



Modified U.S. Copyright Office Provisional IT Modernization Plan

**ANALYSIS OF SHARED SERVICES,
SUPPORT REQUIREMENTS, AND
MODERNIZATION EFFORTS**

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EXECUTIVE SUMMARY

The United States Copyright Office (“Office” or “USCO”), headed by the Register of Copyrights, is statutorily responsible for administering the nation’s copyright laws. The work of the Office includes a number of public services, as well as extensive legal and policy portfolios. Among the services provided to the public are: examination and registration of copyright claims and documentation related to a broad range of creative output; administration of deposit requirements; certification of copyright ownership; recordation of transfers, assignments, licenses, and other copyright transactions; and provision of general copyright information to registrants and the public at large, including through the operation of a call center available to the public. The Office also administers statutory licensing royalties and distributes hundreds of millions of dollars annually in royalty payments.

The Office’s services support a copyright economy that in 2015 contributed an estimated \$1.2 trillion to the U.S. gross domestic product, accounting for 6.88% of the U.S. economy.¹ According to one recent report, the United States’ core copyright industries employed over 5.5 million workers, accounting for 3.87% of the entire U.S. workforce. The Office’s services are vital to creators and users of creative works of all types, including large and small businesses, individuals, and nonprofit organizations. In FY2016 alone, for example, the Office registered approximately 414,000 claims to copyright and recorded almost 11,000 ownership-related documents pertaining to nearly 162,000 copyrighted works. The Office collected over \$242 million in royalty payments from compulsory licenses and provided certified copies of Office records, which generated over \$600,000 in fees. In addition, the Office answered over 100,000 email, telephone, and in-person inquiries. It is crucial that the Office develop an innovative and robust technological infrastructure that will facilitate the provision of these services in a streamlined, efficient, and cost-effective manner.

Modernization of its IT systems has therefore been a top priority of the Office since 2011, beginning with a detailed analysis and review of the Office’s systems.² The Office laid out its vision for this future-state Copyright Office IT enterprise solution in two documents—the *Strategic Plan 2016–2020: Positioning the United States Copyright Office for the Future*³ and the *Provisional Information Technology Modernization Plan and Cost Analysis*.⁴ The Office highlighted the need for a modernized Office IT infrastructure that would facilitate the transformation of the Office into a lean, nimble, results-driven organization with the tools necessary to serve its varied constituencies—from the copyright community to government entities to the public at large.

In May of this year, the House Committee on Appropriations asked the Office, together with its parent agency the Library of Congress (“Library” or “LOC”) and the Library of Congress’ Office of the Chief Information Officer (“OCIO”), to modify the 2016 Provisional IT Plan to “include potential opportunities for shared efficiencies and cost-savings as well as ways the Library’s CIO Office can support the Copyright Office in its overall modernization efforts.”⁵

1 STEPHEN E. SIWEK, COPYRIGHT INDUSTRIES IN THE U.S. ECONOMY: THE 2016 REPORT 2 (2016) (prepared for the International Intellectual Property Alliance), <http://www.iipaweb.com/pdf/2016CpyrtRptFull.PDF>. This number represents contributions to the economy from “core” copyright industries, which are those whose primary purpose is to create, produce, distribute, or exhibit copyrighted materials. *Id.*

2 See *infra* Section 1.1.

3 U.S. COPYRIGHT OFFICE, STRATEGIC PLAN 2016–2020: POSITIONING THE UNITED STATES COPYRIGHT OFFICE FOR THE FUTURE (2015), <https://www.copyright.gov/reports/strategic-plan/USCO-strategic.pdf> (“USCO STRATEGIC PLAN”).

4 U.S. COPYRIGHT OFFICE, PROVISIONAL INFORMATION TECHNOLOGY MODERNIZATION PLAN AND COST ANALYSIS (2016), <https://www.copyright.gov/reports/itplan/technology-report.pdf> (“PROVISIONAL IT PLAN”).

5 163 CONG. REC. H4033 (daily ed. May 3, 2017) (explanatory statement submitted by Rep. Frelinghuysen, Chairman of the H. Comm. on Appropriations), available at <https://www.congress.gov/congressional-record/2017/5/3/house-section/article/H3949-2>.

In response to the Committee's request, the Office and the Library offer this *Modified USCO Provisional IT Modernization Plan: Analysis of Shared Services, Support Requirements, and Modernization Efforts* ("Modified IT Plan"), which supplements and should be read in conjunction with the 2016 Provisional IT Plan. The Modified IT Plan maintains the Office's focus on creating an IT system that is robust and flexible enough to facilitate the work of USCO not only as it exists now, but also as it may be in the future. Rather than adapting technology solely to existing workflows and structures, USCO and the Library must create a system that is future-proofed, able to accommodate any future legal or regulatory responsibilities or structural changes for the Office that Congress deems necessary. This Modified IT Plan documents how this goal may be achieved under a shared services model.

Notably, progress has already been made in the past several years—with Congress's financial support—towards the goal of modernizing the Copyright Office's IT capabilities. This includes, for example, work that has been underway since FY2015 to lay the groundwork for development of a new IT system for Office recordation functions through extensive study of the technological, business, and legal issues presented by modernization; documentation of business and technical requirements for the new system; and the creation of a data model and design documents to be used in development of the new system.⁶ The Modified IT Plan describes these accomplishments and outlines the work that USCO and OCIO have completed to develop and begin implementation of a roadmap for Copyright IT modernization activities to occur in FY2017 and FY2018, which includes initial requirements gathering and development for a next-generation Registration IT system, development work for the new Recordation IT system, and creation of a Copyright Modernization Office to help oversee modernization from a business perspective. The Modified IT Plan estimates that the time to pilot and transition to a modernized Recordation system will be less than two years after development begins in FY2018, while modernized Registration, Public Records Catalog, and Statutory Licensing systems are expected to follow thereafter. Of note, pending funding approval, requirements gathering for the new registration system will begin in FY2018.

Simultaneous with the Copyright IT modernization process, the Library is undertaking its own substantial modernization efforts, including a complete reorganization of OCIO and full centralization of all IT functions in the Library under OCIO. In light of these dual efforts, precise costing and scheduling information for the overall USCO IT modernization efforts is not yet available. Rough order of magnitude timelines for requirements gathering and development activities mentioned above are described below in Section 5. The Library and Office currently are developing FY2019 initiatives and costing for submission in the FY2019 budget request and anticipate that modernization work will continue beyond FY2019 into FY2022, dependent upon available resources.

While this Modified IT Plan does not provide specific cost and scheduling information, it does describe in qualitative terms the opportunities for avoiding additional costs for infrastructure that were part of the Provisional IT Plan, as well as the collaborative process envisioned for Office IT projects moving forward. The tables in Section 4.3 illustrate the current plan for shared services between USCO and OCIO, which represents the potential opportunities for shared services efficiencies and cost savings. The Modified IT Plan further adopts an Agile development methodology to maximize flexibility and efficiency, which focuses on the delivery of multiple smaller-scale releases, rather than a smaller number of major releases.⁷

⁶ See *infra* Section 5.4.1.

⁷ An Agile development methodology is "an iterative and incremental (evolutionary) approach to software development which is performed in a highly collaborative manner by self-organizing teams within an effective governance framework, with 'just enough' ceremony, that produces high quality solutions, in a cost effective and timely manner which meets the changing needs of its stakeholders." Stephany Belomo, *What is Agile?*, CARNEGIE MELLON UNIV. SOFTWARE ENG'G INST. SEI BLOG (Apr. 11, 2011), https://insights.sei.cmu.edu/sei_blog/2011/04/-what-is-agile.html.

In addition to employing an Agile development strategy, successful Copyright IT modernization will require strong program and project management within USCO. Thus, USCO is establishing a Copyright Modernization Office (“CMO”) within the Office to coordinate efforts across the Office and with OCIO’s newly formed Project Management Office (“PMO”), which provides project management for IT system development enterprise wide. This will ensure strong integration of the Office’s development needs with the PMO. The CMO is further explained in Section 3. Although the Office anticipates beginning to fill out the CMO staff in 2018, a request for further support of the CMO will be in the FY2019 budget submission.

Additionally, while the Office and the Library are fully committed to these efforts, it is important to highlight that Copyright Office IT modernization remains an ambitious and technologically sophisticated undertaking. Although the precise costs of the Copyright IT modernization activities set forth herein are not yet fully known, successful modernization will be dependent upon adequate, sustained funding, including appropriated dollars. The USCO’s, as well as the Library’s, budget requests to date for FY2017 and FY2018 represent a beginning and foundation for Copyright IT modernization. USCO anticipates significant increases in its needed funding beginning in FY2019 (and most likely through FY2022) for system development and delivery. However, we expect a large portion of these requests to be non-recurring expenses for development, modernization, and enhancements (DME). The Library may also request additional funding for OCIO to continue modernization of shared enterprise services. There are also dependencies between Copyright IT modernization and OCIO’s own nascent reorganization and restructuring. The multiplicity of demands upon OCIO, the complexities of these parallel efforts, and competing claims to OCIO’s resources might impact the cost and schedule of timely implementation of Copyright IT modernization plans. The Modified IT Plan acknowledges these risks, and the Library and USCO will work together to develop and implement mitigation plans to minimize potential impacts of such risks.

Finally, it should be noted that, because of the ever-evolving nature of technology, this Modified IT Plan will necessarily be subject to continued modification and refinement throughout the modernization process. The Library and the Office will provide the Committee with further information and detailed plans as the requirements gathering process brings more certainty to each phase in this Plan.

Against this backdrop, the Copyright Office and the Library of Congress are eager to move forward collaboratively with comprehensive IT modernization across Copyright Office operations including registration, recordation, statutory licensing, and the public records catalog, as well as any other obligations Congress may require in the future. We look forward to working with Congress to ensure that Copyright Office systems can support the needs of such a critical segment of the nation’s economy now and in the future.

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1.0 INTRODUCTION AND BACKGROUND

1.1 Copyright Modernization Planning to Date

In order to better serve its constituencies, the Office has dedicated itself to modernizing its systems and its administration of the nation’s copyright laws. Starting in 2011, the Office began a series of comprehensive and targeted efforts to understand and analyze its IT needs. In October of that year, the Office issued its *Priorities and Special Projects of the United States Copyright Office (October 2011–October 2013)*, which highlighted the need for technological upgrades.⁸ Following that kickoff, the Office undertook a comprehensive study of its technological capabilities and needs, which included seeking extensive stakeholder feedback. The resulting 2015 *Report and Recommendations of the Technical Upgrades Special Project Team* acknowledged challenges with the current user experience and access to the public record, and offered recommendations for improvement.⁹ Based on congressional direction, the Office followed the initial report with a more detailed plan, 2016’s *Provisional Information Technology Modernization Plan and Cost Analysis*, which provided concrete ideas about how to move the Office’s IT into the modern era. The Provisional IT Plan drew upon USCO’s years of measured analysis and provided a five-year plan for modernizing the Office’s technology and infrastructure to better serve the public and fulfill its mission. USCO undertook this effort to create a holistic IT system that would be able to bring all Office operations—from registration to recordation to public information and more—into the modern age and provide the services expected by the copyright community, governmental entities, and the public at large.

