September 30, 2019

The Honorable Thom Tillis
United States Senate
113 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Tillis,

Thank you for your letter of August 27, 2019 about the current status of IT modernization for the U.S. Copyright Office. We appreciate your interest in our efforts to ensure the American people have a nimble, state-of-the-art, and efficient Copyright Office at their service. This response includes information provided by the Library of Congress regarding its overall information technology framework and, where appropriate, includes input from the Copyright Office on its mission-specific responsibilities.

As you heard during your recent oversight hearing for the Copyright Office, modernizing its antiquated IT systems and improving its complementary work processes is one of the most significant operational undertakings the Library and the Copyright Office face in the near term. Modernization is a sweeping, multi-year initiative, the end result of which will be to re-imagine and reengineer how the public interacts with the Copyright Office, from submitting registration applications, to recording ownership and licensing information, to accessing Office data and records.

The Library has worked closely with Congress for several years on IT modernization plans and funding requests. The generous congressional support received through recent appropriation funding has allowed the Library to move forward with an agency-wide IT modernization effort that is transforming how we use technology to support Congress, stakeholders like the creative community, and the general public. As the Library upgrades its IT systems, IT modernization of the Copyright Office is a top priority.

The Library's centralized approach to IT aims to ensure that all modernization efforts benefit from strong IT governance, management and development processes that follow industry best-practices and government requirements, while maximizing opportunities for, and use of shared, cost-saving efficiencies. The Library's Office of the Chief Information Officer (OCIO) has adopted an Agile first-development approach based on modern user-experience design, implemented in consultation with leading industry experts. The Library has also implemented a robust IT governance process that ensures that modernization efforts will receive the executive-level attention they need to succeed. While still maturing, the Library's new IT management standards stand in sharp contrast to the previous more siloed approach.

As directed by Congress, the Copyright Office and OCIO have engaged in extensive collaboration to develop an Enterprise Copyright System (ECS). In support of modernization, the Copyright Office has conducted in-depth information gathering from the copyright community, the public, and Office staff to ensure that technology needs are fully understood. A limited-pilot version (minimally-viable-product) of the new Copyright Recordation system is being finalized, with an expected launch in the Spring of 2020. Public feedback is informing the design of an intuitive and easy-to-use interface for the ECS, as well as dashboards for both Recordation Section staff examiners and supervisors. Extensive third-party user

research has also supported the development of wireframes for an early version of the new Registration public user-interface.

It is important to highlight, however, that Copyright IT modernization remains an ambitious and technologically sophisticated undertaking. Rather than adapting technology solely to existing workflows and structures, the Copyright Office and Library must create a system that is able to accommodate possible future legal responsibilities or structural changes for the Office that Congress deems necessary. With that in mind, the Library and the Copyright Office are considering options to accelerate the timeline for Copyright IT modernization, while focused on ensuring that the ECS will meet the copyright community's needs for years to come.

Below are responses to your specific questions about the modernization effort:

1) **What steps are the Library of Congress and the Copyright Office taking to support a more advanced, agile and flexible approach to IT modernization?**

   The Library has been using Agile, product focused, iterative development principles to successfully deliver on complex IT projects for over a decade, including loc.gov, congress.gov, crs.gov and Chronicling America. While that methodology is constantly being evolved to leverage the latest in industry best practices, the Government Accountability Office (GAO) has recognized the strength of the Library's current Software Development Lifecycle (SDLC) by offering the agency a seat on its Agile Working Group. That experience and expertise is being used to the greatest extent possible for Copyright IT modernization.

   - ECS has been envisioned from the ground-up as a series of interconnected applications and services instead of a traditional, monolithic IT system, which allows for flexible development.

   - The system is being architected to minimize traditional data center and other IT infrastructure needs, instead focusing on scalable cloud and mobile technology.

   - Copyright IT modernization is being conducted in a modern, iterative approach, with OCIO technical experts and Copyright Office subject-matter experts serving together on closely integrated project teams.

