

Key Technology Initiatives at GPO

As the cornerstone of GPO's digital transformation, GPO uses technology to make Government information available, deliver better products and services, provide better customer service, and support internal operations. This document outlines the recent key technology changes and initiatives at GPO.

TECHNOLOGY TO MAKE GOVERNMENT INFORMATION AVAILABLE

1. Federal Digital System (FDsys) and govinfo

GPO's Federal Digital System (FDsys) is a content management system, preservation repository, and public website providing free online access at www.fdsys.gov to official Federal Government publications in multiple formats including digitized historical content and numerous serial publications that are updated on a daily basis.

Since launch in January 2009, FDsys has expanded to include hundreds of thousands of searchable titles and experienced more than 2.4 billion document retrievals. FDsys has content from all three branches of the Federal Government and receives an average of 40 million retrievals per month.

Govinfo – In FY2016, GPO launched the beta govinfo website to eventually replace the FDsys website. The new govinfo website is a redesign of the FDsys public website, with a focus on implementing feedback from users and improving overall search and access to FDsys content. The redesigned, mobile-friendly website incorporates state-of-the-art innovative technologies and includes several new features for an overall enhanced user experience. The key new features of the website include a new look and feel, the capability to link related content, enhancements to the search filters, two new ways to browse content, a new open-source search engine, and more options for sharing pages and content on social media.

FDsys/govinfo demonstrates how partnerships between agencies at the crucial intersection with American citizens contribute to "true transparency," in the words of Speaker Paul Ryan commending GPO on the govinfo launch. GPO's govinfo leverages modern web technologies, responsive design, and social media integration to provide citizens with Government information where they are and when they need it.

Trusted Digital Repository (TDR) Certification (ISO 16363) – GPO is seeking certification for FDsys/govinfo as a Trustworthy Digital Repository (TDR) for Federal Government information, in compliance with the International Organization for Standardization (ISO 16363). A certification under ISO 16363 will reinforce GPO's commitment to its mission of ensuring permanent public access to Federal Government information. Additionally, this certification will further validate that FDsys/govinfo, its infrastructure, and its supporting organization are reliable and

sustainable in helping to ensure the long-term integrity of its digital holdings. The certification process encompasses a set of 109 criteria by which FDsys/govinfo will be evaluated, including technical infrastructure, content and metadata, and the supporting organization.

2. Making Information Available in a Variety of Formats

a. **XML Bulk Data** – Providing data as bulk XML enables a “one-click” download of large sets of XML files as opposed to downloading each file individually and enables reuse and repurposing of the data for mobile web applications, data mashups, and other analytical tools by third party providers, which contributes to openness and transparency in Government. GPO currently provides access to the following sets of XML for bulk data download:

- Congressional Bills (113th-115th Congresses)
- Bill Status (113th-115th Congresses)
- Bill Summaries (113th-115th Congresses)
- Code of Federal Regulations (Annual Editions)
- Electronic Code of Federal Regulations (Current Titles)
- Federal Register (2000-2017)
- United States Government Manual (2011-2016)
- House Rules and Manual (112th-114th Congresses)
- Privacy Act Issuances (2009, 2011, 2013, 2015)
- Public Papers of the Presidents of the United States (2009-2012)

Congressional leaders from both sides of the aisle applauded the release of House and Senate bill status information by the U.S. Government Publishing Office and Library of Congress. “Today’s release of bill status information via bulk download is a watershed moment for Congressional transparency,” said House Majority Leader Kevin McCarthy (R-CA), in a statement. “The entire Congressional community applauds the dedication of the Legislative Branch Bulk Data Task Force, the Office of the Clerk, the House Appropriations Committee, GPO, and the Library of Congress, which worked together to make this progress possible.”

b. Documents in USLM Project and FR/CFR Pilot Project

- **Documents in USLM Project** – This project seeks to convert a wide variety of Federal Government documents (beginning with enrolled bills, public Laws, and Statutes at Large) from GPO locator-coded text format into XML format using the United States Legislative Markup (USLM) schema so that GPO can make the resulting XML available on FDsys/govinfo.
- **FR/CFR Pilot Project** – This is a parallel initiative that seeks to begin modernizing the Code of Federal Regulations (CFR) and Federal Register (FR) to increase

transparency, efficiency, and services to Federal regulatory agencies by pointing the way towards the adoption of standards in the Federal regulatory drafting process. The pilot seeks to validate the USLM schema and tools in the Federal regulatory cycle and in GPO's publication processes.