1.2 Library IT Centralization

Separately, at the direction of Congress, the Government Accountability Office (“GAO”) conducted reviews of the overall IT environment at the Library of Congress¹⁰ and the IT infrastructure directly serving the Office.¹¹ The GAO reports, both issued in March 2015, identified shortcomings in both IT environments. GAO also noted the interconnectedness and dependencies between the Library’s IT environment and the Office’s,¹² and recommended coordination and alignment between the Office and the Library to improve IT outcomes.¹³ In November 2016, in part in response to the GAO review, the Librarian issued a policy memorandum mandating centralization of all IT functions under the LOC’s Office of the Chief Information Officer.¹⁴ The centralized IT-related activities, all of which must be approved by OCIO, include:

8 U.S. COPYRIGHT OFFICE, *PRIORITIES AND SPECIAL PROJECTS OF THE UNITED STATES COPYRIGHT OFFICE OCTOBER 2011–OCTOBER 2013* (2011), <https://www.copyright.gov/docs/priorities.pdf>.

9 U.S. COPYRIGHT OFFICE, *REPORT AND RECOMMENDATIONS OF THE TECHNICAL UPGRADES SPECIAL PROJECT TEAM 17–30, 55–60* (2015), <https://www.copyright.gov/technology-reports/reports/usco-technicalupgrades.pdf>.

10 U.S. GOV’T ACCOUNTABILITY OFFICE: GAO-15-315, *LIBRARY OF CONGRESS: STRONG LEADERSHIP NEEDED TO ADDRESS SERIOUS INFORMATION TECHNOLOGY MANAGEMENT WEAKNESSES 1–2* (2015), <https://www.copyright.gov/technology-reports/reports/gao-lc-report-2015.pdf> (“GAO IT REPORT ON THE LIBRARY”).

11 U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-15-338, *INFORMATION TECHNOLOGY: COPYRIGHT OFFICE NEEDS TO DEVELOP PLANS THAT ADDRESS TECHNICAL AND ORGANIZATIONAL CHALLENGES 1–2, 29–30* (2015), <https://www.copyright.gov/technology-reports/reports/gao-usco-report-2015.pdf> (“GAO IT REPORT ON THE COPYRIGHT OFFICE”).

12 GAO IT REPORT ON THE LIBRARY at 22, 87, 92; GAO IT REPORT ON THE COPYRIGHT OFFICE, at 6, 9, 16, 19–23.

13 GAO IT REPORT ON THE LIBRARY at 96–100; GAO IT REPORT ON THE COPYRIGHT OFFICE at 30. The interconnectedness of Library and USCO IT systems was brought into sharp focus when, in September 2015, an infrastructure outage caused the Copyright Office’s online registration system to be down for a week. See Whitney Blair Wyckoff, *Copyright Registration System Back Online*, FEDSCOOP (Sept. 8, 2015), <https://www.fedscoop.com/copyright-registration-system-back-online>.

14 Memo from Dr. Carla Hayden, Librarian of Cong., to Library of Cong. Exec. Comm. (Nov. 28, 2016) (on file with Library of Congress); see also LIBRARY OF CONG., OFFICE OF THE INSPECTOR GENERAL SEMI-ANNUAL REPORT TO THE CONGRESS 12 (2017), <https://www.loc.gov/portals/static/about/office-of-the-inspector-general/annual-reports/documents/March-2017-OIG-Semiannual-Report-to-Congress-5-17-17.pdf>.

governance; management; hiring; acquisition; planning; policy development and implementation; organization; assessment; enterprise architecture; cybersecurity; disaster recovery; process management; change management; human capital management; capital planning; investment control; project and program management; information management; and knowledge management.¹⁵

As part of this centralization, it is anticipated that all Copyright Office IT staff, including top level supervisors of IT staff, will be permanently assigned to OCIO while being dedicated to Copyright Office IT support.

In addition to centralizing IT activities in OCIO, over the last two years the Library has embarked on IT modernization planning and execution in a number of ways, including separately implementing several recommendations from its GAO report. These efforts include hiring a CIO and reorganizing OCIO into a separate office that reports directly to the Librarian. The centralization of IT activities under OCIO is intended to allow the Library to manage IT resources effectively and efficiently, allowing executive management to make fully informed decisions regarding use of the agency's resources.

1.3 Request for a Modified IT Plan Reflecting Shared Services

As part of the FY2017 appropriations legislation, the Copyright Office was directed, in collaboration with the Library of Congress's OCIO, "to modify the [Provisional IT Plan] to include potential opportunities for shared efficiencies and cost-savings as well as ways the Library's CIO Office can support the Office in its overall modernization efforts."¹⁶ In particular, the House Committee on Appropriations stressed that it "expected that the Copyright Office consult with the Library of Congress' CIO on its modified IT plan and [that] use of shared services, where practicable, should be reflected in the plan," while at the same time noting that "with regard to copyright-specific IT systems . . . it is expected that the Library continue to defer to the expertise of the Register of Copyrights."¹⁷ The revised plan was also to "include any new funding strategies based on the comments received from the public regarding changes in fee structures."¹⁸

As an initial matter, it is worth noting that the Office currently operates—indeed, has always operated—on a shared services model with the Library of Congress. The Library OCIO currently provides the Office with the vast majority of its commodity IT needs, at no cost to the Office, including network infrastructure, file storage, database services, desktop computers, IT help-desk services, and standard software licenses.¹⁹ In certain cases, the Library OCIO also has managed software development projects on behalf of the Copyright Office. Although OCIO-led software project management was not the standard practice in prior years, this will be the Library's practice going forward under its new centralization model. The Office has long been responsible—through its Copyright Technology Office—for overall IT planning and day-to-day management and maintenance of the Office's mission-specific IT systems, although, as discussed below, many of these technology functions will be shifted to the Library OCIO.

¹⁵ See Memo from Dr. Carla Hayden, Librarian of Cong., to Library of Cong. Exec. Comm. (Nov 28, 2016) (on file with Library of Congress).

¹⁶ 163 CONG. REC. H4033 (daily ed. May 3, 2017) (explanatory statement submitted by Rep. Frelinghuysen, Chairman of the H. Comm. on Appropriations), available at <https://www.congress.gov/congressional-record/2017/5/3/house-section/article/H3949-2>.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ While these commodity IT needs are provided by OCIO without cost for the majority of USCO activities, the USCO Licensing Division is charged an overhead fee that recovers a portion of these costs as the Division's budget authority is fully funded by Copyright Royalty fees.

In addition to developing a more detailed and collaborative plan that explores additional shared services, the Committee also requested that the Office include any new funding strategies based on the comments received from the public regarding changes in fee structures. This Modified IT Plan concludes by describing the Office's ongoing efforts to collect and apply fees with more flexibility.

2.0 GUIDING PRINCIPLES, GOALS, AND RISK FACTORS

2.1 Guiding Principles

There are four fundamental guiding principles influencing Copyright Office IT modernization under the current shared services model:

1. Existing USCO business platforms that support key business functions must be replaced in order to achieve USCO IT modernization goals.
2. IT modernization must meet USCO's current and future needs, such as facilitation of statutory duties and regulatory programs that Congress may choose to assign to the USCO, as listed within the USCO Strategic Plan.²⁰
3. USCO will obtain available and to-be-developed IT services from OCIO consistent with Library-wide policies.
4. If OCIO does not provide needed services to meet USCO's modernization goals, OCIO will work with USCO to identify and fund commercial vendors who can provide those services.

2.2 Goals and Anticipated Outcomes

While this Modified IT Plan modifies certain aspects of the Provisional IT Plan to reflect USCO's ability to leverage LOC infrastructure, applications, IT systems, personnel, and IT governance processes and practices, the goals and desired outcomes of the IT modernization effort are unchanged. The ultimate goal of USCO IT modernization remains for USCO to be a lean, nimble organization that is well-prepared to serve the copyright community, governmental entities, and the public at large in the growing digital economy and one that can easily adapt to changing technologies. The business and technology goals, listed below, support the overall business strategy of USCO to serve the copyright owners and the copyright community.

- » Migrate copyright registration away from a large proprietary software product.
- » Minimize data center and other infrastructure needs and, instead, utilize a variety of hosting strategies, including the cloud.²¹
- » Offer copyright owners an array of registration options from which to choose and the capability to employ them from mobile devices, as well as business-to-business interfaces.
- » Provide users of copyright data, including licensing or public domain information, simple access to timely and authoritative data.
- » Move the copyright recordation system from a paper-based intake system to an automated system where recording parties may enter their own information using metadata standards established or adopted by USCO.
- » Provide digital search capabilities for all USCO records and systems.
- » Fully integrate all USCO records and systems, including the currently separate data and databases utilized by the Registration and Recordation programs, into a comprehensive system of copyright records.
- » Prioritize strong IT security standards.

20 U.S. COPYRIGHT OFFICE, STRATEGIC PLAN 2016–2020: POSITIONING THE UNITED STATES COPYRIGHT OFFICE FOR THE FUTURE (2015), <https://www.copyright.gov/reports/strategic-plan/USCO-strategic.pdf>.

21 OCIO plans to use a variety of hosting strategies, including cloud, to meet USCO's business requirements and has included this as part of the Library's Primary Computing Facility ("PCF") migration plan.

To support these objectives the LOC OCIO will work collaboratively with USCO to:

- » Build a robust, scalable, flexible technology ecosystem dedicated to the current and future needs of a modern copyright agency.
- » Support high availability, high performance, and highly secure systems that integrate cloud and mobile technologies.
- » Employ sound processes and policies for acquisition, management, and governance of technology investments.

These efforts will have a number of positive outcomes for USCO and the public at large by:

- » Enabling third parties to build a variety of products on an open-source technology platform that can seamlessly interoperate with OCIO and USCO systems.
- » Allowing USCO to implement examination and documentation practices tailored to the variety and complexity of copyrighted works in the digital age.
- » Allowing copyright owners to leverage smartphones and other mobile devices to seamlessly send their work and the associated data to the Copyright Office for examination and registration.
- » Enabling users of copyright data to build new businesses or analyze global trends.
- » Providing users with dynamic access to USCO's data.
- » Providing users with seamless information regarding the chain of title for copyrighted works, from registration to licenses to transfers and the public domain.
- » Protecting the integrity of and access to nonpublic data and materials.

Collectively, these goals and outcomes will engender more participation in the copyright system by copyright owners, stakeholders, and members of the public. The planned comprehensive IT modernization will benefit all USCO systems and services, including the administration of statutory licenses; the provision of public information services and expert impartial assistance to Congress, the courts, and executive branch agencies on questions of copyright law and policy; and management of its back-office operations. By addressing the services and needs of the national copyright system in an integrated fashion, USCO will more effectively prioritize its work and achieve efficiencies across various divisions and statutory duties.