   Recognizing that the cultural change necessary to transition practices and habits from legacy waterfall approaches to modern Agile can be complex and difficult, a team of expert Agile coaches was contracted for Recordation development to help ease the transition to Agile development methodologies for the Copyright Office and other segments of the Library. From writing effective user stories, to grooming and prioritizing the backlog, the coaches helped inculcate Agile principles in the modernization effort.

   Recognizing that traditional government procurement processes and the Federal Acquisition Regulation (FAR) are not always conducive to modern IT development approaches, the Library and the Office are actively exploring a mix of approaches for the modernization effort, including adapting flexible practices via Library, Copyright Office, and possibly General Services Administration (GSA) managed contracts, as well as building significant in-house development staffing.

OCIO has created Agile Working Groups and is creating an Agile Center of Excellence to help speed understanding and adoption of modern development and procurement processes to other areas of the Library and the Copyright Office.

We are also implementing an extensive user-experience design effort to ensure that the full range of copyright law, public and industry feedback, examiner needs, and user expectations are translated into usable and accessible online services.

2) **What is the Library of Congress doing to ensure the new enterprise copyright system is continually updated to remain current and doesn't become outdated within a few years of implementation?**

As noted above, the ECS is being developed iteratively as a set of shared services used across the enterprise, as well as sets of services that are designed to support specific Copyright Office business functions, such as recordation or registration. That modern development approach ensures that services can be updated in an efficient and cost-effective way without unduly affecting the overall ECS system.

As a major IT program for the Library, the ECS will be maintained under continuous development by OCIO, through the Library's DevOps processes. That methodology will ensure that the ECS is regularly updated to keep up with technology changes and evolving business needs for the Office and the copyright community. These are well-established practices that the Library uses on many of its other Enterprise systems including loc.gov, and congress.gov, both of which have new releases every few weeks.

3) **I understand there are now newer and faster approaches to IT system development. For example "low-code platforms" can apparently accelerate development, improve existing IT capabilities, innovate products and services, and become more agile - leading to new systems being implemented ten times faster than traditional methods. To that end, what steps are the Library of Congress and the Copyright Office taking that could enable business users and IT developers to collaborate more effectively and produce updated systems in just weeks?**

The Library uses many of the currently available "low-code-no-code" platforms to support traditional business office automation and other simple IT operations across the agency. While useful for small and well-understood functionality, low-code platforms do not allow total customization, and as proprietary systems, may be difficult or impossible to adapt to future unanticipated requirements.

The current Electronic Copyright Office (eCO) system was built on a platform that promised similar advantages 10 years ago. To meet the complex Copyright Office requirements that platform needed to be heavily customized, which resulted in a system that is non-upgradable, and unable to adapt to use needs and technologic advancements.

As noted above, the Library is using industry-best practices, including Agile development, to build a custom solution that will fully support the complex and unique mission of the Copyright Office today and for the future. The scope and schedule of development work is constrained by the requirements of the annual appropriations process. To ensure that the ECS meets the needs of the copyright community, the Copyright Office has been engaged in outreach to a broad set of stakeholders, customers, and their extended support communities in collaboration with OCIO. The Copyright Office has also been working closely with OCIO user experience (UX) experts to

ensure that UX best practices are used throughout the new system. Through this targeted outreach, the Copyright Office aims to increase both user participation and feedback so that development incorporates public input—and thus results in a successful and widely used system.

4) **Will the Library of Congress and Copyright Office conduct a full and open competition for the future development of its strategic plan goals, rather than continue to work exclusively with existing LOC and CO staff and legacy Library of Congress contractors? I believe a more competitive process in the future for accelerated development of the new systems will be necessary to achieve the dual goals of modernization and improved customer service.**

Development contracts, whether let and managed by the Library or by another agency such as GSA, will continue to expand and optimize the competitive pool of talent available for IT development, and to use resources available through other federal agencies and on the open market. OCIO and the Copyright Office are investigating a range of innovative staffing methods, including possible no-cost contracting solutions, for modernization and development of the ECS. The Copyright Office, in coordination with OCIO, issued a public Request for Information (RFI) in May 2018, which asked for comments on creative solutions, including possible no-cost options, for the development of a next-generation ECS. The Copyright Office also engaged GSA's 18F for guidance on best practices in contracting for Agile projects.

