior OIG report on Copyright IT modernization.[4] We disagree. The Copyright IT modernization report was focused on a narrow area of agile software development. This report on the Library's overall IT modernization approach shows the Library needs to have greater leadership and quality assurance over its PMO approach to better achieve its desired results.

The Library also disagreed with recommendation 6.1 that the Financial Service Directorate (FSD) track project cost variance in a manner that meets the OCIO's business objectives—citing it as a duplicative recommendation from the Copyright IT modernization report. We disagree. The scope of the Copyright IT modernization report was limited to the Copyright Office's IT Modernization Plan. FSD stated it is working towards a future state that will allow better cost accounting via a new software implementation that will allow for better cost accounting of IT projects. While we believe this is good

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[3] See case study 3 of GAO's *Schedule Assessment Guide*, GAO-16-89G, December 2015.

[4] 2018-IT-107, *Library Working through Agile Delivery Method Challenges for Copyright IT Modernization Project*, August 2019.

progress, the imperative in the interim is to have cost accounting procedures in place that can close the gap while the ideal solution is being designed. For example. FSD can issue policies and procedures on cost identification and collection/recording, as well as using manual solutions in the interim. Currently, FSD does not have good cost information for proper cost variance analysis.

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OIG Appendix A: Obsidian Global, LLC's Report, *IT Modernization Evaluation Report*

OIG Appendix B: Management Response

MEMORANDUM

DATE   January 13, 2021

TO   Kurt Hyde, Inspector General

FROM   J. Mark Sweeney, Principal Deputy Librarian of Congress

SUBJECT Management Response to OIG report 2019-IT-104, IT Modernization Evaluation

The Library of Congress (Library) has been working diligently to address findings and recommendations raised by the Government Accountability Office (GAO) and the Office of the Inspector General with respect to information technology (IT) project management and costing for the Library's IT projects. We know the Office of the Chief Information Officer (OCIO) has made significant progress in establishing and refining the Library's digital strategy and implementing IT investment policies that impose executive-level accountability and decision-making and establish linkages among budget, resources, and both Library and service unit-specific business needs. OCIO continues to mature those policies as well as the IT project management processes and IT infrastructure. Moreover, the Financial Services Directorate's directional plan acknowledges the relevance of Library-wide standards for program costing and, in conjunction with findings in the annual financial audit, has been working to develop an integrated master plan that includes processes to address complex financial reporting as well as guidance on costing as appropriate for the Library.

In general, we do not believe the report reflects the real progress made by the Library to date or OCIO's substantial ongoing efforts to resolve existing audit findings with GAO and your office. Notably, there is a fundamental difference between the auditor's and the Library's definitions of "IT projects." As further discussed in the attached, IT modernization at the Library spans varying service units and systems that cannot be treated as a monolithic project and, therefore, requires more narrowly-defined implementation plans. Accordingly, the OCIO directional plan does not serve as an implementation plan and the auditor's findings and recommendations that suggest the Library create a single schedule or plan to encompass all modernization efforts overlook the Library's business needs and strategic planning efforts to date. Moreover, we strongly disagree with including recommendations that involve topics already being addressed from prior, related, audits. Not only is there a difference of opinion regarding how the Library should treat IT Modernization, but audits that have been performed by different entities could result in conflicting opinions that adversely affect the Library's

ability to implement such recommendations successfully or efficiently. The attached chart highlights specific disagreements with key findings and recommendations and provides responses to individual recommendations.

Attachments

cc: Bernard A. Barton, Jr., Chief Information Officer
        Mary Klutts, Chief Financial Officer
        Edward Jablonski, Chief Operating Officer
        Elizabeth Pugh, General Counsel

Finding #	Finding	Rec#	Recommendation	Resp. Office	Comments	Target completion
1	**OCIO does not have an implementation plan for IT Modernization:** As a strategic planning document, the 2019 OCIO IT Directional Plan5 is inadequate for use as the IT modernization effort's implementation and execution guide. *OCIO does not refer to and does not consider the IT Directional Plan as the "implementation plan and execution guide" for IT modernization. Each project that referenced in the IT Directional Plan has its own implementation plan.*	1.1	OCIO should make a dedicated effort to develop an IT Implementation Plan for the modernization effort. The IT Implementation Plan should continue to maintain and enhance the consistency of its KPI metrics that are specific, measureable, achievable, relevant, time-bound, and that align with OCIO business and operational objectives against which individual project performance can be measured. PMO should ensure these KPI metrics are incorporated into their processes and procedures using the applicable elements of the PMBOK and GAO guidelines. In accordance with those guidelines, the plan should also be baselined.	OCIO	The Library will not implement this recommendation as drafted, but has provided the OIG evidence of implementation plans for Library-defined IT projects. The CIO disagrees with the finding and associated recommendation, because the modernization projects are not related enough to have a separate, overarching, IT Implementation plan. This takes place through the strategic planning and budget processes. The Library does not manage IT Modernization as one program but instead separate IT modernization projects.	n/a
2	**Some Projects Artifacts Were Missing Essential Information:** Key project documentation, as specified in the PMO's Project Classification Worksheet, was not provided for all IT Modernization project efforts.	2.1	The OCIO should perform a gap analysis to determine the PMBOK and GAO cost and schedule assessment principles and practices the Library still needs to implement.	FSD/OCIO	Agree. The Library plans to do an cost benefit analysis/return on investment determination for aspects of the PMBOK/GAO cost and schedule assessment principles and practices, in addition to the gap analysis. Based on that analysis and determination, the Library will choose which aspects of the PMBOK and GAO cost and schedule principles and practices to implement.	Q4/FY22
		2.2	The OCIO should implement specific guidelines that all IT projects must follow to meet PMBOK and GAO standards. For example, the Library could require that each project complete a checklist containing the specified guidelines.	OCIO	This is a duplicate finding from OIG audit report 2018-IT-107, Library Working Through Agile Delivery Method Challenges for Copyright IT (Finding #5). The Library will not implement the recommendation as drafted in this report, because OCIO has already provided evidence to the OIG of implementation of IT project checklists pursuant to prior report recommendations. For example, the Library submitted the project charter template, which included a draft checklist, to the OIG in January 2020 that demonstrated the prior recommendations had been implemented. OCIO disagrees with the current finding to the extent it inaccurately describes the existing project documentation and misrepresents past agreements between the Library and OIG that OCIO need not update past, completed, IT project documents. The Library now requires project charters to include a checklist (page 5 of the project charter template) as part of the formal project charter review and signoff. This evidence was submitted January 23, 2020 in response to Recommendation #10 in audit 2018-IT-107.	n/a
		2.3	The OCIO should develop a monitoring and quality assurance process to ensure that each IT project complies with PMBOK and GAO cost and scheduling guidelines, as adopted by the Library.	OCIO	Agree.	Q2/FY22