2.3 Risk Factors

To be clear, there are a number of risk factors for the successful completion of USCO IT modernization efforts as set out in this Modified IT Plan. Modernization of all Copyright Office IT systems is a significant undertaking, and IT acquisition projects of this magnitude and scope have inherent risks for that reason alone. The Office and OCIO will continue to work collaboratively to minimize these risks, which include the following:

- » As noted above, a major dependency for the project is resource availability. Large IT modernization projects such as this one are usually multi-year projects; however, Library appropriations are annual, which creates a situation of incrementally funding the various phases through successive budget requests. Therefore, a noted risk is the approval of additional funding in successive budget requests to complete a multi-year acquisition project. In the coming months, as more specific details of the cost and timing of the modernization are finalized, the magnitude of any required additional funding will become better known. In addition, while the Library already supports shared services, additional resources to upgrade and modernize commodity IT services

may be required for OCIO to serve the Office and other enterprise service units. Thus, the continued availability of sustained and adequate funding, including appropriated dollars, remains a critical factor in the overall success of the Copyright IT modernization project.

- » Under a centralized IT model, the timely completion of Office modernization efforts will depend heavily on support from the Library's OCIO for improved commodity IT services, application and data integrity and security, and for project management of software development efforts. At the same time, the Office recognizes that OCIO must provide for the IT needs of all of its customers and that the Library's enterprise-wide IT modernization plan, including OCIO's basic organizational structure and the cost model for future shared services catalog offerings, is still a work in progress. Thus, there is a risk that delays from the complexities of parallel efforts and competing resource requirements could impact the cost and schedule of timely implementation of Copyright Office IT modernization plans.
- » Successful implementation of this Modified IT Plan will also require strong program and project management skills within USCO. Thus, while a Project Management Office ("PMO") has been established in OCIO to provide project management for system development, in order to ensure strong integration of the Office's development needs with the PMO, this Modified IT Plan recommends the establishment of a Copyright Modernization Office ("CMO") within USCO to coordinate efforts across the Office and with the PMO. We anticipate that a funding request to support the CMO will be made in the FY2019 budgeted request.
- » In addition, there are business-related risks to the successful completion of USCO IT modernization efforts, including changing service offerings in the midst of new IT system development, and the need to have adequate subject matter expertise resources dedicated to modernization efforts. These specific risks are being mitigated through the use of an iterative model for technological development with subject matter experts serving as members of the project teams.

3.0 COLLABORATIVE PROCESS FOR USCO IT MODERNIZATION

The effective management of programs and projects related to IT modernization is paramount to the effort's success, in terms of implementation and organization. This Section describes the Library's general IT planning process and the specific manner in which USCO and Library OCIO will collaborate on the USCO IT modernization plan.

3.1 General Library IT Planning Process

Per Library of Congress Regulation ("LCR"), the Library will ensure that all of its IT activities (i) are designed to align all Library IT investments with strategic and budget planning and enterprise architecture ("EA"), (ii) are conducted in a framework for effective IT investment decision-making and investment management, and (iii) are managed with integrity and effectiveness.²² The Library's policy is to interconnect business planning, strategic planning, EA, IT investment management activities, and IT project management activities to enable the designing and leveraging of Library IT resources to meet current or future Congressional direction and public expectations as well as current operational requirements.

The Library follows the IT investment management ("ITIM") framework, as laid out in an LCR.²³ ITIM is a means to provide a common structure for discussing and assessing IT capital planning and investment control practices at federal agencies. The Library recognizes that having consistent ITIM throughout the agency is critical to the achievement of its mission. Under the ITIM framework, service units will be responsible for identifying business needs as they relate to IT projects, while OCIO will be responsible for assessing the technical requirements and financial costs of those projects, which is then used in decision making about resource allocation across the Library. The Library's ITIM framework will be implemented to document IT investment opportunities, identify areas where consolidation can be encouraged and duplication can be avoided, evaluate the strategic alignment and expected value of proposed IT investments, and track the progress and results of operationalized IT investments. This ITIM framework supports full lifecycle management of IT investments to include budget planning, IT resource management, IT acquisitions, IT delivery, and IT program oversight.

All IT investments are reviewed by the Architecture Review Board and the IT Steering Committee, both of which are made up of management-level representatives from all service units. The IT investments will be approved by the Executive Committee and the Librarian of Congress.

As recommended by the Federal IT COST Commission,²⁴ OCIO is implementing the Technology Business Management ("TBM") framework, which aims to improve IT investment decisions through greater transparency into the business value of an agency's IT services. TBM provides common definitions and standards for classifying and categorizing IT resources and costs. While the Library anticipates that full maturity with TBM will take five years, aligning IT and finance through TBM will ultimately provide for greater effectiveness in management of the Library's IT resources.

²² Library of Congress, LCR 5-110, Information Technology Resource Management, 3.A.1.

²³ Library of Congress, LCR 5-130, Information Technology Investment Management.

²⁴ FED. COMM. ON IT COST, OPPORTUNITY, STRATEGY, AND TRANSPARENCY, ACCELERATING THE MISSION: RECOMMENDATIONS FOR OPTIMIZING FEDERAL TECHNOLOGY COST AND VALUE IN THE AGE OF FITARA (2016) 1, http://info.tbmcouncil.org/rs/509-APS-230/images/Federal-IT-COST-Commission-Report_Accelerating-the%20Mission_July%2021.2016%20.pdf?_ga=2.153494264.1900754823.1503607851-272162352.1503607851.

3.2 USCO Modernization Governance and Project Execution

A project the size of Copyright Office IT modernization requires not only that USCO and OCIO work closely together, but that each department have clearly defined roles. Accordingly, USCO will continue to be responsible for ensuring that the IT modernization activities focus on the USCO mission and organizational priorities, while OCIO will focus on delivering technological solutions and identifying technological efficiencies that can be gained through economies of scale. Charters will be established for each project clearly defining the USCO and OCIO roles, responsibilities, and ultimate ownership. Together these management functions will provide for the breadth of oversight necessary to modernize USCO fully without compromising operations or the prudent stewardship of resources.

Another central component of risk reduction efforts for USCO IT modernization is the establishment of a strong governance structure. To achieve this, USCO and OCIO will establish two new entities to help shepherd the Copyright Office IT modernization process: a USCO Modernization IT Governance Board (“Governance Board”) and a Copyright Modernization Office (“CMO”). In addition, both USCO and OCIO will retain project managers (“PMs”), who will oversee individual projects related to Copyright Office IT modernization.

The Governance Board, whose members will include (but are not limited to) the LOC CIO, the Register of Copyrights, and other senior management, will facilitate the close collaboration between OCIO and USCO necessary to accomplish a transformation of this magnitude.²⁵ The Governance Board will provide strategic direction to the CMO, which will be tasked with coordinating IT modernization on behalf of USCO to ensure that they are continuously aligned with the Office’s strategic goals. The CMO will also work closely with the OCIO Program Management Office (“PMO”), which will lead technology projects related to the modernization.²⁶ USCO and OCIO PMs will report, respectively, to the CMO and PMO.

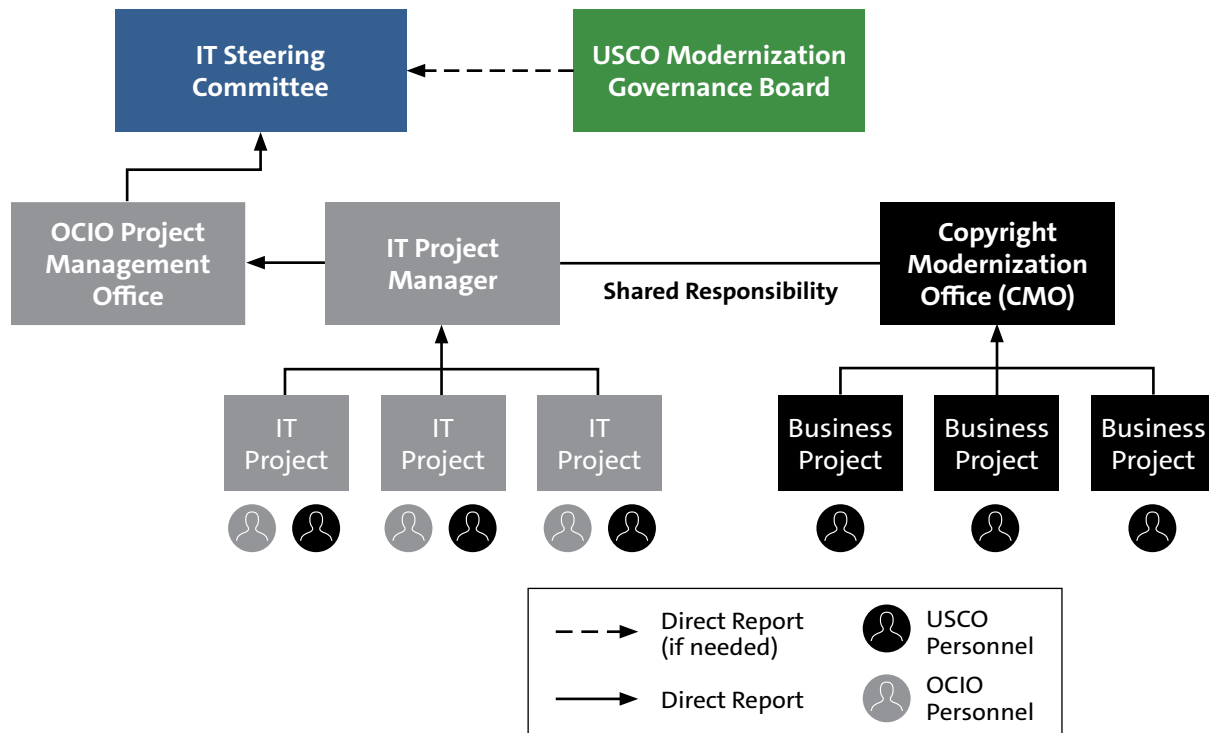
It is worth noting that standing up a CMO as a new unit is not an insignificant endeavor. Given the integral role to be played by the CMO in the Office’s modernization efforts, it will be imperative that a robust CMO be available early on to manage the business aspects of such modernization efforts. While the Office received funding in FY2017 that will be used to begin filling out the CMO staff, an additional funding request to support the CMO will be included in the USCO FY2019 budget request.

Figure 1 shows how the modernization will be governed, including lines of reporting.

²⁵ Final composition of the USCO IT Modernization Governance Board will be determined by OCIO and the Register of Copyrights.

²⁶ This collaborative structure is patterned after collaborative efforts between the Congressional Research Service (“CRS”) and OCIO on migrating information to congress.gov, demonstrating how business and technical owners need to work together to achieve important business outcomes.

