

Library Services Needs to **Strengthen Its** Performance Measurement **of the** Collection Services Work**flow**

PUBLIC RELEASE

**OFFICE OF
INSPECTOR GENERAL
LIBRARY**
LIBRARY OF CONGRESS

2018-SP-101
August 2019



This page left blank intentionally

MEMO

Date August 14, 2019
To Dr. Carla Hayden
Librarian of Congress
From Kurt W. Hyde 
Inspector General
Subject Final Report – *Library Services Needs to Strengthen Its Performance*
Measurement of the Collection Services Workflow, Report No. 2018-SP-101

This transmits our report for the Office of the Inspector General's evaluation of the Top Management Challenge related to collections storage. The executive summary begins on page *i* and the full text of the report begins on page 1.

The Office of the Inspector General has begun conducting more formal assessments of progress made in addressing the Top Management Challenges identified in our Semiannual Reports to Congress. Consequently, we selected the collections storage area to evaluate. Our objective was to assess Library Services' capability to perform end-to-end monitoring of the effectiveness of the collections storage process and its stages, including the acquisition, processing, and storing of collection materials, across different collection formats (e.g., monographs and serials, manuscripts, music, etc.) through the use of performance measures. This included assessing activities in relation to performance targets for arrearage.

Based on management's written response to the draft report, we consider our recommendations resolved. The response was in accordance with Library of Congress Regulation 9-160, *Rights and Responsibilities of Library Employees to the Inspector General*, §6.A.

We appreciate the cooperation and courtesies extended by Library Services.

cc Principal Deputy Librarian of Congress
Deputy Librarian for Library Collections and Services
General Counsel

Summary

The Library of Congress (Library) Office of the Inspector General initiated this evaluation to assess Library Services' capability to perform end-to-end monitoring of the effectiveness of the collections storage process and its stages, including the acquisition, processing, and storing of collection materials across different collection formats (e.g., monographs and serials, manuscripts, music, etc.) through the use of performance measures. This included assessing the activities in relation to performance targets for arrearage. We have identified the collections storage area as one of the Library's Top Management Challenges since September 2011.

What the Evaluation Found

In conducting the evaluation, we determined that the Library's new strategic plan for fiscal years 2019–2023¹ offers focus and direction to Library Services' efforts to improve the collection services workflow.² The new strategic plan places greater focus than the Library's previous interim strategic plan on user access, the new plan's first goal. Further, the new plan states that the Library will make its collections, experts, and services more readily discoverable and available for users.

We also determined that Library Services needed to expand its baseline and trend data and to broaden its capability to perform end-to-end monitoring. Library Services does not yet have baseline and trend data related to fulfillment of the Library's new strategic plan because its measures are new. Library Services also needs to broaden its capability to perform end-to-end monitoring of the collection services workflow, such as by mapping business processes that are key to meeting user needs.

Library Services also needs to strengthen its capability to identify, measure, and track its inventory of unprocessed collection materials. We identified that Library Services needs to take steps to help ensure that it has a complete and accurate

inventory of unprocessed analog and electronic collection materials and to use such information for setting performance targets.

We further identified several kinds of key performance indicators that could help Library Services measure the efficiency and effectiveness of its collection services workflow. They could help Library Services measure the needs of users, facilitate collaboration internally, track costs, and track capacity utilization. Measuring performance in this manner would help the Library track progress toward achieving strategic goals and give Library Services' managers the information on which to base their management decisions.

Lastly, we concluded that our findings should be incorporated in Library Services' strategic planning activities to help ensure fulfillment of the Library's user access strategic goal and related objectives.

Recommendations

OIG made twelve recommendations across its various findings with the intent to improve Library Services' performance measurement of the collection services workflow and its monitoring of efforts in fulfillment of the Library's new user access goal.

Management Comments

The Library concurred with the report's recommendations, as shown in Appendix B. The Library recognizes the importance of refining its measurement of performance outcomes achieved through the collections services workflow.

¹ *Enriching the Library Experience, The FY 2019–2023 Strategic Plan of the Library of Congress.*

² We identified that certain principles and best practices of supply chain management were applicable to our evaluation of the collections storage area in Library Services. A supply chain is the structure through which inputs are acquired, transformed into an output, and then delivered to a customer. Using this approach, we examined Library Services'

collections storage activities as being part of a supply chain of processes that include selection, cataloging, digitization, preservation, and storage services, among other processes. We refer to these processes collectively as the collection services workflow.

This page left blank intentionally

Table of Contents

Background	1
Findings	2
The Library’s New Strategic Plan Provides Focus and Direction to Library Services’ Efforts to Improve the Collection Services Workflow	2
Library Services Needs to Expand Its Baseline and Trend Data and to Broaden Its Capability to Perform End-to-End Monitoring.....	5
Library Services Needs to Strengthen Its Capability to Identify, Measure, and Track Its Inventory of Unprocessed Collection Materials	10
Library Services Needs to Establish Key Performance Indicators That Will Help It Measure the Efficiency and Effectiveness of Its Collection Services Workflow	16
Building a Collection Services Workflow Approach Should Be a Library-Level Priority in the Library Services Directional Plan	22
Appendix A: Objectives, Scope, and Methodology	24
Appendix B: Management Response.....	26

This page left blank intentionally

Background

Collections storage has been a long-standing area of concern at the Library of Congress (Library). In 2006, the Office of the Inspector General (OIG) reported that the Library was unable to keep up with the inflow of materials, resulting in delays between acquisition and availability, books overflowing in the stacks, preservation backlogs, and the need for new storage modules every four years.³ In 2013, we reported that the Library had a backlog of 28 million unprocessed analog and digital items, an increase of almost 50 percent since fiscal year (FY) 2000. We explained that most unprocessed material is not readily available to users, and the bulk of the material lacked adequate collection controls, including bibliographic, inventory, and security controls. Bibliographic and inventory controls allow the Library to account for and track materials as well as connect users with the Library's resources. Security controls, such as marks and labels, are applied to newly acquired materials to help protect the collections from theft. The lack of these controls increases the risk of material being stolen, lost, or forgotten.⁴ OIG has also issued several other reports related to collections storage issues.⁵ As a result of our various findings, OIG has named the collections storage area one of the Library's Top Management Challenges since September 2011. We initiated this evaluation in September 2018 to assess progress being made to address the collections storage top management challenge.

As part of our planning for this evaluation, we identified that certain principles and best practices of supply chain management were applicable to our evaluation of the collections storage area in Library Services. A supply chain is the structure through which inputs are acquired, transformed into an output, and then delivered to a customer.⁶ Using this approach, we examined Library Services' collections storage activities as being part of a supply chain of processes that include selection, cataloging, digitization, preservation, and storage services, among other processes.⁷ We refer to these processes collectively as the collection services workflow. Collection services are critical because they help to make collection materials accessible to users.

³ *The Library's Collections Acquisitions Strategy: Effective, but Some Improvements Are Needed*, 2006-PA-104, December 2006.

⁴ *The Library Collects Extensively but Faces Increasing Challenges in Processing, Controlling, Storing, and Making Accessible All it Collects*, 2013-SP-102, September 2013.

⁵ *Survey of Collections Access, Loan, and Management Division Service*, 2007-PA-101, March 2007; *Collections Access, Loan, and Management Division: Follow-up Review of the Not-on-Shelf Rate*, 2011-PA-107, May 2011; *Asian Division: Opportunities Exist to Improve the Security and Management of the Asian Division Collections*, 2011-PA-108, September 2012; *The Library Needs to Determine an eDeposit and eCollections Strategy*, 2014-PA-101, April 2015; *The Prints and Photographs Division Effectively Tracks Its Materials, But Needs to Assess the Risks Associated With Its Growing Quantity of Materials Not Fully Processed*, 2014-PA-106, August 2016; and *Analysis of Library of Congress Information Technology Storage Infrastructure*, 2015-IT-104, March 2017.

⁶ Sterman, J. D. (2000). *Business Dynamics: Systems Thinking and Modeling for a Complex World*. Boston: Irwin.

⁷ For background information related to applying the supply chain perspective to collection services, see: Wang, Z. (2017). *Supply Chain Management for Collection Services of Academic Libraries; Solving Operational Challenges and Enhancing User Productivity*. Cambridge Mass.: Chandos Publ.

