# U.S. Environmental Protection Agency's Information Resources Management Strategic Plan

*Fiscal Years 2016-2018*

**EPA FY 2016-2018 Information Resource Management Strategic Plan**

In accordance with OMB Circular A-130, EPA's FY 2016-2018 IRM Strategic Plan is approved by the Chief Information Officer and the Chief Operating Officer.

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| (Signature) | 12/7/2016 (Date) | (Signature) | 12-1-16 (Date) |

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## Message from the CIO

In many ways, this Plan represents both the opening chapter of a new era of information technology (IT) and information management (IM) at the U.S. Environmental Protection Agency (EPA) and the closing chapter of an old era. This is the last IRM Strategic Plan that will represent only the capabilities delivered by OEI.  The next plan will lay out the entire Agency's IT strategic plan.  The Office of Environmental Information (OEI) is transitioning to an IT/IM structure that supports enterprise-level strategic planning, collaboration, management and accountability to implement the technology of the future. This is a significant milestone as the Agency embraces a true enterprise approach to information technology and information management.

OEI's new organizational structure represents our future focus on enterprise-wide planning. But that is only the beginning.  It also represents our renewed focus on customer experience and operational excellence along with our new focus the adoption of modern IT methodologies, including agile development, cloud-centric operations and shared services.

OEI is focused on partnering with IT organizations throughout the Agency, along with our external partners - the states and tribes - to provide the right services at the right time, at the right quality and at the right cost to our customers both inside and outside the EPA.

This document describes how we are improving our infrastructure services, modernizing our legacy systems and delivering new capabilities to support 21st century environmental protection.

Whether you are an EPA employee, a partner, a member of the regulated community or a member of the public, I hope that you will take the time to read the entire document and understand the work that OEI and EPA's IT staff will be accomplishing over the coming years.

## Introduction

The federal government is experiencing a digital transformation, and the U.S. Environmental Protection Agency (EPA) is at an important juncture in its information technology (IT) transformation. EPA is adopting more cohesive, modern methods of supporting its employees and external partners with the tools and services they need to meet their business needs and successfully execute the Agency's mission.

The Office of Environmental Information (OEI), under the leadership of the Chief Information Officer (CIO), serves as EPA's central, enterprise-level information technology (IT) office, supplemented by program-specific and region-specific IT and information management (IM) services. EPA's FY 2016-2018 Information Resources Management (IRM) Plan represents a period of transition for OEI and the program offices and regions it works with. OEI has spent much of the last 18 months engaging in a deep analysis of its ongoing work, customer and employee perspectives and how the office is structured to support the needs of the Agency. This effort resulted in a new OEI structure, which will allow the organization to be more flexible and quick to adapt to change in this new era of digital and IT transformation. OEI will strive to deliver better services to our customers faster and more efficiently.  In addition, OEI will work to continuously improve EPA's IT/IM services and partner and engage with customers to better understand their business needs.

This FY 2016-2018 Plan summarizes the goals of EPA's IT/IM programs. The document lays out EPA's planned objectives and activities to manage and deliver IT/IM services across the enterprise in support of all aspects of EPA's work, from its mission programs to its operations. The following strategic themes will guide the work of OEI through its implementation of this Plan:

1. Support for EPA's Mission—Delivering Next Generation Tools
2. Customer Experience—Streamlining and Improving Customer Relationships
3. EPA's Technology Portfolio—Modernizing Methods and Tools
4. Infrastructure Operations and Services—Delivering Operational Excellence
5. Enhancing Core IT Programs
6. EPA's Shared Services—Expanding Capabilities and Partnerships
7. Skills Development—Building a 21st Century Workforce

All government agencies, including EPA, are facing a common set of issues and barriers—culture, procurement, workforce, leadership and strategy—that need to be in sync with a technologically advanced, citizen-centric era. This Plan will help align and guide EPA's IT/IM community to take advantage of digital transformation opportunities to better support our employees, our partners and the American public.

# 1. Support for EPA's Mission—Delivering Next Generation Tools

OEI seeks to continually improve support of the Agency's mission by modernizing its approach to service and technology delivery.

## Support for EPA's Mission and Strategic Goals

The *FY 2014–2018 EPA Strategic Plan* provides a blueprint for accomplishing the Agency's mission priorities. It presents five strategic goals for advancing environmental and human-health mission outcomes, accompanied by four cross-Agency strategies that focus EPA to meet today's growing human health and environmental protection needs.