Figure 1: High-level USCO IT Modernization Governance Structure



These functions will all feed into the Library’s Information Technology Steering Committee (“ITSC”), which oversees IT investments for the Library and makes recommendations to the Library’s Executive Committee for prioritizing IT investments and monitoring the execution of those investments.

3.2.1 USCO Modernization Governance Board

The USCO Modernization Governance Board (“Governance Board”) will act as a steering committee for the USCO IT modernization effort. The Governance Board will be responsible for giving direction and making decisions for business operations executed as part of this program.

3.2.2 Copyright Modernization Office (“CMO”)

The CMO will be a new unit established within and comprised of staff from USCO to ensure IT modernization activities are continuously aligned with the Office’s strategic goals. Central to the responsibilities of the CMO will be to advocate for and optimize outcomes that deliver on USCO’s internal and external customer priorities. Included in the responsibilities for the CMO will be coordinating the internal activities related to organizational change management, including readiness assessments, staff training, and after-project reviews. The CMO will complement the PMO’s technical focus by directing and coordinating IT modernization on behalf of USCO from a business perspective, including resources, communications, stakeholder engagement, and business project management. The CMO will be responsible for monitoring indicators and metrics to identify progress against the Office’s IT modernization goals, and for providing progress reports to the Governance Board.

To further build out the CMO, USCO will include a request for additional CMO support as part of its FY2019 appropriations request. A modernization plan of this scope will require specific expertise in business operations, program and project management, cost and budgeting, and the Agile framework and IT project lifecycle. Although the CMO and related governance functions are considered critical to the success of the modernization plan, the USCO does not currently have the staff or level of expertise necessary to successfully standup a CMO function. Funded under the USCO CMO staffing request would be the Business Program Manager (described below) and other necessary support positions to provide oversight of the IT modernization plan through the development phases and beyond. USCO will also be requesting funding for additional contract support for the change management and training activities that will be associated with the various modernization phases.

3.2.3 CMO Business Program Manager

The CMO will be headed by a Business Program Manager (“BPM”). The BPM will ensure modernization efforts are planned, executed, and delivered in a manner to ensure that the USCO strategic and business goals are met. The BPM will supervise the USCO business project managers, and will have the business and technical expertise to work collaboratively and effectively across all stakeholder groups and in close partnership with counterparts in the PMO.

3.2.4 IT Program Manager

The IT Program Manager, reporting to OCIO, will collaborate with the CMO BPM in the execution of the overall IT modernization effort. Specifically, the IT Program Manager will oversee the technical execution of IT projects (led by IT project managers) that are related to USCO IT modernization. OCIO and its reporting IT Program Manager will oversee the technical aspects of IT modernization following established processes. Working with individual project managers, the IT Program Manager will assess and address deficiencies in development activities, project cost overruns, and schedule delays, and will report out on progress/performance of IT modernization efforts to the Governance Board. The IT Program Manager will be part of OCIO PMO organization.

3.2.5 IT and Business Project Management Coordination

OCIO IT project managers will be responsible for the management of the technical work of the projects and will be part of the OCIO PMO organization.

USCO business project managers will focus their efforts on providing project management in the context of meeting USCO’s business needs and will be part of the USCO CMO organization.

IT project teams will be jointly staffed by IT and business project managers, as needed, following the Agile development methodology in use today within OCIO. IT projects (*e.g.*, development and implementation of IT systems) will be led by OCIO personnel with USCO personnel serving on project teams as subject matter experts. Business/mission-specific projects (*e.g.*, engaging internal and external stakeholder related to change management efforts, accessing organizational readiness to cut-over to the target state systems, etc.) will be led by USCO personnel.

With respect to projects falling within their purview, the IT or business project managers will be responsible for reporting modernization project cost, scope, schedule, and progress/ performance to the Governance Board through their respective Program Managers.

3.2.6 Roles and Responsibilities

Clearly defined roles and responsibilities are essential when establishing an organizational structure for an effort of this magnitude and complexity. To do so, Figure 2 below shows a RACI Matrix describing the roles and responsibilities of the CMO Business Program Manager, IT Program Manager, Governance Board, and individual project managers.²⁷

Figure 2: RACI Matrix

#	Process	Description	CMO Business Program Manager (USCO)	IT Program Manager (OCIO)	Governance Board (USCO/OCIO)	Project Managers (USCO/OCIO)
1	Define Program Vision	Determine the end-state system and applicable goals necessary to achieve the Program Vision.	C	C	R, A	C
2	Establish Program Charter	Define and validate program scope, key staff resources, enterprise environmental factors, proposed budget, and an initial Roadmap. The Program Charter will be used as a foundation for future planning efforts. Identify and create standardized processes and enforce policies.	R	R	A	C
3	Establish Project Charter	Define and validate project scope, key staff resources, enterprise environmental factors, proposed budget, and an initial Roadmap. The Project Charter will be used as a foundation for future planning efforts. Identify and create standardized processes and enforce policies.	A	A	I	R
4	Identify and Finalize Program Architecture	Define and discuss program requirements, including the solution architecture needed to achieve the goals defined by the Program Vision and Program Charter and specific requirements necessary to reach the end state system; validate that proposed program logical architecture is adequate to support the program's implementation and aligns with the Program Vision and Project Charter. Validate proposed program logical architecture is adequate to support the program's implementation and aligns with the Program Vision and Project Charter. Create a Program Test Plan, outlining the specific steps needed for successful solution integration.	R	R	A	C, I

²⁷ A RACI matrix is an organizational framework that assists in clarifying roles and responsibilities that span across functions and organizations with different processes. It sets forth:

- The Responsible party is the party completing a given task or action. The responsible party submits the work for final approval, certifying that the task or action is “complete and thorough.”
- The Accountable party is the party ultimately answerable for “complete and thorough” execution of a given task or action. The accountable party receives the work for approval from the responsible party.
- The Consulted party is a stakeholder whose input or feedback must be gathered prior to the completion of an activity.
- The Informed party is a party that is generally only given status updates on the progress and eventual completion of a given task. The informed party should be kept up-to-date on current progress, even though they may not have a direct or indirect role in the completion of the task or action.

See PROJECT MGMT. INST., A GUIDE TO THE PROJECT MANAGEMENT BODY OF KNOWLEDGE (PMBOK GUIDE) 262 (5th ed. 2013).

Figure 2: RACI Matrix (continued)

#	Process	Description	CMO Business Program Manager (USCO)	IT Program Manager (OCIO)	Governance Board (USCO/OCIO)	Project Managers (USCO/OCIO)
5	Establish Program Management Plan		R	R	A, C	I
6	Develop Project Management Plan(s)	Develop a Project Management Plan(s) to reference deliverables, assumptions, constraints, and dependencies. The plan shall also include reference to the project milestones, and outline details pertaining to risk escalation, communication, and change management. Project Management Plan(s) will align to the Program Charter.	C	C	I	R, A
7	Monitor Project Component Development	Inspect project system development progress. Validate requirements have been adequately addressed and solution integration testing is managed effectively. Track issues, risks, and change requests in reference to the initial roadmap.	A, C	A, C	I	R, A
8	Manage Program Deployment and Transition	Monitor implementation and deployment of project solution components applicable to each project development effort. Assess solution readiness for integration within the enterprise development. During this time, it is recommended to develop training materials to assist in coordinating organizational change activities.	R	R	A	C
9	PMO/CMO Operations and Maintenance	Assess program results with the Program Vision and Program Charter. Document results of effort and transition to PMO O&M activities.	R, A	R, A	A, I	C

4.0 SHARED SERVICES TO BE PROVIDED BY OCIO

4.1 Financial Model for Shared Services

Going forward, USCO and the Library OCIO have reached agreement on basic principles regarding financial responsibility in the centralized IT environment:

- » USCO will request funding for USCO-related Development, Modernization, and Enhancement (“DME”)²⁸ cost elements, but OCIO will provide actual system development capabilities required to achieve the funded business objectives.
- » OCIO will maintain responsibility for any enterprise IT services, including any Operations and Maintenance (“O&M”)²⁹ costs associated with USCO systems.
- » USCO will be responsible for securing funding for the procurement of new technologies or services required to enhance or modify an existing OCIO service where the enhancement is specific to USCO’s mission and would not benefit other OCIO customers.
- » OCIO will be responsible to secure funding for DME and O&M activities where investment would benefit other OCIO customers.

4.2 Library IT Modernization Funding and Activities

The Omnibus Legislative Branch Appropriations Act, Fiscal 2017, provided the Library with \$632 million, an increase of \$32 million above FY2016.³⁰ Much of this increase will be used to lay the groundwork for planning and preliminary initiatives for comprehensive IT modernization Library-wide. The largest increase, \$20 million in FY2017 (\$57 million over three years), will support IT infrastructure improvements and the migration of the Library’s Primary Computing Facility to alternate facilities that will provide a secure, scalable Tier 3 storage capability. The legislation also provided \$6.56 million for IT security, cybersecurity, and multi-factor authentication improvements that will enhance the IT security across the agency.

The Library’s FY2018 budget request seeks funding for the Library’s overall IT operations and infrastructure. The 2018 \$9.693 million request will support the planning and initial phases necessary to upgrade the underlying network infrastructure and to support eleven positions to assist in the effort of centralizing IT governance and management. The Library will also make specific one-time purchases of software and telecommunications and automation equipment to upgrade network infrastructure. This network modernization effort will upgrade connectivity among the campus complex and remote facilities via internet by providing a state-of-the-industry private LAN (local area network) and WAN (wide area network), facilitating staff interconnectivity, access to cloud shared services, end user enablement tools, and a VPN (virtual private network) for remote workforce enablement. The request also provides PBX (Private Branch Exchange) infrastructure to support voice and call-center services.

It is anticipated that the Library will have budget requests in FY2019 and beyond intended to facilitate Copyright IT modernization, including costs to upgrade enterprise services and other costs associated with the shared services upon which the future-state Copyright IT enterprise solution will rely.

²⁸ See Appendix A: Glossary for definition of DME.

²⁹ See Appendix A: Glossary for definition of O&M.

³⁰ Consolidated Appropriations Act, 2017, Pub. L. No. 115-31, 131 Stat. 135 (2017).

4.3 Shared Services Model for Copyright Office Modernization

OCIO currently provides the Copyright Office, along with all of the Library’s service units, with the vast majority of its commodity IT needs. These include network infrastructure, file storage, database services, desktop computers, IT help desk services, and standard software licenses. Under the expanded shared services model reflected in this Modified IT Plan, OCIO also will provide IT governance and management services.

While OCIO will continue to provide such commodity IT needs such as email and helpdesk services to USCO, the Library’s new IT model will further centralization of enterprise IT functions in OICO, resulting in changes to current practices related to software development, IT planning, and day-to-day maintenance, among other areas. For example, while historically OCIO has not typically provided project management services for software development, going forward, these functions will be more fully under OCIO control. Moreover, although the Office, through its Copyright Technology Office, has long been responsible for overall IT planning and day-to-day management and maintenance of the Office’s mission-specific IT systems, OCIO will now oversee the technology planning efforts and the day-to-day maintenance of all USCO systems, pending centralization of IT resources, both personnel and non-personnel.