OCIO and the Copyright Office plan to work with GSA's Region 9 Customer Center to develop and issue another RFI regarding the Office's unique business requirements.

At the same time, OCIO is also expanding its capacity for in-house development, leveraging the direct hire of developers and other technical subject-matter experts. While that will require a ramp-up of staffing, it will provide a more flexible development capacity and ensure more consistent institutional memory of development decisions for long-term support of ECS.

5) **If the answer is no, please explain why. If the answer is yes, please explain how your offices will go about implementing such a full and open competition.**

As a follow-on to the 2018 RFI and the 18F engagement, the Copyright Office and OCIO are planning to work with GSA to possibly leverage its IT contracting experts for future modernization contracting activities, as necessary.

6) **Will any portions of modernization of enterprise systems be performed internally by the Library instead of by contractors? If so, why?**

As a generalized strategy, OCIO prefers to have a mixed set of staff on large, mission-focused efforts. Federal staff are used in senior positions on all Library IT projects to provide program continuity and ensure proper project management and compliance with Library IT policies and standards. Given the wide range of IT modernization efforts underway, and in planning for the Library, OCIO is also expanding its capacity for in-house development work, with the creation of several scrum teams formed from limited-term employees. OCIO anticipates that this approach will strengthen the long-term support of ECS.

7) **What role will the Copyright Office have in selecting contractors to implement modernization? Will the Library of Congress give the Copyright Office autonomy to select and hire contractors that it believes will best serve the copyright community? If not, why not?**

Under the Library's centralized IT management model, business owners, like the Copyright Office, and the Library's technical staff work collaboratively to ensure that IT development efforts are successful. As the business owner, the Copyright Office is responsible for defining the business requirements that the ECS must accomplish. It is then the responsibility of OCIO to ensure that the system is developed to meet those requirements in accordance with the Library's project management life cycle (PMLC) and SDLC. Ultimately, the choice between contract development and federal staff development is a technical decision that should have no effect on the development effort. OCIO and the Copyright Office are working together to ensure that the needs of the business are well represented. Following the 2015 GAO report on Library IT management (GAO 15-315), the Library designated OCIO as the central agency authority for IT governance and security.

8) **I understand from conversations that I have had with IT specialists that the Copyright Office could likely implement a pilot program in 8-12 weeks to modernize the registration system. Under this more advanced approach to modernization, the Copyright Office would have real-time data about what was working and what needs to be tweaked within weeks, not months or years. Will your offices explore the feasibility of implementing a registration pilot program?**

OCIO and the Copyright Office are open to exploring the use of more iterative and rapid development methodologies to speed-up ECS component delivery, and will revisit the feasibility of implementing a Registration pilot program.
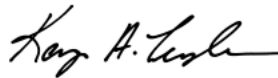
As noted above, however, to ensure that the ECS meets the needs of the copyright community over the long term, public outreach and feedback are critical. Moreover, it is also important to note that implementation of a Registration pilot program would require regulatory updates, which in turn would require public input through notice-and-comment rulemaking. Careful consideration of stakeholder views—on both IT and regulatory matters—would likely necessitate a longer development and implementation period than that suggested above. As a result, it is highly unlikely that a fully functioning modernized registration system could be implemented through an 8-12 week development effort. Such consideration is critical, however, to ensuring that a modernized Registration system fully supports the unique needs of the copyright community and the Copyright Office.

Thank you again for expressing interest in our efforts to ensure the American people have a nimble, state-of-the-art, and efficient copyright IT system at their service. Copyright modernization is a top priority for the Library and Copyright Office, and we are working to ensure that it is completed in timely and successful manner.

Sincerely,

Carla Hayden
Librarian of Congress

Karyn A. Temple
Register of Copyrights