Findings

In conducting the evaluation, we determined that the Library has made progress in improving its strategic planning. We identified the Library's new strategic plan as offering focus and direction to Library Services' efforts to improve the collection services workflow. In terms of making further progress, we determined that Library Services needed to expand its baseline and trend data and to broaden its capability to perform end-to-end monitoring. We also think Library Services needs to strengthen its capability to identify, measure, and track its inventory of unprocessed collection materials. We further identified several kinds of key performance indicators that will help Library Services measure the efficiency and effectiveness of its collection services workflow. Lastly, we concluded that the collection services workflow approach, as outlined in the second, third, and fourth findings, should be incorporated as a Library-level priority in Library Services' directional plan to help ensure fulfillment of the goals and objectives of the Library's strategic plan, particularly the goal to expand user access.

The Library's New Strategic Plan Provides Focus and Direction to Library Services' Efforts to Improve the Collection Services Workflow

The Library's release of a new strategic plan for FYs 2019–2023⁸ on October 1, 2018, was an important development that impacts the collections storage top management challenge. The new strategic plan places greater focus than the Library's previous interim strategic plan for FYs 2016–2020 on user access, as demonstrated by the new plan's first goal – “Expand Access[:] Make our unique collections, experts, and services available when, where, and how users need them.” Further, under the goal's first objective, the new plan states that the Library will make its collections, experts, and services more readily discoverable and available for users. In the previous strategic plan, “access” was couched in a strategy among other collection services: “Acquire, describe, preserve, secure, and provide access to a universal collection of knowledge, and the record of American's creativity.” OIG has stated previously that the Library needs to prioritize identifying and addressing the needs of users as part of strengthening its strategic planning and performance measurement. We have stressed that the Library needs to know how its services look and feel from its users' perspectives, whether they are Members of Congress, customers of the Copyright Office, or academic researchers delving into the Library's collection materials.⁹ As outlined in this report, the

⁸ *Enriching the Library Experience, The FY 2019-2023 Strategic Plan of the Library of Congress.*

⁹ *Continued, Persistent Focus Needed to Strengthen the Library's Strategic Planning and Performance Management, 2018-SP-103, July 2018.*

new strategic plan's focus on user access provides Library Services with direction on addressing the collections storage top management challenge.

After the creation of the Library's new strategic plan, the Library's service units have been tasked with creating directional plans. According to the Strategic Planning and Performance Management Office (SPPM), the directional plans are expected to set the units' goals in service to the Library's strategic plan and to the units' unique missions. SPPM further noted that, importantly, the plans also identify the critical work to be performed towards those goals. Unit priorities are presented as being either at the Library- or unit-level, and described in terms of desired impact, projected timeframe, and what will be measured to track progress. Requiring service units to complete directional plans is new; some service units created similar plans in the past, but not all service units were required to do so. According to this new approach, the directional plans will speak to what each unit is doing to track progress to and ultimately realize the Library's strategy, as explained by SPPM. We have stated previously that creating directional plans to implement the Library's overall strategic plan is in line with federal government standards for strategic planning.¹⁰ Library Services provided OIG with its directional plan near the end of our fieldwork for this evaluation. Our preliminary observations about the plan are provided in this report.

Given the new strategic plan and its relevance to collections storage, the Government Performance and Results Act of 1993 (GPRA)¹¹ holds a special significance for this evaluation. GPRA was the centerpiece of a statutory framework Congress put in place to address long-standing weaknesses in federal operations, improve federal management practices, and provide greater accountability for achieving results. Under GPRA, strategic plans are the starting point and basic underpinning for results-oriented management and for each agency's performance measurement efforts. GPRA requires that strategic plans contain certain key elements, such as a comprehensive mission statement, goals and objectives, and strategies to achieve the goals and objectives. The GPRA Modernization Act of 2010 (Modernization Act) was a significant enhancement of the planning and reporting framework established by GPRA and provided important tools to help agencies resolve major management challenges.¹² To date, we have emphasized the practices associated with GPRA for the Library, over those outlined in the Modernization Act, because the Library is still working to implement GPRA-related practices.¹³ The Library is exempt from GPRA and the Modernization Act as a legislative branch agency, but has historically held itself to the spirit of GPRA.

¹⁰ 2018-SP-103, July 2018.

¹¹ The Government Performance and Results Act of 1993. Pub. L. 103-62, 107 Stat. 285 (1993).

¹² The GPRA Modernization Act of 2010, Pub. L. 111-352, 124 Stat. 3866 (2011).

¹³ 2018-SP-103, July 2018.

OIG has issued several reports on GPRA-related issues, including the implementation of performance-based budgeting,^{14,15} development of credible performance data,¹⁶ and implementation of Modernization Act-related principles.¹⁷ Most recently, OIG examined the Library's strategic planning and performance management activities.¹⁸ The Inspector General also testified before the Committee on House Administration on strategic planning and performance management in July 2018.¹⁹

¹⁴ *Performance-Based Budgeting at the Library: A Good Start, but Much Work Remains*, 2004-FN-502, October 2006.

¹⁵ *Working Toward the Spirit of GPRA - Library Services: Commendable Progress with Room for Improvement*, 2010-PA-107, January 2011.

¹⁶ *Managing in the Spirit of GPRA: Developing Credible Performance Data is the Next Step*, 2009-PA-104, March 2010.

¹⁷ *Working Toward the Spirit of the Government Performance and Results Modernization Act*, 2013-PA-101, March 2013.

¹⁸ 2018-SP-103, July 2018.

¹⁹ *Oversight of the Library of Congress' Strategic Plan: Part 2*, testimony of Inspector General Kurt W. Hyde, July 25, 2018.

Library Services Needs to Expand Its Baseline and Trend Data and to Broaden Its Capability to Perform End-to-End Monitoring

Library Services needs to expand its baseline and trend data to effectively demonstrate that it is achieving progress on the Library's new strategic plan. Broadening its capability to perform end-to-end monitoring of the collection services workflow will help Library Services identify opportunities for improvement and to understand performance problems.

Library Services Needs to Expand Its Baseline and Trend Data Through the Use of Outcome-Oriented Performance Measures

Library Services does not yet have baseline or trend data related to its fulfillment of the Library's new strategic plan. Library Services' new directional plan aligns performance measures with the goals of the Library's new strategic plan for FYs 2019–2023; we noted that Library Services' previous measures in effect for FY 2018 did not align with the strategies in the Library's interim strategic plan for FYs 2016–2020.^{20,21} The Government Accountability Office (GAO) has noted the importance of linking strategic goals with the strategies planned to achieve those goals.²² However, because the directional plan and the measures outlined in it are new, Library Services does not yet have baseline or trend data related to its fulfillment of the new strategic plan. In our future reviews related to the collection services workflow, we intend to examine the extent to which Library Services' performance measures align with and measure progress toward fulfillment of the first goal of the Library's new strategic plan to expand user access and the goal's first objective to increase the discoverability and availability of collection materials. OIG has stated previously that the Library needs to become more results-oriented in its strategic planning and performance management.²³

OIG has also noted previously a high ratio of output- as opposed to outcome-oriented performance strategies and targets; we recommended that the Library focus on developing more outcome-oriented performance strategies and targets.^{24,25} For this evaluation, we again identified a high ratio of output- as opposed to outcome-oriented performance measures. This was evident in

²⁰ *Library of Congress Strategic Plan, FY 2016 Through FY 2020, Serving the Congress and the Nation.*

²¹ The Library unveiled its strategic plan for FYs 2016–2020 in October 2015 as a "living plan," intended to guide the Library during a time of leadership transition and be revised once a new Librarian arrived.

²² GAO, *Managing for Results: Critical Issues for Improving Federal Agencies' Strategic Plans*, GAO/GGD-97-180, September 1997.

²³ 2018-SP-103, July 2018.

²⁴ 2010-PA-107, January 2011.

²⁵ Output measures assess how many things were produced or services provided and outcome measures demonstrate whether or not intended results are being achieved.