- c. **eBooks** – As a one-stop shop for eBook design, conversion, and dissemination, GPO's presence in the eBook market continues to remain strong. GPO now has agreements with Apple iTunes, Google Play, Barnes & Noble, OverDrive, EBSCO, ProQuest, Zinio, and other online vendors to make popular government titles available as eBooks. Federal agencies now have the option of making their eBooks free to the public, or of having GPO sell them on a cost-recovery basis. GPO also provides free access for users to download GPO provided files of eBooks free of charge using GPO's Catalog of U.S. Government Publications (CGP).
- d. **Digitizing Historic Documents** – GPO collaborates with agencies and Federal Depository Libraries to provide greater openness and access to historical Government information.
 - **Digitized Bound Congressional Record** – In 2016, work was initiated on the development of metadata for the Bound Congressional Record historical volumes (1873-1998). In September 2016, GPO began to make the historical Bound Congressional Record volumes available on FDsys/govinfo with the release of 1991-1998. In FY2018, GPO plans to complete production of the required Bound Congressional Record metadata for 75 volumes and continue to produce metadata to provide access to volumes of the Bound Congressional Record dating from 1873-2007 on FDsys/govinfo.
 - **Digitized Federal Register** – In 2016, work began on a project to digitize and make available Federal Register historical volumes 1936-1994. In FY2018, GPO will continue work to digitize the historical Federal Register material (1936-1994) and provide permanent public access to the volumes on FDsys/govinfo.

3. **Federal Depository Library Program (FDLP) Web Services**

Library Services and Content Management administers several websites, on behalf of GPO, in support of the FDLP.

- a. **FDLP.gov** – The official website for the FDLP, FDLP.gov, was re-launched in 2014 with an updated infrastructure to support a video library and to improve the site's security. The re-launch also included a redesign that offers a streamlined, intuitive navigation system; easy-to-read text written for the web; new and updated content; a responsive design for mobile devices; and enhanced search capabilities, including direct access to search FDsys/govinfo and the CGP.
- b. **Catalog of U.S. Government Publications (CGP)** – The CGP provides access to over 1 million bibliographic records for current and historic Government publications from all three

branches of Government in a variety of formats (e.g., full-text electronic, print, eBook, microfiche, etc.). The CGP features basic keyword, advanced, browse, and expert search options, as well as a variety of new title dynamic searches. The CGP's "Locate a Library" feature within each record may be used to find a nearby Federal depository library where a particular publication or expert assistance can be found. The CGP went through a Federal Information Security Management Act (FISMA) audit in 2013, and had a System Security Plan developed in 2014.

- c. **Ben's Guide to the U.S. Government** – GPO's educational site on the workings of the U.S. Government has been updated with more age-specific content and features, including age-appropriate activities, games, and updated infographics for "Branches of Government" and "How Laws Are Made." The site has also undergone security verifications with GPO's IT department.
- d. **Next Generation Integrated Library System (ILS)** - The existing ILS has been migrated to Amazon Web Services FedRAMP (Federal Risk and Authorization Management Program) compliant cloud platform. To ensure that the system continues to meet the expectations of the Federal Depository Library Program and anyone searching for Federal Government information, GPO is developing a Concept of Operations and Requirements Document, and GPO will continue to identify and prioritize development and implementation of the ILS.

4. Social Media

GPO uses Facebook, Twitter, YouTube, Instagram, LinkedIn, Pinterest, and a blog to share information about GPO news and events and to promote specific publications and products. By the end of 2016, we had 7,530 likes on Facebook, 7,153 followers on Twitter, and 189,253 views across 75 videos on YouTube. On Pinterest, we had 749 followers pinning on 17 boards of Federal Government information. We also had 569 followers with 930 posts on Instagram and 3,069 followers on LinkedIn. Our blog, Government Book Talk, focuses on increasing the awareness of new and classic Federal publications through reviews and discussions.

TECHNOLOGY TO DELIVER BETTER PRODUCTS AND SERVICES

1. U.S. Passport and Secure Federal Credentials

GPO plays a critical role in our nation's security by producing Secure Federal Credentials.

- a. **Next Generation Passport Program (NGPP)** – GPO has manufactured the U.S. passport for over 80 years. Since the electronic passport program began in 2005, we have made well over 110 million e-Passports for our customer, the Department of State (DoS). Also since 2005, the U.S. passport has incorporated a digital chip and antenna array capable of carrying

biometric identification data. With other security printing features, this document is the most secure identification credential obtainable. Over the past decade GPO has produced more than 140 million passports for DoS.

GPO is working with the Department of State on development of the Next Generation Passport. In FY2018, GPO's activities in support of the Next Generation Passport program will include the full deployment and roll out plan execution to support the Department of State's transition from the personalization and issuance of the current passport to the Next Generation Passport. As directed by the Department of State and during FY2018, GPO will begin or continue to produce the components and finished products of the Next Generation Passport program.