The assumptions regarding shared services provided by OCIO that underlie this Modified IT Plan include:

1. The Copyright Office will leverage those OCIO-provided services that meet the requirements of USCO.³¹
2. If no OCIO-provided service can meet the requirements of USCO, then it is assumed OCIO will work with USCO to obtain the capability.
3. Existing USCO business platforms that support key business functions (e.g. Registration and Recordation) must be replaced in order to achieve USCO modernization goals.

Considering these assumptions, this Modified IT Plan identifies services that should be performed by OCIO to maximize opportunities for shared efficiencies, while calling out those activities that properly remain within USCO.³² The table below provides a high-level overview of which activities and services will be provided by OCIO going forward, and which activities will of necessity be conducted by USCO. Each of these activities was assigned to USCO in the Provisional IT Plan.

Table 1: OCIO and USCO Division of Responsibility

1. IT Organization and ITSM O&M	
Provided by OCIO:	Provided by USCO:
<ul style="list-style-type: none"> • IT Security Management • Enterprise Project Management • Website Support • Database Management • IT Service Desk • Server Management Offering • Business Relationship Management 	<ul style="list-style-type: none"> • Application and Process Owners (Business Owners) • System Owners • Program Management Support Staff (Managers/Analysts)³⁴ • Sustainment/Contingency

³¹ A service is defined as “the application of business and technical expertise to enable organizations in the creation, management and optimization of or access to information and business processes.” *IT Services*, GARTNER: IT GLOSSARY, <http://www.gartner.com/it-glossary/it-services>.

³² Certain OCIO provided services (e.g. USCO application development) will be funded through the USCO budget since certain services are likely to benefit only USCO and its customers.

³³ See *infra* Section 3.

Table 1: OCIO and USCO Division of Responsibility (continued)

2. Application Operations and Maintenance (O&M)	
Provided by OCIO:	Provided by USCO:
<ul style="list-style-type: none"> • Account and Access Management • Business Relationship Management • Server Management Offering • Voice and Telecommunication Services • Website Support • Application Lifecycle Management • Enterprise Project Management • IT Security Management 	<ul style="list-style-type: none"> • Provide Access to Copyright Office Business Applications
3. IT Infrastructure O&M	
Provided by OCIO:	Provided by USCO:
<ul style="list-style-type: none"> • Workstation Services • Account and Access Management • Server Management Offering • Data Network Management • Voice and Telecommunication Services • IT Service Desk • Backup and Restore Management • Database Management • Website Support • Application Lifecycle Management • Enterprise Project Management • IT Security Management 	
4. Development, Modernization, and Enhancements (DME)	
Provided by OCIO:	Provided by USCO:
<ul style="list-style-type: none"> • Workstation Services • Mobile Services • Business Relationship Management • Server Management Offering • Data Network Management • Voice and Telecommunication Services • IT Service Desk • Backup and Restore Management • Database Management • Website Support • Application Lifecycle Management • Enterprise Project Management • IT Security Management • IT Strategic Planning and IT Governance 	<ul style="list-style-type: none"> • USCO IT Operating Model <ul style="list-style-type: none"> • Business Governance • Business Relationship Management • SDLC Application Lifecycle Support <ul style="list-style-type: none"> • Business Requirements Gathering • USCO Government Labor: <ul style="list-style-type: none"> • Transition USCO Modernization Office (CMO) • USCO Leadership, Service Owners, and other Employees • Contingency Funds
5. Desktop/Staff User Devices and Services O&M	
Provided by OCIO:	Provided by USCO:
<ul style="list-style-type: none"> • Workstation Services • Mobile Services • Electronic Messaging • Voice and Telecommunication Services 	

4.4 New Shared Services Required for Copyright Office IT Modernization

In addition to the existing OCIO-provided services identified above, this Modified IT Plan assumes that OCIO will provide certain new or updated shared services as necessary to realize Copyright Office modernization as envisioned in the Provisional IT Plan and this Modified IT Plan. By way of example, USCO identified a technical requirement for 24-hour on-site support for the Library's Network Operations Center ("NOC") and Security Operations Center ("SOC"). OCIO currently provides 24-hour monitoring of IT services, but does not have 24-hour on-site staff to immediately remediate outages that occur after hours.³⁴ OCIO now intends to enhance its security service offerings to address this requirement. As modernization efforts continue, USCO and OCIO will continue to work together to identify similar gaps between current IT services provided by OCIO and the services necessary for the anticipated future-state Copyright IT enterprise solution. When such gaps are identified and addressed, USCO and OCIO will execute appropriate system-level SLAs and operating procedures to meet USCO business requirements.

³⁴ OCIO has a stated goal of 99.9% uptime, with eight hours of scheduled downtime per year.

5.0 PLAN FOR MODERNIZATION OF COPYRIGHT OFFICE IT SYSTEMS

5.1 Overall Approach For Modernization and Phase Milestones

Modernization of the Copyright Office IT systems is but one part of modernization of the overall Copyright Office. While the discussion above has explored how Copyright Office IT modernization can fit within the ongoing IT modernization efforts of the Library, it is also important to recognize that Copyright Office IT modernization must occur in concert with staffing, administrative practice, and regulatory changes so that the national copyright system can serve the twenty-first century needs of its customers and the public at large. The end vision is of a Copyright Office that is lean, nimble, results-driven, future-focused, and able to meet the varied needs of industries at the core of our digital economy. As the 2016 Provisional IT Plan explained, “modernization of the Copyright Office is a comprehensive undertaking requiring work to proceed on multiple fronts in tandem, including updates to Office staffing, funding, IT systems, and administrative practice, as well as potential changes to the copyright laws of the United States.”³⁵

While IT modernization is not the only piece of overall Copyright Office modernization, it is a crucial component, as technological systems that are outdated (or completely lacking, as in the case of the paper-based recordation system) currently prevent the Office from adopting the “major regulatory changes necessary to effectively examine, register, protect, document, and license copyright interests and information.”³⁶ The following section outlines the approach to USCO IT modernization, including, at a broad level, the business needs of its major systems and the targeted milestones for the Office to efficiently and quickly achieve a future-state USCO IT enterprise solution that, in turn, will be the cornerstone of the Copyright Office of the future.

The USCO IT enterprise solution of the future will be composed of several distinct but interrelated systems. These include the Registration, Recordation, Public Catalog, and Statutory License systems. While modernization of each Copyright IT system will not occur on the same timeline, it will track through set phases as each system is conceived, developed, and deployed to achieve the future state USCO IT enterprise solution. For each system, USCO modernization includes three critical phases:

1. Develop and deliver a modernized system,
2. Transition internal and external stakeholders to the modernized system, and
3. Decommission legacy IT systems.

These phases are illustrated on the following page:

³⁵ PROVISIONAL IT PLAN at 1. See also U.S. COPYRIGHT OFFICE, STRATEGIC PLAN 2016–2020: POSITIONING THE UNITED STATES COPYRIGHT OFFICE FOR THE FUTURE (2015), <https://www.copyright.gov/reports/strategic-plan/USCO-strategic.pdf>.

³⁶ PROVISIONAL IT PLAN at 1.

Figure 3: Overview of USCO Modernization Phases

Phase 1	Phase 2	Phase 3
<p>Objective: Establish IT modernization processes and planning and begin development of target state solutions necessary for USCO IT Modernization</p> <p>Focus Areas:</p> <ul style="list-style-type: none"> Establish processes and governance Conduct analysis of potential solutions Design, develop, test, and deploy next-generation solutions to replace current IT systems to improve customer experience 	<p>Objective: Begin transition to USCO target state architecture</p> <p>Focus Areas:</p> <ul style="list-style-type: none"> Migrate data to target state solution Execute change management activities to train internal and external users on target state system Complete transition to target state architecture 	<p>Objective: Begin Decommission remaining legacy systems</p> <p>Focus Areas:</p> <ul style="list-style-type: none"> Complete USCO IT Modernization Decommission legacy systems

Phase One. The initial key milestones for phase one are establishment of processes and governance for the IT project, and the design, development, testing, and deployment of each modernized USCO core IT system (Registration, Recordation, Public Catalog, and Statutory Licenses) to replace the legacy IT systems and previously manual processes. As key mission IT services are designed and developed in Phase One, USCO and OCIO will adopt best practices supporting parallelism and agility to drive system development speed, enabling value realization by timely inputs and rapid integration and testing. As outlined below, completion of the development milestone itself requires completion of a range of activities, including the gathering of business requirements, the development and testing of systems, staff training, and stakeholder engagement. This phase of IT system modernization may in turn be accompanied by other aspects of Office modernization on an as-needed basis to transform the Office’s key services, such as business process reengineering or regulatory updates. While this Modified IT Plan describes the activities included in Phase One at a high level, on the ground, USCO and OCIO intend to work collaboratively to plan and track IT modernization activities carefully and in a logical, detailed manner that follows the Library’s established practices and governance for IT development. This plan will therefore be updated with additional detail as Copyright IT modernization activities progress.

Phase Two. The key milestones in phase two include migration of legacy data to the modernized IT system and the transition of internal and external stakeholders to the modernized IT system. During this phase of the modernization effort, both the legacy IT system and the modernized IT system must run in parallel to ensure that a period of comparable validation/testing occurs as the legacy system data is migrated. While transitioning over to the modernized IT system, change management activities (such as training, job aids, etc.) will be conducted to prepare internal business stakeholders to use the new IT systems.

Phase Three. The third key phase will be complete upon the decommissioning of each legacy IT system and cut-over to the modernized IT system.

Each phase will require the completion of numerous projects in order to meet the associated milestones; in some cases, multiple projects may relate to a specific service provided by the Office.³⁷ Each project will be individually chartered at project initiation and project managers will be fully responsible for maintaining project schedules. Master schedules tracking the progress of all projects against milestones will be maintained by both the CMO and the OCIO PMO to ensure progress aligns with business and technical requirements.

³⁷ For example, as explained below, the Registration System update is envisioned to be separated into two phases, focusing on the consumer-facing and internally-facing components of the system.

An Agile development methodology will be used to deliver new and updated technology systems. Thus, while the phases are described above in a linear manner, Agile development involves defining and delivering many releases that are smaller in scope instead of a small number of major releases. While the above schedule reflects several large milestones, the actual delivery will involve many more small releases. These will be planned as part of each project and tracked by that project's master schedule. Capabilities will be delivered as soon as they are ready and users transitioned to new systems over time.

5.2 Integrated Timeline

Modernization efforts will be proceeding on parallel tracks with respect to several different core Copyright IT systems on a staggered basis. As noted earlier, the ever-evolving nature of technology and the adoption of an Agile development model mean that the timeline for Copyright Office modernization will necessarily be subject to continued modification and refinement throughout the process.