Library Services' FY 2018 performance measures and the FY 2019 measures in Library Services' directional plan. The FY 2019 measures were largely, if not entirely, output-oriented measures. The measures proposed for FY 2020 and later included several that could be outcome-oriented depending on how they are finalized. GAO has noted that developing outcome-oriented performance measures has been a challenge for federal agencies.²⁶ However, they are important to gauging progress made in achieving results.²⁷

As described below, there are two outcome-oriented performance measures of particular importance that are needed; they relate to measuring cycle time and the age of unprocessed collection materials. Measures related to these areas were not present among Library Services' FY 2018 performance measures or the FY 2019 measures included in the Library Services directional plan. We discuss other key performance indicators later in this report. Baseline and trend data for outcome-oriented performance measures will help Library Services identify, monitor, and report performance in fulfillment of strategic goals by comparing the baseline data with trend data over the years of the strategic plan. We have stated previously that it will take the Library years to develop and implement a more robust strategic planning framework, one that includes goals with specific and aggressive outcomes that can be used to evaluate performance using verifiable performance metrics.²⁸

From a supply chain perspective, measuring cycle time relates to analyzing how quickly a supply chain can provide a product or service to users. In the case of Library Services and the collection services workflow, this would involve the production steps completed to make collection materials accessible in fulfillment of the first goal of the Library's strategic plan to expand user access. A shorter cycle time would represent greater responsiveness to making collection materials accessible and a longer cycle time would represent less responsiveness to making them accessible. Measuring cycle time could also help Library Services monitor its vulnerability to an expanding backlog of unprocessed collection materials. If a division has a cycle time that is getting longer over time, it may be at a greater risk of having a growing backlog of unprocessed materials.

Measuring the age of unprocessed collection materials would help Library Services monitor activities in fulfillment of the first objective of the Library's user access goal: to increase the discoverability and availability of collection materials. In September 2012, we reported that many of the Asian Division's rare and valuable collection items had not been cataloged and recommended that the division pursue cataloging them to ensure the security and safety of

²⁶ GAO, *GPRAs Have Established a Solid Foundation for Achieving Greater Results*, GAO-04-38, March 2004.

²⁷ GAO, *Outcome-Oriented Metrics and Goals Needed to Gauge DOD's and VA's Progress in Achieving Interoperability*, GAO-15-530, August 2015.

²⁸ 2018-SP-103, July 2018.

these vulnerable assets.²⁹ As part of this evaluation, we learned that in following-up on our recommendation, the Asian Division has identified approximately 8,600 collection materials in its rare book and special collections that have not been cataloged; the Asian Division estimated that this quantity represented about a quarter of its entire rare collection.³⁰ The Asian Division told OIG that it does not have data on the age of these unprocessed materials generally, although division managers said that materials date back to the early 1900s. Since these rare book and special collection materials have not been cataloged, there is no bibliographic information for them in the Library's electronic Integrated Library System (ILS), according to the Asian Division; ILS is the Library's primary system for storing bibliographic data. Without being cataloged and present in ILS, system users would not be able to obtain bibliographic information about these materials and additionally may not know that these materials are available. In some cases, the Asian Division has provided descriptions of its rare and special collection materials that may not be cataloged on its website. We have previously identified unprocessed manuscripts that were decades old in 2013 and determined in 2016 that it would take approximately 40–60 years for the Prints & Photographs division to fully process its backlog of collection materials.^{31,32}

Recommendations

We recommend:

- 1) Library Services develop and implement performance measures for the collection services workflow that measure desired outcomes aligned with the first goal of the Library's new strategic plan to expand user access and the goal's first objective to increase the discoverability and availability of collection materials, including measures for analog and electronic collection materials of cycle time and the age of Library Services' inventory of unprocessed materials.
- 2) Library Services utilize baseline and trend data in measuring progress in fulfillment of the first goal of the Library's new strategic plan to expand user access and the goal's first objective to increase the discoverability and availability of collection materials.

²⁹ 2011-PA-108, September 2012.

³⁰ The 8,600 figure and the estimate that this amount was a quarter of the entire rare collection was reported by the Asian Division in its annual report entitled, *Annual Report Summary – FY2018, Asian Division*. OIG did not verify these data.

³¹ 2013-SP-102, September 2013.

³² 2014-PA-106, August 2016.

Library Services Needs to Broaden Its Capability to Perform End-to-End Monitoring of the Collection Services Workflow

According to GAO, as organizations become more results-oriented, they often find it necessary to fundamentally alter activities and programs so that they can more efficiently and effectively produce services that meet customers' needs.³³ However, for Library Services to take such steps, we believe Library Services needs to broaden its capability to perform end-to-end monitoring of the collection services workflow, such as by mapping business processes that are key to meeting user needs, which we found Library Services' divisions had not done when we conducted the fieldwork for this evaluation. The lack of such mapping hindered our ability to understand and analyze the collection services workflow.

As defined by GAO, a process map is a step-by-step description of the actions taken with a specific set of inputs to produce a set of outputs;³⁴ it can take the form of a picture or drawing of the flow of activities. Process maps provide a basis for communication and discussion about processes. See Table 1 for an example of a process map.

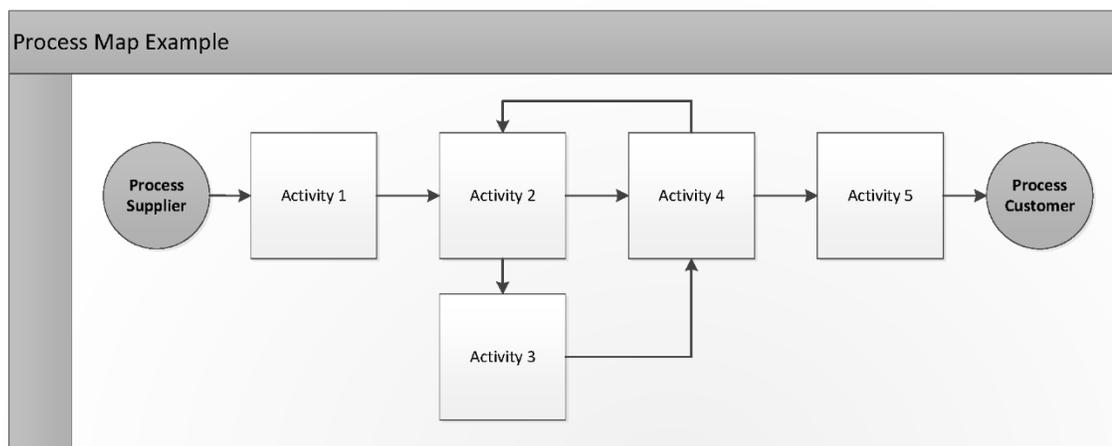


Figure 1: Process Map Example

Source: George, M.L. (2005) *The Lean Six Sigma Pocket Toolbook: A Quick Reference Guide to Nearly 100 Tools for Improving Process Quality, Speed, and Complexity*. New York: McGraw-Hill, page 40.

GAO also notes that agencies need to develop a common understanding of the processes they use to produce their products and services before they can set about to improve them; agencies can have a confusing web of interconnected processes and subprocesses, many of which cut across several functional areas.³⁵ Process maps could, for example, help share information across Library Services, foster internal benchmarking, and lead to the identification of opportunities for process improvements. Further, analyzing process maps

³³ GAO, *Executive Guide: Effectively Implementing the Government Performance and Results Act*, GAO/GGD-96-118, June 1996.

³⁴ GAO, *Fragmentation, Overlap, and Duplication: An Evaluation and Management Guide*, April 2015, GAO-15-49SP.

³⁵ GAO, *Business Process Reengineering Assessment Guide*, May 1997, GAO/AIMD-10.1.15.

can help to diagnose performance problems, which could become apparent as Library Services analyzes baseline and trend data related to cycle time and the age of unprocessed collection materials.

We concluded that process mapping, or something similar to it, is necessary for Library Services to identify, analyze, and respond to risks related to achieving the Library's strategic goals and objectives, such as the user access goal and the goal's first objective to increase the discoverability and availability of collection materials. Further, in broadening this capability, we believe Library Services would be making progress toward achieving the Library's third goal to optimize resources and two of the goal's objectives, which are to: align and strengthen capabilities across the Library to achieve optimum operational efficiencies; and share information, apply best practices, and use data across the Library to drive user-centered enhancements that will deliver the highest returns.

Identifying and documenting the use of information technology (IT) systems and/or software could pose a challenge to Library Services' process mapping activities. For example, in managing the collection services workflow, Library staff rely on bibliographic database systems and/or software programs (e.g., Microsoft Access) other than ILS. We believe Library Services should include the use of such systems and/or software in process maps because they could pose performance problems. As part of our audit of the Prints & Photographs Division, we mapped the division's acquisition process.³⁶ Our mapping highlighted that the division was reliant on a legacy electronic database for managing its bibliographic data and that it would take 8-10 years to fully migrate bibliographic records from the legacy system to ILS. However, as a result of our mapping and inquiries into the migration effort, a Library staff member was newly assigned to focus on the transfer. The Library's enterprise architecture program would most likely be helpful in addressing the needs of mapping Library Services' IT systems; the program was not examined as part of this evaluation.