3	**Ineffective Management of Cost Estimation and Budget:** Cost estimates were not provided for all IT Modernization Project efforts and could not be correlated to the fiscal year 2020 budget. Numerous cost estimating best practices outlined in the GAO Cost Estimating and Assessment Guide were not followed.	3.1	Obsidian recommends developing a formal checklist that contains the GAO Cost Estimating Assessment Guide's best practices for Project Managers to follow when developing, executing and maintaining project costs.	FSD/OCIO	Agree. FSD and OCIO will work together to develop a formal checklist.	Q4/FY21
4	**Inefficient Project Schedule Management:** Several schedule best practices outlined in GAO Schedule Assessment Guide were not followed, project schedules lacked sufficient detail to accurately track and manage performance, and IT Modernization project efforts are not being managed as a portfolio of projects. *The Library disagrees with "IT Modernization project effort are not being managed as a portfolio of projects." The modernization projects are part of the OCIO portfolio of projects. The Library does not manage IT Modernization as one program with a single integrated master schedule because there is insufficient inter-dependencies between the projects.*	4.1	OCIO should undertake a dedicated effort to develop tactical project schedule management processes that align with the best practices for project schedule management as outlined in the PMBOK Knowledge Area – Project Time Management, and the GAO Schedule Assessment Guide to determine if the IT modernization project schedules provided sufficient detail to accurately track and manage performance.	OCIO	Agree. The Library will develop tactical project schedule management processes that align with the best practices for project schedule management as outlined in the PMBOK and the GAO Schedule Assessment Guide.	Q4/FY21
		4.2	The PMO should analyze and collectively manage the IT modernization projects with an IMS consisting of all IT modernization project efforts. This will allow for visibility and transparency into the status of all efforts and allow for the easy identification of interdependencies and how changes to a project affect the overall modernization effort.	OCIO	The Library will not implement the recommendation as drafted. The CIO disagrees with the recommendation, because the modernization projects are not related enough to manage as a program with an integrated master schedule.	n/a
5	**Lack of Verifiable Goals and Success Criterion:** The OCIO has not defined verifiable goals, measurable metrics and success criterion for the IT modernization effort. *Disagree. OCIO does not consider the IT modernization effort as one large project or program but instead separate IT modernization projects. The IT modernization projects referenced in this audit do have defined verifiable goals, measurable metrics and success criterion per the Library's PMLC directive.*	5.1	OCIO IT modernization goals and success criterion should be developed to align with the OCIO's business goals and objectives to ensure the IT modernization effort achieves OCIO's stated objectives.	OCIO	The Library will not implement the recommendation as drafted, because the CIO disagrees with the findings and the audit premise that there is a single IT modernization effort. All IT modernization projects are aligned with OCIO's business goal and objectives which the project charters align to the goals in the IT Directional Plan. The IT modernization projects referenced in the report align with Goal #3, Deliver Business-Driven Capabilities in the IT Directional Plan.	n/a
6	**Inadequate Variance Tracking Methods:** Tracking methods used for project schedule and cost variances are limited to OCIO FTE hours, which do not properly reflect cost performance to budgeted targets and performance objectives. *Disagree. This is a duplicate finding from OIG audit report 2018-IT-107, Library Working Through Agile Delivery Method Challenges for Copyright IT (Finding #1).*	6.1	FSD, working with OCIO, should track project cost variance in a manner that meets the OCIO's business objectives.	FSD/OCIO	This is a duplicate recommendation from OIG audit report 2018-IT-107, Library Working Through Agile Delivery Method Challenges for Copyright IT (Finding #1). OCIO disagrees with the underlying cause identified by the auditor and notes the PMO has metrics and KPIs relating to project scope, schedule, and cost. Moreover, in response to prior audit findings, FSD is currently evaluating an optimal future state around cost management including both cost estimation and cost accounting, and the necessary policy and procedures, as well as identifying necessary staff and functional changes to enable the recommendations for FSD's modernization.	n/a