- b. Smart Card Products** – GPO produces and personalizes over 3,000,000 secure Federal smart card credentials each year for a variety of Federal agency customers. These credentials are used to gain access to our nation's borders, our Federal buildings and facilities, and our most sensitive IT networks and architectures. The success of our secure credential programs proves that we can connect security printing with secure electronics to produce the most trusted credentials in Government. As of early 2017, we had produced more than 12.9 million secure credential cards across 10 different product lines.

2. Manufacturing Workflow System

GPO is actively working on a project to replace its legacy Production, Estimating, and Planning System (PEPS) with a state-of-the-art Manufacturing Workflow System (MWS). The MWS will provide job entry, inquiry, scheduling, estimating, analysis, reporting, and tracking functionality for GPO's Plant Operations, Congressional Publishing Services, and Customer Services. It will also integrate with existing enterprise-wide systems, including Oracle Financial and Inventory applications. As part of the new system, other legacy applications will be integrated and replaced including Productivity Reporting for Operating, Budgeting, and Expenditures (PROBE).

MWS will be the enterprise resource planning system for GPO's Plant Operations department. It will be responsible for collecting, maintaining, and managing all applicable job information that Plant Operations produces. MWS will align with GPO's Strategic Vision for a 21st Century and the agency's Enterprise Architecture.

For this effort, GPO has procured EFI Pace, a widely used and highly customizable printing-industry tool. EFI Pace includes a wide range of functionality including job planning, estimating, scheduling, tracking, and shop floor data collection. The new system will integrate with GPO's Business Information System (GBIS) and provide valuable productivity and financial data for improved tracking, costing, financial analysis, accounting, and billing. MWS comprises the first module towards implementing a comprehensive modernized digital tool set for GPO's Plant Operations.

3. **Composition System Replacement (CSR)** – GPO is replacing a 30-year old locator-based composition system known as MicroComp with a state-of-the-art composition tool that is based on the Extensible Markup Language (XML) data standard. CSR will match the typographical style and page layout of current printed publications, as well as support enhanced search, retrieval, data formats, and repurposing of data. The system will include the necessary technology and business practices to enable GPO to replace or integrate all existing discrete applications, utilities, and processes currently used by GPO and its users to compose and create files optimized for printing and access of select Congressional and Federal agency publications.
4. **Online Bookstore** – Continuous efforts are being made by GPO to optimize online content for discovery by search engines. Efforts also are underway to upgrade the Online Bookstore to a responsive design that will make it more compatible with mobile devices.
5. **COOP Exercises and Mobile Continuity of Operations** – GPO conducts periodic exercises to ensure that the continuity plan is capable of supporting the continued execution of the agency’s essential functions throughout the duration of a continuity event. GPO continues to participate in joint mobile COOP exercises with the House and Senate in addition to conducting internal mobile COOP exercises at the Laurel alternate production facility. Congress relies on GPO to provide services under any circumstances. GPO’s efforts are focusing on a mobile COOP capability that utilizes technology to meet this need.
6. **Print-on-Demand** – GPO is working to support the migration of products in GPO’s Bookstore to print-on-demand in order to open new market opportunities for Federal publications and create broader exposure to a network of academic, library, and retail customers. GPO has saved more than a million dollars in inventory costs through increased use of print-on-demand and just-in-time printing, and has print-on-demand agreements in place with Amazon and OnDemand Books.

TECHNOLOGY TO PROVIDE BETTER CUSTOMER SERVICE

1. **Printing Procurement Systems Modernization Project**

The overall purpose of this project is to modernize GPO’s business processes and systems used for conducting and managing the print procurement ordering process. The modernized systems will consolidate print procurement operations within a single, modular system, improve work processes, automate specific functions where applicable, and include customer access to a secure, end-to-end print procurement process from online order submission to vendor payment and customer billing, thereby allowing for greater transparency for both GPO staff and customers.

2. GPO.gov 2.0

The GPO.gov public facing website is the agency's primary portal for services provided by GPO. GPO.gov 2.0 is the redesigned website that communicates GPO's new brand identity and offerings, through the use of a customer-centric design and navigation that is responsive, accessible, secure, and search engine optimized to increase customer engagement and support GPO strategic goals of satisfying our stakeholders and offering products and services. The new GPO.gov site was launched as a beta in April 2017.

3. Financial Document Repository

GPO continues to enhance the Financial Document Repository (FDR) which has been designed to provide customers with access to historical ordering documents such as the Standard Form (SF) 1, the basic form Federal customers use to requisition printing, binding, and related services from GPO. In FY2015, copies of associated Form 400 invoices were added to the FDR to allow customers to cross-reference their ordering documents and invoices. In FY2016, as part of ongoing efforts to increase the functionality of the FDR, scanning of SF-1s was implemented.