Additionally, in the course of our process mapping, we identified that bibliographic data on approximately 85,000 fine print cards, 50,000 artist poster cards, and 5,000 movie poster cards had yet to be transferred to ILS. Less information about these materials was consequently available to users who attempted to review the division's collection online. This kind of condition could be identified elsewhere through process mapping and then addressed to help ensure progress on the Library's strategic goal to expand user access and the goal's first objective to increase the discoverability and availability of collection materials.

During our interviews for this evaluation, we identified similar issues in Library Services' Recorded Sound Section, which is part of Library Services' Motion

³⁶ 2014-PA-106, August 2016.

Picture, Broadcasting & Recorded Sound Division. Recorded Sound is reliant on another legacy bibliographic system that its vendor will stop supporting in 2021 and therefore will need to be replaced. We also learned that not all of the data in the legacy system are available in ILS, which could pose a risk to achieving the Library's user access goal.

Recommendation

We recommend:

- 3) Library Services broaden its capability to perform end-to-end monitoring of its collection services activities, such as by mapping business processes that are key to meeting user needs, as part of an effort to identify, analyze, and respond to risks related to achieving the Library's strategic goals and objectives. Mapping activities should include the use of IT systems and/or software programs.

Library Services Needs to Strengthen Its Capability to Identify, Measure, and Track Its Inventory of Unprocessed Collection Materials

We identified that Library Services needs to take steps to help ensure that it has a complete and accurate inventory of unprocessed analog and electronic collection materials and to use such information for setting performance targets. From a supply chain perspective, inventory backlogs are a common occurrence among libraries. The difficulty for Library Services is maintaining the right balance of such a backlog. Having too much unprocessed material means that users are being denied access. On the other hand, not having enough unprocessed materials could cause collection services to idle.

Library Services Needs a Complete and Accurate Inventory of Unprocessed Collection Materials

Library Services has made progress in identifying its inventory of unprocessed collection materials; that is, materials that lack adequate bibliographic, inventory, and security controls and are therefore at a greater risk of theft or loss. These materials are also not fully available to users. We observed during our audit of the Prints & Photographs Division that the division had not kept pace with processing new acquisitions; that it would take 40-60 years to eliminate its backlog of materials that were not fully processed; and that the Library was not reporting on this backlog along with other such materials in its *Annual Report of the Librarian of Congress (Annual Report)*.^{37,38} The

³⁷ 2014-PA-106, August 2016.

³⁸ For the relevant section of the *Annual Report of the Librarian of Congress*, see Appendix F. Statistical Tables and specifically Table 6. Unprocessed Arrearages.

Library took immediate action in response, such as taking steps to hire additional personnel to help reduce the backlog. The Library also began reporting on the division's backlog in its *Annual Reports*. As shown in the 2017 *Annual Report*, over five million pictorial items were newly added to the relevant table in the report; according to the table, the inventory of unprocessed materials totaled approximately 29.8 million items at the close of FY 2017.

However, we concluded as part of this evaluation that in order to effectively fulfill the first goal of the Library's new strategic plan to expand user access and the goal's first objective to increase the discoverability and availability of collection materials, Library Services needs more precise terminology to identify the unprocessed materials it intends to measure; we identified that Library Services' use of the term "arrearage" for performance measurement purposes hinders its ability to identify the full scope of its inventory of such materials. Library Services should use quality information to achieve its strategic goals and objectives.

Library Services has historically reported on its unprocessed analog collection materials in a statistical table located in the appendix of the Library's *Annual Report*. The table is entitled "Unprocessed Arrearages." The Library's documented definition is that "arrearages" refers to materials that have been "in an in-process state for longer than a reasonable amount of time..."³⁹ However, when we were completing our 2013 report, we learned that Library Services had a practice of labeling certain unprocessed material differently and was not including the material in its "arrearage" figures, which resulted in Library Services understating the amount of its arrearage.⁴⁰

Further, based on our interviews for this evaluation, we determined that Library Services managers were using the term "arrearage" and "backlog"—a related term—inconsistently when describing materials that had not yet been fully processed. As a consequence, the term "arrearage" is open to interpretation and not effective for the purposes of performance measurement. To name just a few examples of how the terms were used inconsistently, Library Services managers told us in separate interviews that "backlog" applied to materials that were awaiting processing/cataloging and "arrearage" applied to collection materials that were not; that "backlog" and "arrearage" had the same definition and therefore referred to the same materials; and that the definition of "arrearage" had been "in play" for quite some time and therefore was unclear. Based on our work in the Geography & Map Division,

³⁹ According to Library Services, "Arrearages are items that have been in an in-process state for longer than a reasonable amount of time, or which are not expected to be processed within the foreseeable future. (The in-process state begins upon the Library's receipt of the item and ends when complete processing has been accomplished.) The "reasonable" time will vary according to the item's format, the extent of processing, or other factors." This definition was taken from *Special Collection Backlogs: An Assessment of Unprocessed Arrearages at the Library of Congress*, version 1.0, September 2017, page 12.

⁴⁰ 2013-SP-102, September 2013.

we identified a four to five year “backlog” of approximately 28,000 uncataloged items that division staff said they did not consider an “arrearage” and therefore was not recorded in the *Annual Report*’s table of “Unprocessed Arrearages.” These materials had not been cataloged and, therefore, were not readily available to users.

Consequently, we believe Library Services can not be assured of having a complete and accurate inventory of unprocessed collection materials until it creates a more precise definition of arrearage that it applies consistently across all areas within Library Services. Library Services needs to apply this more precise definition to the Geography & Map Division and other areas to potentially identify additional collection materials that should be tracked. For example, the approximately 8,600 uncataloged rare book and special collection materials in the Asian Division, which division managers referred to as an “arrearage,” may also need to be tracked in the *Annual Report*’s “Unprocessed Arrearages” table; the Asian Division’s managers told us they thought a new category of materials would be needed to represent the division’s arrearage in the table.⁴¹ As discussed in greater detail in the following section, we believe that taking this approach is necessary for Library Services to effectively measure progress towards fulfilling the Library’s user access goal and its first objective to increase the discoverability and availability of collection materials.

We also determined as part of a recent audit of the Library’s Rio de Janeiro field office that the field office was storing approximately 21,000 items collected from Brazil and the immediate geographic area that had yet to be fully processed. The amount of such materials has risen year-over-year for several years. Based on our review of Library Services’ current definition of arrearage, it was unclear whether the term “arrearage” should be applied to the “backlog” of 21,000 items at the Rio de Janeiro field office or not. OIG did not assess whether there were additional unprocessed materials being stored in the Library’s five other field offices in Cairo, Islamabad, Jakarta, Nairobi, and New Delhi, but we plan to do so in our future audits of these field offices.

Our evaluation did not set out to identify quantities of unprocessed collection materials, whether considered part of a “backlog” or an “arrearage.” This was not a step we established as part of planning our fieldwork activities. Nonetheless, it is worth noting that the quantities of such materials we did identify—the 28,000 in the Geography & Map Division, the 8,600 in the Asian Division, and the 21,000 in the Rio de Janeiro field office—are a small fraction of the approximately 29.8 million “arrearage” items already identified in the Unprocessed Arrearages table of the *Annual Report*.

⁴¹ The Asian Division’s managers explained to OIG that the count was performed at a title or case level and not at an item level; a title or case can have multiple items. Therefore, the 8,600 count understates the size of the division’s arrearage at the item level.

We believe Library Services also needs to start tracking unprocessed electronic collection materials, as opposed to just the analog materials currently being tracked. In addition to the goal to expand user access in the Library's new strategic plan, the Library's Digital Strategy for FYs 2019–2023 states that the Library will “throw open the treasure chest,” make digital materials “available and accessible to more people,” and “expedite the availability of newly acquired or created [digital] content to the web and on-site access systems.” However, OIG determined that Library Services is not tracking the amount of its unprocessed electronic collection materials across divisions. We believe that as the Library's digital content grows, which has been happening exponentially on a yearly basis, the challenge associated with processing these materials and making them readily available to users may increase commensurately. The challenge may already be sizable. At the end of FY 2017, the Packard Campus Data Center housed 523 terabytes of unprocessed electronic collection materials comprised of about 700,000 files.