During FY2017, USCO and OCIO are moving forward with tasks related to requirements gathering and early phase development for the new Recordation system; business analysis and customer needs analysis for redevelopment of the front-end portion of the new Registration system; and digitization of historic records³⁸ and development of a comprehensive data management plan and strategy to inform development activities related to a new Public Catalog system. The Office is also engaging in one-time hardware and software upgrades and staffing up for ongoing IT operations and planning.

Subject to resource availability, USCO's FY2018 IT modernization planning reflects beginning development of the new Recordation system; continued activity related to business requirements gathering for the next generation Registration system; continued work on the data management initiative for the Public Catalog system; and release of a searchable section 115 NOI system and database update to stabilize the existing Statutory Licensing system.

For FY2019, USCO will continue to work with OCIO to plan for anticipated activities and resources. The Office intends to prioritize the ongoing staffing of the CMO so that appropriate coordination and oversight are in place to achieve the planned modernization goals across all systems. Subject to resource availability, additional planned activities include iterative requirements and early-stage development of the new Registration system; continued iterative development of the Recordation system; business requirements gathering for the new Public Records Catalog system; and assessment and gap analysis of requirements documentation for the Statutory Licensing system. Depending on technology risk and the availability of resources, it is possible that the full completion of all stages of Copyright IT modernization may go beyond FY2022.

5.3 USCO Funding for IT Modernization

In FY2017, Congress provided fee spending authority of \$9.8 million to support registration services and IT more generally, including (1) \$1.123 million to develop a comprehensive data management plan and strategy to include the adoption of data standards and formats in wide use within the digital economy; (2) \$1.616 million to implement hardware and software upgrades to increase the efficiency of the Copyright Office IT system testing capability and to increase system reliability; (3) \$3.440 million to convert digitized records into searchable text using Optical Character Recognition ("OCR") software and contribute to the creation of an online searchable index of pre-1978 copyright records (which will

³⁸ This project has been ongoing since prior to comprehensive Copyright IT modernization planning.

be a significant benefit to users of Copyright Office records); and (4) \$2.350 million for fifteen IT positions for ongoing technology operations and planning essential to modernization.

The Copyright Office is requesting FY2018 funding for activities that are early-phase projects of the multi-year Copyright IT modernization effort. The request is for \$3.629 million from two different funding sources (\$2.2 million from prior year unobligated balances, and \$1.4 million in increased appropriated funding). This will fund several interrelated activities that support the Copyright IT modernization goals and align with the Library's integrated modernization plans and strategic IT vision. The 2018 activities requested are: 1) business requirements analysis for a next-generation registration system to begin the first phase of development through a comprehensive analysis of business requirements; and 2) stabilization of legacy IT systems necessary to continue business by maintaining the stability, security, and reliability of existing public-facing IT systems and the underlying data repository while modernization activities and efforts are underway. For example, critical upgrades would include eCO registration system and database upgrades to support the backbone of Copyright IT operations during the modernization transition by installing security enhancements to allow for enhanced system monitoring and reducing the risk of system intrusion.

The Office currently is working with OCIO to determine the FY2019 resource needs for planned modernization activities in that fiscal year. Although specifics for the funding request will be driven by these joint planning efforts, the Office has determined that additional resources will be needed by the Office in FY2019 to support the CMO. Subject to input from OCIO, the Office also expects to request funding to continue the iterative development of the various USCO systems and to begin planning for the future retirement of existing legacy systems.

5.4 IT Modernization Efforts Related to Individual Copyright IT Systems

The following sections describe the plans for each of the major USCO IT systems. While this provisional update describes these major services in broad terms, it is important to recognize that IT modernization also requires modernization of related support functions that are vital to the administration of the nation's copyright system but may be less familiar to external users. The scope of requirements for IT modernization must include the needs of all Copyright Office program areas that rely on access to the Registration and Recordation systems, such as the Office's Receipt Analysis and Control Division, and the Public Information and Education Office, and other IT systems for those divisions to do their work effectively.

In addition, USCO and OCIO will conduct analyses and studies to gather requirements and better understand the functionality needed for cross-cutting aspects of the future-state USCO enterprise solution, such as long-term storage needs for electronic records (including recorded documents and electronic deposits), payment processing (*i.e.*, interface with pay.gov, deposit accounts), and chain-of-title sequencing that can link registrations to recorded documents. Because these aspects can have implications for multiple core systems, USCO and OCIO will endeavor to ensure that design is conceived of in a thoughtful manner that minimizes duplication of systems and interfaces with different modules of USCO's enterprise IT system. The Office and OCIO will likewise look for opportunities, when practicable, to take advantage of progress achieved with respect to one major system as a basis for the IT modernization of other systems that may be on a different timeline.

Finally, note that USCO may have other additional IT needs that are not cataloged below.

5.4.1 Recordation of Copyright Documents

The Copyright Office is designated by law to maintain official records pertaining to copyrights, such as assignments, licenses, and grants of security interests. Since 1870, the Copyright Office has performed this crucial function. Every year, authors, heirs, copyright owners, and others submit thousands of documents to the Copyright Office for public recordation, including copyright assignments, licenses, and other records relating to chain of title for copyrighted works. Congress has encouraged the submission of documents for recordation by providing certain legal benefits as a consequence of recordation, such as providing constructive notice of the facts stated in the recorded document, or requiring recordation as a condition for the legal effectiveness of notices of termination.³⁹ The Office therefore has an important interest in ensuring that the public record of copyright transactions is as timely, complete, and accurate as possible.

Current Paper-Based System

The current process that the Copyright Office utilizes for the administration of the receipt, examination, and recordation of documents has remained unchanged for decades; it is time-consuming, paper-based, and labor-intensive, requiring remitters to submit their documents in hard copy and Office staff to undertake a variety of steps, including digitizing the paper document, processing each fee payment, and searching through the document for extensive indexing information that is then manually input into the Office's electronic public catalog.

The USCO recognizes that it is critical to reengineer the document recordation function for at least three reasons:

- » The current system is inefficient, as customers must submit paper documents, which Office staff then converts to electronic records by manually keying information from the documents into an IT system for processing.
- » The IT system used to process documents is built on aging technology that has become increasingly burdensome to maintain.
- » The information collected into the current IT system is limited by technological and human resource constraints, and as a result the amount of information that can be pushed into the public catalog is also limited, resulting in a dearth of information available in the digital public record.

Because it is currently paper-based, the recordation function requires IT modernization that will offer a clean slate opportunity for USCO and OCIO to design a future-state system, and the Office has spent the past few years engaged in preparatory work for Recordation modernization.

The Office spent two years meeting with stakeholders and conducting public discussions on a variety of issues relating to its Recordation services, including the topics of global metadata standards, interoperability of databases, and legal requirements or policy goals of the Copyright Act.⁴⁰ In addition, the Office's 2014 Kaminstein Scholar spearheaded an extensive review of the Recordation system, including potential efforts for modernization, during which the Office conducted public roundtables and solicited public comments on a variety of recordation-related issues, resulting in the 2014 report *Transforming Document Recordation at the United States Copyright Office*.⁴¹ Building upon these documents, the 2016 Provisional IT Plan articulated in broad strokes the vision of a future state Recordation system:

³⁹ See Modernizing Copyright Recordation, 82 Fed. Reg. 22771 (May 18, 2017) ("Recordation NPRM").

⁴⁰ See U.S. COPYRIGHT OFFICE, REPORT AND RECOMMENDATIONS OF THE TECHNICAL UPGRADES SPECIAL PROJECT TEAM 4–5 (2015), https://www.copyright.gov/docs/technical_upgrades/usco-technicalupgrades.pdf.

⁴¹ ROBERT BRAUNEIS, TRANSFORMING DOCUMENT RECORDATION AT THE UNITED STATES COPYRIGHT OFFICE 8 (2014), <https://www.copyright.gov/docs/recordation/recordation-report.pdf> (summarizing outreach efforts).

The Copyright Recordation system would move from a paper-based intake system to an automated system where recording parties may enter their own information, using metadata standards established or adopted by the USCO. For example, a party could record a change in copyright ownership immediately at the time of contracting. As appropriate or required, the USCO would exercise quality review consistent with the requirements of the Copyright Act, *i.e.*, to ensure priority filing and authoritative information. Digital search capabilities will provide users with dynamic access to the Office's recordation data.⁴²

Using funding received in fiscal years 2015 through 2017, the Office documented comprehensive business requirements for a future-state recordation function, developed technical requirements for a system to support the future-state recordation function, and developed a data model and design documents.

In addition, to lay the regulatory groundwork for an electronic Recordation system, in May 2017 the Office issued a notice of proposed rulemaking that detailed amendments designed to update the Office's regulations once the new electronic system is developed and launched.⁴³ While recognizing that deployment of a fully electronic Recordation system is required to implement most of the proposed regulatory changes, the Office sought public comment at this time to gather stakeholder input to inform a number of policy decisions critical to the design of the to-be-developed system.⁴⁴ In the meantime, to the extent some of the changes can be implemented without the new system in place (*e.g.*, accepting electronically signed documents and new requirements for electronic title lists, completeness, and redactions), the Office intends to issue an interim rule that adopts some aspects of the proposed rule until such time as the electronic Recordation system is complete and a final rule is enacted.⁴⁵

FY2018 Recordation IT Modernization Efforts

As a result of these efforts, in FY2018 OCIO will begin to develop the future-state Recordation system. The development will be a joint effort between the Copyright Office and the Library's OCIO, following the collaborative model described in this Modified IT Plan. Using funds received through an earlier program increase, system software development will begin in FY2018, and plans are to complete system framework and design, with implementation to be done in the cloud.

Recordation IT Modernization Efforts in FY2019 and Beyond

Subject to resource availability, the estimated time to pilot and transition to a modernized Recordation system is roughly two years. The Copyright Office will continue its stakeholder outreach while deploying the modernized Recordation system. In addition, successful transition to the future system will require the Office to update its business processes, train its staff, and finalize the regulatory updates needed to completely implement a fully electronic Recordation system.

5.4.2 Copyright Registration

As the administrator of the nation's copyright system, it is essential that the Copyright Office have the tools necessary to receive, review, and analyze applications for copyright registration. Since 2007, the Office has relied on its online registration system (eCO) to conduct the vast majority of this business. Now, over ten years since a comprehensive

42 PROVISIONAL IT PLAN at 5.

43 Recordation NPRM at 22771–72.

44 *Id.*

45 *Id.* at 22772.

overhaul of the system, the Office's reliance on eCO is increasingly strained. The Copyright Office recognizes the need to modernize the IT functions of registration, which reach throughout the submission and review process and impact almost every part of the registration workflow.

Current eCO System

The current eCO system has many limitations, including an unfriendly user interface and cumbersome claims updating capabilities. The age of the database and its history of layers of custom code built on top of a commercial product add risk and complexity to the general maintenance of the system, impeding necessary updates to reflect new business needs or regulatory changes. The difficulties USCO's internal and external users face in interacting with the system, and the system maintenance constraints that prevent USCO from easily implementing even minor changes, significantly impair the overall efficiency of the registration process, making the eCO system a major contributing factor in the current registration backlog.