TECHNOLOGY AND TRAINING TO SUPPORT INTERNAL OPERATIONS

1. GPO's Business Information System (GBIS) Oracle R12 Upgrade

GPO's Business Information System (GBIS) supports various aspects of GPO's administrative functions. GBIS is based on the state-of-the-art Oracle Commercial Off-The-Shelf (COTS) software. The COTS package has been incrementally configured to meet GPO's business requirements through a series of systems integration projects for more than a decade. The Release 11i had reached its end of life support effective December 2015, and GPO successfully upgraded GBIS to the latest Release 12 (R12) in 2016.

2. Oracle Contract Life Cycle (CLM)

This module will be added and integrated into GBIS for effective and comprehensive work flow with integration of acquisition life-cycle. The CLM is a fully integrated procure-to-pay system. It provides automated and auditable processes from purchase requisition generation through solicitation to entitlement to payments. This effort has been initiated and will be completed in FY2017/FY2018.

3. IT Initiatives

- a. Expanding Use of Cloud Technologies** – GPO will continue to expand its use of Cloud solutions for collaboration, data storage, and hosting. GPO is preparing to move our local SharePoint to SharePoint Online in FY2017 with expected completion in FY2018/FY2019. GPO continued to expand its use of Cloud solutions for collaboration, data storage, and

hosting. This year GPO bolstered its email security by adding inline scanning and malicious attachment detonation. In addition, GPO expanded its collaboration capabilities by providing public switched telephone network (PSTN) conferencing through Skype for Business (Polycom).

- b. Next Generation Firewall Project** – The Next Generation Firewall (NGFW) will provide essential cybersecurity protection capabilities. The NGFW implements required security capabilities for GPO to be able to block network traffic, block access to malware and other inappropriate websites, and perform malware inspection of the network.
- c. Cybersecurity** - GPO's goals for the cybersecurity program are to protect and defend GPO networks and systems from any unauthorized access or intrusions or misuse/disruption of agency systems and data, to effectively and efficiently support agency business and IT needs, and to work on these goals collaboratively and in concert with Legislative Branch agency partners and other Federal agency partners. GPO has been actively participating in the Legislative Branch Cybersecurity Working Group since its inception and continues to do so to ensure good collaboration across the Legislative Branch agencies on all the aspects of cybersecurity. GPO has the same challenges every agency faces in terms of determined and advanced capability threat actors, from a variety of sources such as nation states, cybercriminal elements, hacktivists, and others, who are constantly evolving their tactics and methods in attempts to gain unauthorized access to and/or disrupt IT operations. This results in the constant need to invest in the latest preventative and detective technologies and to continually invest in training and competent personnel to operate and manage these technologies and processes.

4. Costing System

GPO is working on a project to implement a costing system. The job costing system will be used by Finance to allocate costs for products produced in GPO's Plant Operations; perform management reporting and analysis related to cost accounting; and store and track labor and production data feeding in from Plant Operations systems. The job costing system will integrate with MWS-Planning and Estimating System or Probe, Oracle Financial applications (Projects, General Ledger), and Business Objects.

5. Data Center Consolidation and Modernization

GPO is undergoing a modernization project to update the GPO data center environment to meet current and future technology requirements. IT continues to strive toward increased efficiency through consolidation, virtualization, and relocation. In an effort to reduce costs and improve efficiency and service to its constituent organizations, GPO is considering ways to improve daily operational performance; provide best response for COOP conditions; reduce the agency's overall data center footprint, operational expenditures, and environmental maintenance costs; and maximize support capabilities.

6. Human Capital Technology

GPO is leveraging existing technology and pursuing new technology solutions to develop, implement, and manage human capital (HC) strategies and services. In FY2016, GPO implemented several automated processes to improve HC services. The Tracker system and associated processes were updated to make the tracking of personnel actions easier than ever, allowing for benchmarking and adding a level of transparency. In addition, GPO automated the approval for within grade increases, implemented the employee notification process for Electronic Official Personnel Folder (eOPF) activity, and led a cross-organizational group to improve the onboarding process and better manage employee data. GPO will continue to automate processes to make the classification, recruitment, and staffing as efficient as possible. Improvements will be made to these and other HC applications including a major upgrade to OPM's USA Staffing Application. Future plans include updating the Hiring Tracking System and creating a Position Description Library.

7. Workforce Development and Training Initiatives

GPO is focusing its workforce development efforts on four major priorities in support of our digital transformation.

- Professionalizing workforce skills through industry certifications
- Developing curriculums for critical skills required to continue the transformation from print to ePublishing and digital content management
- Partnering with internal stakeholders to identify and deliver training to support their employee and business development needs
- Improving data integrity of training completions