Recommendations

We recommend:

- 4) Library Services create a more precise definition of “arrearage” that it applies consistently across all areas within Library Services to help ensure that it has a complete and accurate inventory of unprocessed *analog* collection materials.
- 5) Library Services create a complete and accurate inventory of unprocessed *electronic* collection materials.

Library Services Needs to Establish Performance Targets Based on Complete and Accurate Data

Library Services needs performance targets based on complete and accurate performance data to effectively measure progress towards fulfilling the Library's user access goal and its first objective to increase the discoverability and availability of collection materials.⁴² As part of its FY 2019 Budget Justification, the Library established an outcome-oriented performance target to reduce the amount of Library Services' special collections arrearage from 16 to 10 percent of special collections material overall by FY 2028.⁴³ However, the target should be reexamined once Library Services creates and applies a more precise definition of arrearage for analog collection materials. Library Services may find that it has more special collections arrearage than

⁴² OIG has previously addressed the issue of needing to use quality data to implement more effective performance measurement. See 2009-PA-104, March 2010; 2010-PA-107, January 2011; and 2013-PA-101, March 2013.

⁴³ Library Services has a directorate named Special Collections that includes the following divisions: American Folklife Center, Veterans History Project, Music Division, Rare Book & Special Collections Division, Geography & Map Division, Manuscript Division, and Prints & Photographs Division.

was originally thought and therefore it cannot reach the 10 percent target by FY 2028.

Without making changes to how it measures arrearage, Library Services is at risk of appearing to make progress with regard to its performance target of reducing “arrearage,” while unprocessed collection materials labeled as a “backlog” grow and expand. This is demonstrated by our prior audit work. As part of our audit of the Prints & Photographs Division, OIG identified a 40-60 year “working backlog” of materials that had grown over time and yet was not being tracked as an “arrearage” in the *Annual Report’s* table of “Unprocessed Arrearages” until we identified this as an issue. Also, as referenced above, the Geography & Map Division’s four to five year “backlog” was not being tracked as an “arrearage” in the *Annual Report’s* table.

Library Services should also set a target for reducing the amount of its unprocessed *electronic* collection materials after creating a complete and accurate inventory of such materials. We acknowledge the potential difficulty of setting a performance target for electronic collection materials given copyright-related issues and other challenges associated with making such materials accessible to users. However, Library Services should work towards setting this kind of performance target since it is necessary to measure progress towards accomplishing the user access goal.

OIG has not taken a position on what the targets for reducing the quantity of unprocessed analog or electronic collection materials should be. We recognize that backlogs of unprocessed materials are common in museums and archival libraries.

One of the benefits of using performance targets for measuring progress is that they can prompt management to respond when data show that the target is not being met. For example, if Library Services is not making progress in line with reaching a target, then management can take action to reduce the risk of not meeting its objective. A target could also prompt Library Services to more carefully consider its trade-offs and investment decisions in fulfillment of the Library’s goal to expand user access, such as when choosing between investments in selection, cataloging, digitization, preservation, and/or storage services. Strategic planning, at its most basic level, is a set of choices and trade-offs about where to invest limited resources. This means every “yes” to an idea or initiative requires a “no” to several others in order to secure the success of the first initiative. Limiting the number of commitments requires

focusing resources on priorities and intentionally deprioritizing other efforts.⁴⁴ Otherwise, the implementation process is likely to fail.⁴⁵

Recommendations

We recommend:

- 6) Library Services use complete and accurate data to establish an outcome-oriented target for reducing the size of its inventory of unprocessed *analog* collection materials (e.g., using a ratio of unprocessed analog materials to analog collection materials overall) and use the target to measure performance.
- 7) Library Services use complete and accurate data to establish plans to set an outcome-oriented target for reducing the size of its inventory of unprocessed *electronic* collection materials (e.g., using a ratio of unprocessed electronic materials to electronic collection materials overall).

⁴⁴ Carucci, Ron, "Executives Fail to Execute Strategy Because They're Too Internally Focused," *Harvard Business Review*, October-November, 2017.

⁴⁵ Vermeulen, Freek, "Many Strategies Fail Because They're Not Actually Strategies," *Harvard Business Review*, October-November, 2017.

Library Services Needs to Establish Key Performance Indicators That Will Help It Measure the Efficiency and Effectiveness of Its Collection Services Workflow

The focus of this section is on measuring the performance of the collection services workflow and on Library Services managing performance to address the needs of users, facilitate collaboration internally, monitor costs, and track capacity utilization. GPRA incorporates performance measurement as one of its most important features. According to GAO, agencies can use performance information to identify problems or weaknesses in programs, to try to identify factors causing the problems, and to modify a service or process to try to address problems.⁴⁶ Measuring performance in this way would help the Library track progress toward achieving strategic goals and give Library Services' managers the information on which to base their management decisions.

Library Services Needs to Focus on Measuring User Needs as They Relate to the Collection Services Workflow

From a supply chain perspective, the fundamental goal of the supply chain is to satisfy user needs, which for Library Services includes Congressional staff, scholars, researchers, and learners generally. Library Services focuses on users in many different ways, but we believe it ought to consider how effectively the collection services workflow addresses user needs in outcome-oriented performance measures. We did not identify any outcome-oriented performance measures related to satisfying user needs among Library Services' FY 2018 performance measures or the FY 2019 measures included in the Library Services directional plan. For example, one user-focused issue OIG has evaluated in the past is the percentage of materials identified as being "not-on-shelf" (NOS). This applies to collection materials requested by users that Library Services staff can not find during an initial search. When an item is NOS, Library Services staff perform additional searches, which causes a misplaced use of resources, a delay in the delivery of the item to the user, and a hindrance to achieving the Library's goal of expanding user access.⁴⁷

For this evaluation, as noted in a previous section, we identified that Library Services had established an outcome-oriented performance target related to expanding user access in its FY 2019 Budget Justification. The Library

⁴⁶ GAO, *Managing for Results: Enhancing Agency Use of Performance Information for Management Decision Making*, GAO-05-927, September 2005.

⁴⁷ *Survey of Collections Access, Loan, and Management Division Service*, 2007-PA-101, March 2007 and *Collections Access, Loan, and Management Division, Follow-Up Review of the Not-on-Shelf Rate*, 2011-PA-107, May 2011. We reported in 2011 that the NOS rate for the sample we evaluated was 7.9 percent; this was down from the 12.7 percent NOS rate we identified in 2007.

requested and Congress authorized approximately \$4 million and 40 full time equivalent employees to reduce Library Services' backlog of unprocessed material among its special collection divisions. The performance target outlined in the budget request was to reduce the amount of special collections unprocessed material from 16 percent to 10 percent by FY 2028. Although we identified issues related to the quality of the data underlying this target, as noted earlier, we consider this an important outcome-oriented performance measure because reducing Library Services' backlog of unprocessed material would have a positive impact on expanding user access in fulfillment of the first goal of the Library's new strategic plan and the goal's first objective to increase the discoverability and availability of collection materials.

There are many ways to gather data about what users value most: conducting surveys, interviewing users, sponsoring focus groups, etc. This data can then inform Library Services on what metrics to employ in measuring the performance of its collection services workflow. OIG has stated previously that the Library should prioritize the needs of customers as part of strengthening its strategic planning and performance management.⁴⁸ Further, as stated in the fourth goal of the Library's new strategic plan for FYs 2019–2023, the Library intends to measure how effectively it delivers services to users and that having such data will allow the Library to gain insight into how to operate more efficiently and effectively.⁴⁹ As part of this effort, Library Services may determine that user expectations differ according to format and/or collection, which could then inform different approaches to targeting limited resources to expand user access and increase the discoverability and availability of its collection materials.

Recommendation

We recommend:

- 8) Library Services establish outcome-oriented measures focused on its performance related to meeting user needs associated with the collection services workflow.

Library Services Needs a Cross-Organizational Approach to Performance Measurement that Facilitates Collaboration

Based on a review of the 2018 Library Services performance measures, OIG observed that the Preservation Directorate was being assessed in a performance measure for collection services that spanned across multiple units within Library Services. The measure was related to optimizing storage space and planning for future collection growth and was assigned to the

⁴⁸ *Office of the Inspector General Semiannual Report to Congress*, March 2017. See the section entitled Top Management Challenges.

⁴⁹ *Enriching the Library Experience, The FY 2019-2023 Strategic Plan of the Library of Congress*, page 25.