The eCO system features both a public-facing web portal through which the public may submit applications to register copyright claims⁴⁶ and a back-end system that allows the Office to process these claims.⁴⁷ Data input through both the public-facing web portal and the back-end USCO Registration system are accessed and stored using OCIO-provided infrastructure. This data in turn is fed into the Public Records Catalog database, as described below. Users are assisted through help desk services provided by USCO (external users) and OCIO (internal users).

FY2017 and FY2018 Registration IT Modernization Efforts

Subject to the availability of resources, and in coordination with OCIO, in FY2018 the Office will begin the first phase of development of a next-generation Registration IT system by conducting a comprehensive analysis of business requirements for the public-facing, front-end functionality. External users from across copyright industries and user groups will be invited to provide input and expertise to the Office during the requirements analysis phase in order to ensure that the unique needs and specific requirements of the widest array of user groups are documented and ultimately incorporated into the new Registration IT system. It is envisioned that requirements gathering, requirements validation, and system design sessions will take place with various copyright industry and user group partners in several geographically disparate locations, so anticipated costs include both contract support and travel. The intention is to select technology and system architecture that will ensure full and seamless integration of Office services with a consistent user experience, as well as a comprehensive presentation of authoritative copyright data that can integrate into the Public Records Catalog.

For FY2018, the Office requested \$1.2 million for requirements analysis for a next generation Registration IT system, and to support the initial follow-on development. In addition, using existing FY2017 funds, the Office has a pending award of a contract to provide business analysis, customer research, and user experience expertise for replacement of the public-facing web portal. The contractor will provide findings and recommendations that will be used to efficiently and strategically move towards the development stages. The process will be iterative, with requirements gathering and incremental development taking place in continuous sequencing to allow for rapid delivery of functionality. The Office

⁴⁶ This portal uses a commercial, off-the-shelf module to facilitate submission of copyright registration application data and copies of works being registered, and currently redirects applicants to Treasury Department's pay.gov system for payment of fees by credit card and electronic check, rather than handling payment processing within the system itself.

⁴⁷ The back-end system is built on a related commercial, off-the-shelf product, and supports processing of copyright claims and documents submitted for recordation. In addition, the back-end system is used for tracking financial transactions, responding to requests for Copyright Office records, and issuing and processing demands for published works not submitted for copyright registration.

notes, however, that this is just the first phase; the initial focus is on the user interface and business requirements gathering for the external user interface. In addition to requirements gathering and development of a new Registration system, the FY2018 request would also support the existing eCO system, as it must be stabilized and prepared for transition and retirement.

Registration IT Modernization Activities in FY2019 and Beyond

The Office currently is working with OCIO to determine the FY2019 resource needs for the Registration IT system modernization efforts, as well as the recurring funding needs to reach the modernization goals.

Because FY2018 activities are planned to focus primarily on updating the existing user interface while maintaining existing capabilities, these activities would need to be followed by additional efforts to comprehensively overhaul the back-end Registration IT system into a future system that is secure, results-oriented, flexible, and future-focused. These Registration IT modernization efforts will take place over several years, including changes that would reflect larger policy and regulatory decisions. To take a single example, the eCO system does not allow users to electronically submit a request for reconsideration of a denial of a claim to copyright. While Copyright Office regulations detail procedures for two levels of administrative review of denials of registration,⁴⁸ due to current technology limitations, such requests for reconsideration must be physically mailed in and manually input by Office staff into the eCO database, and these correspondence records are not included in data transmitted to the Public Records Catalog. A modern Registration IT system should allow for electronic filing of, and integration of records relating to, administrative appeals to promote efficiencies and improve the quality and ease of access to public records related to copyright registrations. Even this relatively discrete upgrade, however, will require an update to the Registration IT system to accommodate the digital submission of appeals, and then a corresponding enhancement to the user interface once the capability has been established.

Accordingly, in FY2019, the Office and OCIO plan to conduct requirements gathering for back-end development of the new Registration IT system through outreach and analysis of existing documentation, followed by development, initial piloting, and release of the next-generation Registration IT system.

Finally, as noted above, in addition to modernization of the eCO system, a modern Registration IT system will necessarily involve IT modernization of many vital support services currently offered by the Office.

5.4.3 Public Records Catalog

The Copyright Office is an office of public record and it maintains the largest catalog of records of copyright ownership in the world. The Office's Public Records Catalog includes both electronic and physical records in a variety of formats, ranging from 1870 to present.⁴⁹

48 37 C.F.R. § 202.5.

49 On January 1, 1978, the Office began creating and maintaining public records in electronic form. The Office's Public Catalog spanning the period 1870 through 1977, which totals some sixty-two million records, comprises a large collection of index cards; 27,000 bound volumes of original applications and other documents; the 660 volume *Catalog of Copyright Entries*; and microfilmed records. The Office is currently engaged in a multi-year effort to digitize the entire pre-1978 collection of physical records, with the goal of integrating the pre-1978 records into the next-generation online Public Catalog.

The records are a historically important snapshot of the culture of the United States, primarily relating to copyrightable expression and authorship, in addition to copyright ownership. They provide valuable information to copyright owners and users that underpin a vibrant global private licensing marketplace for copyrighted works. In addition, certain legal obligations or benefits may depend upon access to information contained in the Office’s public records.⁵⁰

Current Public Records Catalog

The online Copyright Public Records Catalog, available via copyright.gov, currently hosts twenty-nine million records of registered works and copyright-related documents. The database that maintains these records is integrated with the Office’s registration system (eCO) and legacy systems that support the recordation function; accordingly, new records are created daily as Copyright Office staff registers copyright claims and records documents.⁵¹ The database currently holds 700 GB of digital assets, which is growing at a rate of 5.0 GB per month. Because the data included in the catalog is limited by the sources from which it is drawn, technological limits of the Registration and Recordation systems (for example, limited fields to accept information related to recorded documents) affect the quality of these public records. This system offers limited search options through a web-based public interface.⁵²

As an offshoot of the 2011 Register’s report on *Priorities and Special Projects of the United States Copyright Office 2011-2013*, which included an initiative to make the Office’s historical records more accessible to the public, the Office surveyed broad categories of users (government officials, lawyers, researchers, rights management personnel, creators, rightsholders, and libraries/archives/museums) as a first step toward gathering functional requirements for a next generation Public Records Catalog IT system. The survey generated approximately 1,300 responses, and analysis of the results provided valuable user insights into the need for specific improvements to the Public Records Catalog, including but not limited to the following:

- » Enable users to retrieve the certificate or recorded document image to review transaction details that are not available in the current catalog record.
- » Make pre-1978 copyright records available online.
- » Allow authorized parties to indicate where accurate “links” can be made among public records in order to connect varying forms of an author/creator’s name among public records for registrations and recorded documents.
- » Enable authorized remitters to add/update “rights and permissions” contact information online.
- » Evaluate options to make information about in-process registrations and recordations available online.
- » Improve searchability, for example by including registration numbers in recorded documents to help catalog users follow the chain of ownership and providing more robust help and instruction for conducting searches and interpreting results.

Survey respondents also identified functional limitations/weaknesses with the current Catalog solution, which limits retrieval of search sets to 10,000 results and has limited search capabilities. For example, the current documents record structure does not support search and retrieval of records by querying both Name and Title, because party names and titles are stored in separate records.

⁵⁰ See, e.g., 17 U.S.C. § 115(b)(1) (providing method of making use of compulsory license for nondramatic musical works if such works are not identified in the “public records of the Copyright Office”).

⁵¹ The database and associated search engine used for the current Public Records Catalog is Voyager ILS, a commercial off-the-shelf product designed specifically for libraries.

⁵² Voyager ILS was implemented in the early 2000s as the Library’s online bibliographic catalog. The Copyright Office leveraged an instance of Voyager ILS as its public records catalog in 2007 as a cost-saving measure.

As a result of this and other feedback, the Office is planning to update the Public Records Catalog IT system with a federated search technology that will allow users to search across registration, recordation, and licensing databases, and establish chain-of-title sequencing that can link registrations to recordations or other documents. The Office intends to transition the storage of future public catalog records outside of the Voyager ILS database, and will analyze whether to migrate existing records over to the new solution or to link back to current records through the federated search technology.

In part because the modernized public catalog must be capable of absorbing, quickly retrieving, and succinctly providing information gathered through the future-state Recordation and Registration IT systems, the timeline for modernization of the Public Records Catalog IT system follows slightly behind the phased planning for those systems.

FY2017 and FY2018 Public Records Catalog IT Modernization Efforts

During FY2017, USCO is continuing the ongoing project of digitizing its historic records. Subject to the availability of resources, in FY2018 the Office plans to launch an initial phase in modernization of the Public Records Catalog IT system by recruiting and hiring data experts to manage a comprehensive data management initiative. The Office also plans to develop and deploy a proof of concept virtual card catalog for records spanning 1951–1977. Outputs of the initiative will include an Office-wide data management plan, data strategy, and data models, all of which are critical inputs for optimal design of the future-state Public Records Catalog system.

Public Records Catalog IT Modernization Activities in FY2019 and Beyond

The Office is tentatively planning an FY2019 request for funding that will support an analysis of business requirements for a future Public Records Catalog IT system. This process will also include an analysis of alternative solutions. Following this analysis, a solution design would be implemented and tested. The Office and OCIO will update the data management solution as needed to incorporate new modules for this new enterprise solution. Ultimately, data migration will be completed and legacy systems retired.

5.4.4 Statutory Licensing

The Copyright Act allows certain conditional uses of copyrighted works without the permission of copyright owners, provided that those uses comply with compulsory licensing requirements. Every year, the Office reviews thousands of statements of account submitted by filers subject to the various licensing provisions, and, for certain licenses, the Office acts as a fiduciary in the transfer of royalty fees paid by licensees to copyright owners. In an average year, the Office collects and invests more than \$200 million in royalty fees on behalf of copyright owners.

The complexity of the licensing provisions and the high dollar value of the sums invested on behalf of copyright owners necessitate a robust, stable system for filing, processing, searching, and archiving the collected data. The Office and its stakeholders recognize that the current system for ingesting and examining most licensing data, which has been in continuous operation since 1992, has aged to the point of technological obsolescence.

Current Statutory Licensing Systems

With support of its user communities, the Office commenced its initial efforts to modernize and replace the existing system in 2010, when it launched a multi-year reengineering project for the Office's Licensing Division. Although licensing system development efforts were halted in 2016 to reassess scope, those initial reengineering efforts resulted in organizational, workflow, and policy changes that have positively impacted all licensing processes. In addition, the reengineering efforts produced a set of detailed business requirements that will be used to accelerate deployment of a new Statutory Licensing system.