**Strategic Goals**

- Addressing Climate Change and Improving Air Quality
- Protecting America's Waters
- Cleaning Up Communities and Advancing Sustainable Development
- Ensuring the Safety of Chemicals and Preventing Pollution
- Protecting Human Health and the Environment by Enforcing Environmental Laws and Assuring Compliance

**Cross-Agency Strategies**

- Working Toward a Sustainable Future
- Working to Make a Visible Difference in Communities
- Launching a New Era of State, Tribal, Local and International Partnerships
- Embracing EPA as a High-Performing Organization

While EPA's primary data management systems support these goals and strategies, they represent EPA's traditional IT mission support, not its future. OEI is modernizing the way EPA and its regulatory partners are designing and implementing IT to deliver better environmental services.

## E-Enterprise for the Environment

E-Enterprise is a program designed to modernize EPA, states and tribes deliver environmental protection. E-Enterprise is not primarily an IT program—it is a process redesign initiative enabled by technology and founded on joint governance. E-Enterprise's intent is to transform existing environmental businesses processes, which were built as a series of silos across programs and agencies over the past 40 years, into shared services and shared data.

E-Enterprise has three key themes:

- Burden reduction for the regulated community and for environmental staff at all levels of government.

- Shared services to make "build once, use many" a practical reality.

- Projects selected and designed collaboratively by the EPA, states, tribes and other partners that identify existing activities that can be:

  o Streamlined using Lean analysis and other tools.

  o Accelerated by the insertion of new technology.

  o Jointly governed by all participating agencies.

A key delivery of E-Enterprise is the E-Enterprise Portal—a single location where the public and the regulated community can find the resources and services they need to conduct environmental business. Launched in October 2015, EPA will continue to upgrade the E-Enterprise Portal with new functions and services.

1. Objective: Enhance and continuously support the E-Enterprise Portal to facilitate collaboration with co-regulators.

    a) Establish the ability for different business partners to contribute code to the E-Enterprise Portal. (FY16)

    b) Link different EPA reporting systems to the E-Enterprise Portal to enable easier reporting for the regulated community. (FY16)

    c) Collaborate with states, tribes and other partners to enhance the capability of the E-Enterprise Portal in meeting environmental regulation needs. (FY16-18+)

    d) Implement a recommendation engine to assist E-Enterprise Portal users with finding relevant information. (FY17)

2. Objective: Effectively govern E-Enterprise to achieve the E-Enterprise vision. Effectively manage working-level integrated project teams through shared governance with states, tribes and other partners. (Ongoing)

3. Objective: Implement and promote shared services.

    a) Launch the laws and regulations shared service that enables the mapping of the regulatory and legislative frameworks to assist partners in finding information about a regulated substance in the E-Enterprise Portal. (FY17)

    b) Participate in and implement the results of the Facility Integrated Projects Team to develop a common structure for identifying facilities. (Ongoing)

    c) Participate in and implement the results of the Identity Management Integrated Projects Team to produce a framework for EPA and co-regulators to collaboratively manage user identity. (Ongoing)

    d) Emphasize and encourage the use of APIs that can be widely reused across programs, co-regulators and by the regulated community. (FY16-18+)

    e) Evaluate opportunities for E-Reporting efficiencies across EPA programs. (FY16)

## Program Information Management

EPA's operations are information intensive. Large amounts of information flow into and out of the Agency daily. EPA needs to be positioned to collect, assemble, store, find, release, discover and analyze information quickly while maintaining data quality and legal defensibility. EPA is strategically modifying and enhancing its data capabilities to take advantage of modern technology and allow improved access to its data.

1. Objective: Enhance the Agency's ability to collect and assemble information.

    a) Expand the use of cross-Agency services—such as Facility Registry Services (FRS), Shared CROMMER Services, Substance Registry Services (SRS) and TRIBES services—by five program/partner systems each year, leveraging partnerships (e.g. E Enterprise, Exchange