Preservation Directorate. However, the authority and resources to acquire the collection materials that fuel collection growth and create storage needs are held by other organizational units. Alternatively, a supply chain approach would emphasize the collection services workflow and all the factors affecting it that span across different silos. This approach would involve taking into account the activities of all Library Services organizational units that acquire collection materials, in addition to the preservation and storage-related activities performed by the Preservation Directorate, when assessing performance related to optimizing storage space and planning for future collection growth. Managing the workflow in this manner would help to break down silos and facilitate collaboration because organizational units would be more dependent on each other for success as measured by the performance management system. It could also facilitate communication among units about how to make difficult trade-offs and investment decisions in fulfillment of the Library's goals and objectives.

OIG and the Library have already identified the need for a cross-organizational approach to performance measurement. In discussing the collections storage top management challenge in our March 2017 Semiannual Report to Congress, we stated that the Library needed a system-wide approach that marries the Library's acquisition efforts to its ability to process, make accessible, and store collections material.⁵⁰ Also, under Librarian Hayden's leadership, high-level executives are discussing the status of high priority cross-Library annual performance goals (APGs) at monthly Executive Committee meetings; this was not happening previously. As reported by OIG previously, SPPM told OIG that this practice facilitates communication among executives responsible for APGs that cut across their service units.⁵¹ Library Services shares at least one such APG with the Office of the Chief Information Officer.⁵²

OIG noted that the FY 2019 measures included in the Library Services directional plan appeared to demonstrate a cross-organizational approach to performance measurement, but further review is needed to make a final determination. Library Services provided its directional plan to OIG near the end of our fieldwork.

⁵⁰ *OIG Semiannual Report to Congress*, March 2017.

⁵¹ 2018-SP-103, July 2018.

⁵² The APG is as follows: Support the delivery of Library content and services to patrons through multiple online channels in order to expand access to Library collections and services.

Recommendation

We recommend:

- 9) Library Services adopt a cross-organizational approach to performance measurement related to the collection services workflow that facilitates collaboration across its organizational units.

Library Services Needs to Track Costs Associated with Outcome-Oriented Performance Measures in Fulfillment of Strategic Goals and Objectives

Another important element of a supply chain approach is analyzing the costs associated with operating a supply chain. This includes fixed and operating costs, such as the costs of human resources, systems, equipment, facilities, utilities, etc. The 2018 Library Services performance measures and the FY 2019 measures included in the Library Services directional plan emphasized using cost-effective methods for acquiring collection materials and not for other areas. GAO notes that linking cost with performance through the use of outcome measures infuses performance concerns into planning and budgetary deliberations, prompting agencies to reassess their goals and strategies and to more clearly understand the costs of performance. According to GAO, outcome-based performance information should be used for the allocation of resources and in deciding among competing priorities.⁵³ Using such information, program managers can compare their programs' results with goals and thus determine where to target program resources to improve performance, such as with regard to the Library's user access goal and the goal's objective to increase the discoverability and availability of collection materials.

The costs of the storage component of the collection services workflow have particular importance. As noted by OIG in our 2013 report, the Library has exceeded its analog storage capacity.⁵⁴ For example, we reported that the amount of analog collection materials being stored in the Library's historic Thomas Jefferson Building was beyond its capacity; the Preservation Directorate confirmed during this evaluation via an interview that the building's capacity continues to be exceeded. To expand capacity generally, Congress has authorized over time the construction of new storage buildings (modules); the first module opened in 2002. These modules meet the unique needs of the Library's collection materials. Preservation of Library materials requires appropriate temperature and relative humidity and different formats have different ideal temperature and humidity set points. The Library's sixth module is expected to be completed in approximately July 2021; the cost estimate for construction of the module was about \$45 million. The

⁵³ GAO-05-927, September 2005.

⁵⁴ 2013-SP-102, September 2013.

Preservation Directorate told OIG that planning for the seventh module will need to happen within the new strategic plan's FY 2019–2023 time frame.

Further, OIG has reported previously that the costs of digital storage need to be taken into consideration. As the Library's digital storage needs grow, it faces increasing staff costs, facility costs, and network management costs, and therefore the Library needs strong cost and growth controls in fulfillment of its Digital Strategy for FYs 2019–2023. For example, in situations where the cost of disk-based storage is growing at a pace that far exceeds that of archive storage cost, active archiving can be used to offload infrequently accessed data to archive storage media and reduce overall storage costs. We have also noted that at a conservative estimated digital storage growth rate of 30 percent annually, the Library's storage needs are currently expected to double about every 28 months. Continued investment will also be required to upgrade and maintain existing digital storage devices and to preserve digital content. Given that the digital material stored by the Library can be both rare and potentially in poor condition, issues such as data integrity and loss prevention are more of a concern. The data may also be retained for a period of time that exceeds the error free life of the media on which it is written. This presents a challenge in technology retention as media written using older tape technology has to be maintained at a higher cost because, for example, older replacement parts increase in price and the labor pool to support such technology decreases.⁵⁵ For these various reasons, the costs of digital storage (in addition to analog storage) need to be taken fully into account when Library Services considers trade-offs about where to invest limited resources.

Recommendation

We recommend:

- 10) Library Services track the allocation of resources associated with outcome-based performance measures for all stages of the collection services workflow for analog and electronic collection materials.

Library Services Needs to Track Capacity Utilization to Measure the Effectiveness of Its Collection Services Workflow

From a supply chain perspective, a measure of capacity utilization would help Library Services assess the effectiveness of its collection services workflow in fulfillment of the Library's user access goal and objective to increase the discoverability and availability of collection materials. OIG identified that Library Services' 2018 performance measures and the FY 2019 measures included in the Library Services directional plan were heavily reliant on output measures that did not provide a complete assessment of the

⁵⁵ *Analysis of Library of Congress Information Technology Storage Infrastructure*, 2015-IT-104, March 2017; the report was not issued for public release.

effectiveness of the collection services workflow. For example, there was an acquisition measure included in the 2018 performance measures to “expand the national collection in formats sought by users” that was tracked according to the number of items acquired. There was also a cataloging measure to “process (organize and describe) a growing number of items in the unprocessed arrears” that was tracked according to the number of items processed and a storage measure to “increase the number of Library of Congress collection items transferred to off-site storage” that was tracked according to the number of items transferred. Based on our analysis, relying on output performance data will provide incomplete information about the effectiveness of the collection services workflow.

Capacity refers to the amount of product or service a supply chain can produce in a given period of time. Capacity utilization for the collection services workflow would be the extent to which Library Services uses its maximum capacity to complete the production steps involved with making collection materials accessible to users; this would be expressed as a percentage of actual output to maximum possible output. Measuring capacity, such as at the division level, could help to indicate that investments are needed to raise capacity, especially if a division has a lower capacity and a higher backlog of unprocessed collection materials. Measuring capacity utilization could help to inform Library Services when capacity appears to not be producing effectively, which could prompt an assessment of what issues are causing production problems, such as through the use of process maps.

Recommendation

We recommend:

- 11) Library Services establish capacity utilization performance measures that track the effectiveness of its collection services workflow.

Building a Collection Services Workflow Approach Should Be a Library-Level Priority in the Library Services Directional Plan

The Library outlined a new mission and goals in its strategic plan for FYs 2019–2023 and Library Services now needs to define how it will implement them in its directional plan. Under GPRA, government agencies are to describe the operational processes, staff skills, and technologies, as well as the human, capital, information, and other resources, needed to execute a strategic plan, as noted by GAO.⁵⁶ GAO also notes that leading organizations align their activities, core processes, and resources to support their mission and achieve strategic goals.⁵⁷ OIG has previously reported on the importance of the Library establishing fully developed strategies that explain how long-term strategic goals will be achieved.⁵⁸ Along these lines, the Library Services directional plan, as defined by SPPM, will include key priorities, expressed as initiatives, activities, timelines, dependencies, and desired outcomes, that align with the Library’s strategic plan goals and objectives.

Library Services provided OIG with its directional plan near the end of our fieldwork for this evaluation. Based on our preliminary observations, Library Services has an opportunity to incorporate a supply chain perspective into its planning activities and—using the second, third, and fourth findings and related recommendations outlined in this report as a start—identify steps to improve Library Services’ performance measurement of the collection services workflow, particularly in relation to fulfilling the Library’s user access goal and related objectives. Specifically, identifying this effort as a Library-level priority in future years of the Library Services directional plan would help to organize these activities; we describe the manner in which we believe this should be done in the recommendation below. This approach is necessary for Library Services management to effectively identify, analyze, and respond to risks related to achieving the user access goal.