In advance of planned, new development efforts, the Office has taken a number of steps to modernize the operations of the Licensing Division for the benefit of its stakeholders, including:

- » In April 2016, the Office introduced a procedure to allow licensees to file section 115 NOI electronically.⁵³ Since introducing this new electronic process, the Office has received filings covering millions of songs from a wide range of digital music companies including Apple, Spotify, Google, Amazon, and Microsoft.
- » At the request of stakeholders, the Office is working to create a database of section 115 NOIs, which will include the ability for the public to search and extract NOI data filed with the Office. The NOI database project is being coordinated with OCIO, and includes a second phase which will provide for bulk data extraction options.
- » In May 2017, the Office introduced a procedure to allow cable companies to electronically sign and file section 111 Statements of Account ("SOA") with the Copyright Office.⁵⁴ Along with this change, the Office introduced electronic SOAs, which are new, fillable submission forms that can significantly reduce data input and review times. Cable operators began submitting these new "e-SOAs" for the accounting period that ended June 30, 2017.
- » In August 2017, the Office entered into an agreement to have OCIO deliver an upgrade to the existing statutory licensing system to provide better system security and stability through legacy system retirement and provide for an efficient transfer of data once the new Statutory Licensing IT system is online.

FY2018 Statutory Licensing IT Modernization Efforts

The Office projects that two statutory licensing-related IT projects will be completed in FY2018. First, a tentative release date for the new searchable database for section 115 NOI data is scheduled for end of FY2018. Second, OCIO and the Office have targeted September 2018 for the conclusion of the database upgrade to enhance security and stabilize the existing Statutory Licensing system.

Statutory Licensing IT Modernization Activities in FY2019 and Beyond

The Copyright Office intends to restart development of the reengineered Statutory Licensing system, and may request new budgetary authority in FY2019 for use of licensing royalty fees to commence that work. The development restart would be in collaboration with OCIO and the affected stakeholder communities. The Office will work with OCIO to determine what, if any, additional budgetary requests will be made. Such requests would be expected to be recurring, although the initial, higher development costs are expected only in the first two to three years. OCIO is planning a phased release of functionality beginning in 2021 and extending through tentative full deployment in 2022.

⁵³ *Notice of Intention to Obtain a Compulsory License Section 115*, U.S. COPYRIGHT OFFICE, https://www.copyright.gov/licensing/sec_115.html; *Section 115 NOIs May Now Be Filed With Office in Bulk Electronic Form*, U.S. COPYRIGHT OFFICE: NEWSNET (Apr. 13, 2016), <https://www.copyright.gov/newswenet/2016/618.html>.

⁵⁴ *Authentication of Electronic Signatures on Electronically Filed Statements of Account*, 82 Fed. Reg. 22,884 (May 19, 2017).

6.0 FUNDING STRATEGIES

6.1 New Possible Funding Strategies

In addition to developing a more detailed and collaborative IT modernization plan that explores additional shared services, the House Committee on Appropriations also requested that USCO “include any new funding strategies based on the comments received from the public regarding changes in fee structures.”⁵⁵ USCO supports consideration of options that would empower the Office to collect and apply fees with more flexibility. Among other things, USCO would welcome explicit authorization from Congress permitting the Office to consider a full range of innovative fee strategies such as subscription fees, differential fees, or additional fees for high-volume access to improved and modernized data. Additional flexibility in these areas would have the benefit of facilitating the Office’s ability to identify certain services for which fees could be set at a below-cost basis in order to encourage the use of USCO services that are largely voluntary (*e.g.*, aspects of copyright recordation) but that have significant benefits for the public record.

Public comments to the original Provisional IT Plan were generally supportive of increased fees for enhanced technological services. In certain instances, however, this support was expressly based on the expectation of an administrative model under which the Office would have maximum autonomy and responsibility for administering the copyright laws and the services the Office provides.⁵⁶ The Office cannot anticipate stakeholder reaction to a fee increase in connection with this Modified IT Plan, but can safely predict likely support for more innovative fee strategies. USCO will seek further public input now that this Modified IT Plan is available, and will inform the Committee of the results. Despite public support for some increase in fees in exchange for improved Copyright IT systems, public comments did not support Copyright IT modernization being fully fee-funded; in fact, many noted that it was premature to determine a fees/appropriated dollar ratio and endorsed the notion that taxpayer support has an important role in modernizing Office IT systems.

In any proposed fee/appropriated dollar ratio, the Office maintains that a flexible use of the Office’s prior year unobligated fee balances would be essential to successful IT modernization implementation. To further the efficient operations of the Office and its modernization efforts, the Office has requested legislative language that would provide for additional flexibility in the use of prior-year unobligated fee balances. Further, the proposed language would allow the Office to continue operations in the event of a lapse in appropriations by authorizing the use of prior-year unobligated balances. In addition, the language would provide for 20% of the prior-year unobligated balances to be available each year, in addition to appropriated amounts, for obligation without fiscal year limitation for large, expensive, or necessary technology enhancements associated with modernization.

6.2 Fee Study

To begin exploring possible funding strategies, the USCO has commenced a fee study, bringing in expert consultants for the first time in decades to examine the Office’s operations and recommend newer strategies for cost recovery. The fee study spans the entirety of USCO’s operations, and will include both an evaluation of the internal drivers of the Office’s

⁵⁵ 163 Cong. Rec. H4033 (daily ed. May 3, 2017) (explanatory statement submitted by Rep. Frelinghuysen, Chairman of the H. Comm. on Appropriations), available at <https://www.congress.gov/congressional-record/2017/5/3/house-section/article/H3949-2>.

⁵⁶ See, *e.g.*, Intellectual Property Owners Association, Comments Submitted in Response to the U.S. Copyright Office’s March 1, 2016 Notice of Inquiry at 2, 4 (Apr. 1, 2016); Internet Association, Comments Submitted in Response to the U.S. Copyright Office’s March 1, 2016 Notice of Inquiry at 3 (Apr. 1, 2016); American Intellectual Property Law Association, Comments Submitted in Response to U.S. Copyright Office’s March 1, 2016 Notice of Inquiry at 2 (Mar. 31, 2016).

costs, as well as external factors, such as an assessment of economic trends that affect stakeholder value, statutory restrictions, and policy goals. The fee study is expected to be completed in late November 2017, with fee proposals to be submitted by USCO for Congressional review in early calendar year 2018.

In addition to the fee study, the Office also commissioned a separate report, due in January 2018, which will provide an evaluation and recommendations for improving the Office's current processes for collecting, monitoring, and analyzing costs, performance, and fee data. The results of this evaluation may include proposals for new or modified performance metrics, the implementation of certain cost allocation approaches or models, process modifications, or recommendations for new applications or software. The report will provide valuable information that will be used both to achieve greater efficiency and precision in evaluating the Office's fee structures and to further the overall goals of the Office's modernization efforts.

APPENDIX A GLOSSARY OF TERMS

BPM	The Business Project Manager (“BPM”) will be the new head of the Copyright Modernization Office, and will be responsible for the planning, execution, and closing of business projects related to Copyright IT modernization.	eCO	The electronic Copyright Office (eCO) system facilitates submission of registration materials by applicants and processing of requested services by Copyright Office staff.
CAD	The USCO’s Copyright Acquisitions Division (“CAD”) is responsible for overseeing the acquisition of works for the Library of Congress’s collections.	ITIM	The Library’s IT investment management (“ITIM”) framework, as laid out in LCR 5-130, establishes a common structure for discussing and assessing IT capital planning and investment control practices for the full lifecycle of IT investments throughout the Library.
CMO	The Copyright Modernization Office (“CMO”) will be a new unit that will manage the execution of the projects related to IT modernization on behalf of USCO from a business perspective. These activities will include directing and coordinating resources, communications, stakeholder engagement, business project management, and other activities related to organization change management.	LAN	A local area network (“LAN”) is a group of computers and associated devices that share a common communications line or wireless link to a server.
CRM	Customer relationship management (“CRM”) tools, typically a web service or software application, are most commonly used by organizations to manage business-customer relationships, including individual users, such as USCO’s relationship with its filers and other users of its IT systems. eCO is a highly customized version of an Oracle CRM application.	LCR	Library of Congress Regulations (“LCRs”), as required by 2 U.S.C. § 136, are rules and regulations that the Librarian has established for the governance of the Library of Congress.
DME	Development, modernization, and enhancement (“DME”) is the portion of an IT investment/project that deals with developing and implementing new or enhanced technology in support of an agency’s mission.	NOC	A network operations center (“NOC”), is one or more locations from which network monitoring and control, or network management, is exercised over a computer, telecommunications or satellite network.
EA	An enterprise architecture (“EA”) is a conceptual blueprint that defines the structure and operation of an organization.	OCIO	The Library of Congress’ Office of the Chief Information Officer (“OCIO”) directs the institution-wide collaboration and standardization of approaches to integrate advanced technology into infrastructure capabilities and applications supporting the Library’s mission and strategic goals.
		OCR	Optical Character Recognition (“OCR”) software translates images (such as a PDF) into readable text.

O&M	After software is released into production, Operations and Maintenance (“O&M”) activities include monitoring the system or application to identify and resolve problems.	SLA	A service level agreement (“SLA”) defines the commitments between a service provider and a client; it is envisioned that USCO and OCIO will execute system-level SLAs that define the services OCIO will provide to USCO.
PBX	A Private Branch Exchange (“PBX”) is a private virtual networked telephone system that will allow for integration and management of both internal and external phone extensions to allow for a satellite offices and teleworking.	SOC	A Security Operations Center (“SOC”) is a centralized unit that deals with IT security on an organizational level.
PM	A project manager (“PM”) is a person who has the overall responsibility for the successful initiation, planning, design, execution, monitoring, controlling and closure of a project. Copyright IT modernization envisions that both USCO and OCIO will retain PMs to oversee individual projects.	TBM	Technology Business Management (“TBM”) is a management framework that OCIO is implementing to unite its <i>technology</i> and <i>business management</i> strategies to enhance transparency of technology investments and enable delivery of optimized value to the mission and business components of the Library.
PMBoK	The project management body of knowledge (“PMBoK”) is a set of terminology and guidelines that describes the industry standard approach to project and program management.	Voyager ILS	Voyager is an Integrated Library System (“Voyager ILS”) used by the Library of Congress. A separate instance of Voyager is used to allow public access to USCO records.
PMO	OCIO has established a Project Management Office (“PMO”), which will lead technology projects related to modernization from within OCIO, and will include the IT Program Manager.	VPN	A Virtual Private Network (“VPN”) is a network that is constructed using public wires (usually the internet) to securely connect remote users or regional offices to an organization’s private, internal network.
RACI Matrix	A RACI Matrix sets out, for any given task or action, the Responsible party, the Accountable party, the Consulted party, and the Informed party.	WAN	A wide area network (“WAN”) is a geographically distributed telecommunications network that interconnects multiple local area networks (“LANs”).
SDLC	The software development lifecycle (“SDLC”) is a framework defining tasks performed at each step in the software development process.		

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