Recommendation

We recommend:

- 12) Library Services establish a Library-level priority in its directional plan to measure the effectiveness of the collections storage workflow, as described in the second, third, and fourth findings of OIG’s report, in fulfillment of the Library’s user access goal (and others as appropriate) to include:

⁵⁶ GAO, *Agencies’ Strategic Plans Under GPRA: Key Questions to Facilitate Congressional Review*, GAO/GGD-10.1.16, May 1997.

⁵⁷ GAO/GGD-96-118, June 1996.

⁵⁸ 2018-SP-103, July 2018.

- Defining the overall initiative, and linking it to the Library's and Library Services' goals and objectives;
- Articulating the desired longer term impact of the work;
- Determining the timespan of the initiative and its key components;
- Setting output and outcome measures, and targets for those measures, to track progress of the work over time; and
- Identifying ownership/accountability for reaching targets.

Appendix A: Objectives, Scope, and Methodology

The evaluation's objective was to assess Library Services' capability to perform end-to-end monitoring of the effectiveness of the collections storage process and its stages, including the acquisition, processing, and storing of collection materials, across different collection formats (e.g., monographs and serials, manuscripts, music, etc.) through the use of performance measures. This included assessing the activities in relation to performance targets for arrears. As outlined in the report, the Office of the Inspector General (OIG) used the Government Performance and Results Act of 1993 (GPRA) as guidance for the evaluation. The Library is exempt from GPRA, but has historically held itself to the spirit of GPRA. We also utilized past OIG reports on GPRA-related and other relevant issues and leveraged the work conducted by the Government Accountability Office (GAO); the relevant OIG and GAO reports are referenced in footnotes throughout the report. To better understand supply chain management and how it applies to libraries, we utilized the work of author Zheng (John) Wang.⁵⁹ To a limited extent, OIG also leveraged the work of authors John D. Sterman, Ron Carucci, and Freek Vermeulen.^{60,61,62} Further, every OIG Semiannual Report to Congress has identified collections storage as a top management challenge for the Library since September 2011. OIG initiated this evaluation in September 2018 and fieldwork activities were completed in June 2019.

In performing the evaluation, OIG conducted multiple interviews with members of Library Services staff, including staff members representing the Office of the Chief Operating Officer, the Motion Picture, Broadcasting & Recorded Sound Division, and Library Services' four directorates, including Acquisitions & Bibliographic Access, Special Collections, General & International Collections, and Preservation. We also interviewed staff of the Strategic Planning and Performance Management Office. For benchmarking purposes, we interviewed representatives of the National Archives Office of the Inspector General; the interview and information provided by the representatives was generally useful for planning the evaluation. OIG also utilized documentary evidence, including strategic plans, performance measures, the Library Services' organizational chart, and other documents. However, we did not utilize

⁵⁹ Wang, Z. (2017). *Supply Chain Management for Collection Services of Academic Libraries; Solving Operational Challenges and Enhancing User Productivity*. Cambridge Mass.: Chandos Publ.

⁶⁰ Sterman, J. D. (2000). *Business Dynamics: Systems Thinking and Modeling for a Complex World*. Boston: Irwin.

⁶¹ Carucci, Ron, "Executives Fail to Execute Strategy Because They're Too Internally Focused," *Harvard Business Review*, October-November, 2017.

⁶² Vermeulen, Freek, "Many Strategies Fail Because They're Not Actually Strategies," *Harvard Business Review*, October-November, 2017.

computer-processed data. All of our activities took place in the Library's Madison Building in Washington, District of Columbia.

We conducted this evaluation in accordance with the *Quality Standards for Inspection and Evaluation*, January 2012, issued by the Council of the Inspectors General on Integrity and Efficiency (CIGIE) and with Library of Congress Regulation 1-140, *Inspector General*. CIGIE's standards require that we obtain sufficient, competent, and relevant evidence to provide a reasonable basis for our findings, conclusions, and recommendations. We believe that the evidence obtained provides such a reasonable basis.

Appendix B: Management Response



Office of the Librarian

MEMORANDUM

DATE July 30, 2019

TO Kurt Hyde, Inspector General

FROM J. Mark Sweeney, Principal Deputy Librarian of Congress *Jane Sanchez, DL, LC SG*

SUBJECT Management Response to OIG report 2018-SP-101, Library Services Needs to Strengthen its Performance Measurement of the Collection Services Workflow *J. Mark Sweeney*

The Library of Congress (Library) has reviewed your report. We appreciate the Office of the Inspector General's guidance and recommendations to further refine the Library's measurement of performance outcomes achieved throughout the collection services workflow and enhance tracking and reporting on the relationship between the Library's overarching strategic goals and Library Services' directional plans.

The attached chart provides details regarding the Library's approach and schedule to resolve the recommendations in your report.

Attachment

cc: Jane Sánchez, Deputy Librarian for Library Collections and Services
Robin L. Dale, Associate Librarian for Library Services
Elizabeth Pugh, General Counsel

2018-SP-101 – LC Management Response

#	Recommendation	Comments	Target Completion
1	<p>Library Services develop and implement performance measures for the collection services workflow that measure desired outcomes aligned with the first goal of the Library's new strategic plan to expand user access and the goal's first objective to increase the discoverability and availability of collection materials, including measures for analog and electronic collection materials of cycle time and the age of Library Services' inventory of unprocessed materials.</p>	<p>Library Services agrees.</p> <p>Library Services (LS) will develop and implement performance measures for the collections services workflow (defined by OIG as including selection, cataloging, digitization, preservation, and storage processes, among others) that are aligned with the first goal and objective of the Library of Congress (LC) Strategic Plan. LS will include measures for analog and digital (electronic) items, cycle time, and the age of unprocessed materials.</p> <p>This work is dependent on interim and final results from OIG Recommendations #3 and #2 and will be iterative.</p> <ul style="list-style-type: none"> • LS will begin in FY20 by initiating and completing a biennial report on the amount of time collections in the special formats arrears have spent in arrears (LS Directional Plan Action #1.2.2.2); • In FY21 LS will include eSerials and eNewspapers digital acquisitions received via Copyright in the LC Annual Report (LS Directional Plan Action #1.1.1.2). This reporting is critical for LS to report on arrears of digital material. • The service unit will develop additional measures as progress on OIG Recommendations #3 and #2 yield new opportunities and information. <p>LS can report to the OIG on any new measures adopted at the start of each fiscal year and expects to have the ability to report on all measure types called for in these recommendations by the end of FY23.</p>	FY23

2018-SP-101 – LC Management Response

#	Recommendation	Comments	Target Completion
2	Library Services utilize baseline and trend data in measuring progress in fulfillment of the first goal of the Library’s new strategic plan to expand user access and the goal’s first objective to increase the discoverability and availability of collection materials.	<p>Library Services agrees.</p> <p>While LC and LS Annual Reports already provide some baseline data, this work is dependent on interim and final results from OIG Recommendation #3 and will be iterative.</p> <ul style="list-style-type: none"> • LS will begin in FY20 by using historic arrearage data from the LC Annual Report to demonstrate reduction in the special formats arrearage. • The service unit will develop or discover additional baseline or trend data as progress on OIG Recommendation #3 yields new opportunities and information. 	FY23
3	Library Services broaden its capability to perform end-to-end monitoring of its collection services activities, such as by mapping business processes that are key to meeting user needs, as part of an effort to identify, analyze, and respond to risks related to achieving the Library’s strategic goals and objectives. Mapping activities should include the use of IT systems and/or software programs.	<p>Library Services agrees.</p> <p>Over the course of the next three years (FY20 – FY22), as part of an effort to identify, analyze, and respond to risks related to achieving the Library’s strategic goals and objectives, LS will broaden its capability to perform end-to-end monitoring of its collection services activities. LS will establish a methodology that will include:</p> <ul style="list-style-type: none"> • Process mapping and documentation; • Analysis of the process; and • Establishment of ongoing monitoring. <p>In FY20, the service unit will focus on developing and testing an efficient, flexible, and consistent methodology that addresses the Inspector General’s recommendation. Over the remainder of the 3 years the service unit will apply that methodology to groups associated with LS collection services activities, and finish by reviewing all established monitoring and refining as needed.</p> <p>At the end of each fiscal year, LS will report to the OIG on groups addressed during that year.</p>	FY22

2018-SP-101 – LC Management Response

4	<p>Library Services create a more precise definition of “arreage” that it applies consistently across all areas within Library Services to help ensure that it has a complete and accurate inventory of unprocessed analog collection materials.</p>	<p>Library Services agrees. While LS has a definition of “arreage” that definition is not universally known or used consistently across the service unit. To help ensure that it has a complete and accurate inventory of unprocessed (provisionally defined by LS as materials that are either in arrears or considered work-on-hand) analog collection materials, LS will work across all of its directorates to develop, document, and communicate a measurable and maintainable definition of arreage that applies consistently across all divisions within LS and all analog formats held by the service unit.</p>	FY21
5	<p>Library Services create a complete and accurate inventory of unprocessed electronic collection materials.</p>	<p>Library Services agrees. To help ensure that it has a complete and accurate inventory of unprocessed digital collection materials, LS will work across all of its directorates to develop a measurable and maintainable definition of arreage that applies consistently across all divisions within LS and all digital formats held by the service unit. Once that definition is established, LS will create a complete, accurate, and maintainable inventory of unprocessed (see provisional definition in Recommendation #4) electronic collection materials. That work will contain multiple steps including:</p> <ul style="list-style-type: none"> • Documenting and testing the inventory and count process for born-digital collection items (including but not limited to eBooks, eSerials, web archives, eManuscripts, etc.); • Implementing the inventory and count process, resulting in a full count of processed and unprocessed born-digital collection items; and • Developing and implementing a way to maintain current and distinct counts of both processed and unprocessed born-digital collection items. 	FY22

2018-SP-101 – LC Management Response

<p>6</p> <p>Library Services use complete and accurate data to establish an outcome-oriented target for reducing the size of its inventory of unprocessed analog collection materials (e.g., using a ratio of unprocessed analog materials to analog collection materials overall) and use the target to measure performance.</p>	<p>Library Services agrees.</p> <p>This work is dependent on final results from OIG Recommendation #4, however, once Library Services has developed a measurable and maintainable definition of arrearage that applies consistently across all divisions within LS and all analog formats held by the service unit it will use that data to establish an outcome-oriented target for reducing the size of its inventory of unprocessed (see provisional definition in Recommendation #4) analog collection materials and use the target to measure performance.</p> <ul style="list-style-type: none"> In FY20 Library Services will begin the effort by including an outcome oriented target for the special format arrearage as one of its FY20 performance measures for LS Directional Plan Initiative #1.2.2 This Recommendation requires additional data from LS divisions. In FY20 LS will conduct a survey of divisions not participating in the special formats arrearage program to obtain numbers of work on hand items, and numbers of any other items that are not work on hand but not included in the current arrearage data. 	<p>FY21</p>
<p>7</p> <p>Library Services use complete and accurate data to establish plans to set an outcome-oriented target for reducing the size of its inventory of unprocessed electronic collection materials (e.g., using a ratio of unprocessed electronic materials to electronic collection materials overall).</p>	<p>Library Services agrees.</p> <p>This work is dependent on final results from OIG Recommendation #5, however, once LS has created a complete, accurate, and maintainable inventory of unprocessed (see provisional definition in Recommendation #4) digital collection materials it will use that data to establish plans to set an outcome-oriented target for reducing the size of that inventory of unprocessed digital collection materials.</p> <ul style="list-style-type: none"> This effort will be helped by the reporting of eSerials and eNewspapers digital acquisitions received via Copyright (LS Directional Plan Action #1.1.1.2) in the LC Annual Report, starting in FY21. Counting efforts will be expanded to all born digital formats in subsequent years. 	<p>FY22</p>

2018-SP-101 – LC Management Response

8	<p>Library Services establish outcome-oriented measures focused on its performance related to meeting user needs associated with the collection services workflow.</p>	<p>Library Services agrees. Library Services will establish outcome oriented customer-focused performance measures for the collection services workflow. This work will be iterative and is dependent on interim and final results from OIG Recommendations #3, #2, and #1.</p> <ul style="list-style-type: none"> • LS will begin in FY20 by increasing the percentage of outcome and customer-need performance measures (as compared to FY19). • The service unit will develop additional measures as progress on OIG Recommendations #3, #2, and #1 yield new opportunities and information. <p>LS can report to the OIG on any new measures adopted at the start of each fiscal year.</p>	FY23
9	<p>Library Services adopt a cross-organizational approach to performance measurement related to the collection services workflow that facilitates collaboration across its organizational units.</p>	<p>Library Services agrees. LS will continue to adopt a cross-organizational approach to performance measurement related to the collection services workflow that facilitates collaboration across its organizational units.</p> <p>This work will be iterative and is dependent on interim and final results from OIG Recommendations #3, #2, and #1.</p> <ul style="list-style-type: none"> • While LS performance measures will continue to identify ownership/accountability for reaching performance goal targets at the Directorate level (in compliance with OIG Recommendation #12) with the information obtained through OIG Recommendation #3 LS will seek opportunities to highlight critical paths, critical systems, dependencies and effects within and between its performance measures. <p>LS can report to the OIG on any new measures adopted at the start of each fiscal year.</p>	FY23

2018-SP-101 – LC Management Response

10	<p>Library Services track the allocation of resources associated with outcome-based performance measures for all stages of the collection services workflow for analog and electronic collection materials.</p>	<p>Library Services agrees. LS will begin to track the allocation of resources associated with outcome-based performance measures for all stages of the collection services workflow for analog and electronic collection materials. This work will be iterative and is dependent on interim and final results from OIG Recommendations #3, #2, #1, and #9.</p> <ul style="list-style-type: none"> • LS will begin in FY21 by linking budget and staffing requests to the LS Directional Plan (cross walking to the LC Strategic Plan) – while this will not demonstrate allocation of resources associated with specific performance measures it will connect resources with LS Directional/ LC Strategic Plan goals and objectives. • The service unit will develop additional measures as progress on OIG Recommendations #3, #2, and #1 yield new opportunities and information. <p>LS can report to the OIG on any new measures adopted at the start of each fiscal year.</p>	FY23
11	<p>Library Services establish capacity utilization performance measures that track the effectiveness of its collection services workflow.</p>	<p>Library Services agrees. LS will begin to establish capacity utilization performance measures that track the effectiveness of its collection services workflow. This work will be iterative and is dependent on interim and final results from OIG Recommendations #3, #2, #1, #9 and #10. LS can report to the OIG on any new measures adopted at the start of each fiscal year.</p>	FY23

2018-SP-101 – LC Management Response

<p>12</p>	<p>Library Services establish a Library-level priority in its directional plan to measure the effectiveness of the collections storage workflow, as described in the second, third, and fourth findings of OIG’s report, in fulfillment of the Library’s user access goal (and others as appropriate) to include:</p> <ul style="list-style-type: none"> • Defining the overall initiative, and linking it to the Library’s and Library Services’ goals and objectives; • Articulating the desired longer term impact of the work; and • Determining the timespan of the initiative and its key components; • Setting output and outcome measures, and targets for those measures, to track progress of the work over time; and • Identifying ownership/accountability for reaching targets. 	<p>FY20</p> <p>Library Services agrees.</p> <p>In the FY20 version of its Directional Plan LS has established a new initiative on this topic (Initiative #3.4.2 – Measure the effectiveness of the Collection Services workflow and the fulfillment of our user access goal).</p> <ul style="list-style-type: none"> • Within the LS Directional Plan we have defined the initiative and linked it to the Library’s and Library Services’ goals and objectives (aligned with LS Goal 3 Improve services for users, applying data collection and analysis and Objective 4 – Plan for improved services for users, based on available data; aligned with LC Goal 4 – Measure Impact and Objective 11 – Understand Our Users) • In the Initiative’s impact statement we have articulated the impact of the work (Library Services will better understand the processes and interactions in its collection services workflow, in addition to having new measures that allow the service unit to better evaluate its efficacy. Measures will be outcome-based and user-focused, allowing the service unit to better adjust activities based upon program results and user need.) • Actions associated with the Initiative show the timespan of the initiative (FY20 – FY23) and list key components • We have set an outcome measure for the initiative (Percentage of OIG Recommendations closed), and set yearly targets to track progress of the work over time • While work will be done by managers and staff across the service unit, LS/ALLS has been given ultimate ownership/accountability for them. <p>Completion date for this Recommendation reflects completion of establishment of the Initiative, not completion of all of the work described in the initiative.</p>
-----------	---	--