Network) with programs, states and tribes to eliminate duplication, reduce costs and improve data integration capabilities.  (FY16-18 and ongoing)

b) Construct a general data management platform, integrated with the Portal, to store and manage a high volume of environmental information. Programs will be able to build new systems on top of the platform, realizing cost savings and providing the Agency with a centralized repository for analytic uses.  (FY17)

c) Through the integration of the registries in the E-Enterprise Portal, allow programs to validate incoming information before it reaches program-specific databases. (FY16)

d) Through an E-Enterprise Integrated Project Team modernize the Facility Registry Services' (FRS) design and data model to create unique identifiers for all facility components so more programs can leverage FRS. (FY17-18)

e) Create an automated update of chemical lists in the Substances Registry Services (SRS) to keep it current with all substances of interest to all programs. (FY17)

f) Launch the Laws and Regulations Services (LRS) to the public website, cataloging all environmental statutes, the Code of Federal Registers that implement them and the EPA programs that manage them. Expand to state laws and regulations and create a streamlined process for updating, maintaining quality and making discoverable new Federal Register Notices. (FY18+)

g) Link Registry of EPA Applications and Databases (READ) content to service component information in Reusable Component Services (RCS) and to IT portfolio information contained in eCPIC. (FY16-18)

h) Expand the scope and quality of RCS data by cataloging services that are promoted by various initiatives across EPA, establishing a single record about each service and allowing that record to be published on multiple websites, keeping information consistent across venues. (FY18)

i) Enhance Data Element Registry (DERS) to provide the references necessary to align data definitions across systems and across agencies. (FY18+)

2. Objective: Enable the Agency to effectively store and find information, keeping information accurate, up to date and useful for end users.

a) Ensure that inventory records can be consumed by third parties, via Web-enabled data sources, standard Application Program Interfaces (APIs) or as free-standing files. (Ongoing)

b) Curate the inventory as a coherent public and professional resource, filling gaps and packaging the data into the useful information products for external users and developers. (Ongoing)

c) Convert at least three paper-intensive collections of regulatory compliance program data to full electronic reporting solutions using CDX's electronic reporting services from 2016 to 2018, promoting digital IM for those programs.

d) Improve the Agency's ability to analyze information by expanding the number and coverage of EPA data sets available in real time through standard APIs on the Environmental Data Gateway, while maintaining the currency and quality of existing records. (FY17)

e) Create a detailed plan for a paper-to-electronic reporting initiative that identifies current implementation gaps, sets electronic reporting/digitization priorities and evaluates best practices and technologies. (FY16)

## Information Analytics and Access

Much of the Agency's evolving work centers on the ability for employees and the public to access and use information for their own purposes. EPA is making great strides in advancing its capabilities in terms of geospatial information, data analytics and access to Agency information on the Web.

### EPA's Geospatial Platform

EPA's Geospatial Platform (GeoPlatform) is a community of expertise supported by a suite of geospatial tools, data and services. The GeoPlatform consolidates and coordinates mapping activities, geospatial applications development and geospatial data management as a mature, shared service across the Agency.

1. Objective: Continue developing the EPA GeoPlatform and National Geospatial Platform to provide a flexible, sustainable geospatial infrastructure, enabling improved decision making across EPA program areas and supporting integration with the Agency's new data analytics and visualization platform.

   a) Increase the number of shareable maps, geo-data services and applications available for use by 25% over the previous fiscal year. (FY16)

   b) Deploy a final public version of EPA's GeoPlatform-based standard environmental justice screening tool (EJSCREEN) with significant enhancements to the existing interim version. (FY16)

   c) Finalize a security plan and authority to operate for ArcGIS for Organizations, the cloud-based collaboration component of the EPA GeoPlatform, and define architectural options for FISMA moderate implementation. (FY16)

   d) Analyze geospatial workforce support across program offices and regions, defining baseline support needs and roles and responsibilities to support national coordination and local geospatial user support needs. (FY16)

   e) Implement a GeoPlatform Management dashboard to track new metrics, along with new management tools to clean up unnecessary files and perform other platform housekeeping tasks. (FY16)

   f) Improve integration of GeoPlatform capabilities into EPA's other collaboration tools and platforms. (Ongoing)

      i. Provide quarterly training webinars for EPA staff on use of the Maps for Office plug-in to integrate geospatial analysis and mapping visualization into Office 365.

      ii. Coordinate with the E-Enterprise Portal development team to further enhance the integration of geospatial data and mapping tools into the E-Enterprise portal.

      iii. Coordinate with the ongoing development of EPA's Data Visualization Platform to integrate geospatial data and analysis into a broader analytic and visualization capability to support EPA's mission.

      iv. Integrate EPA GeoPlatform functionality with SharePoint via installation of Maps for SharePoint. (FY16)

g) Support development of re-usable code for geospatial applications through development of standard application templates. (Ongoing)

   i.  Support the EPA geospatial developers' community in developing reusable application templates and documenting reusable code in EPA's GitHub repositories.

   ii. Support development of field data collection tools that can be used on mobile and desktop devices.

2. Objective: Provide outreach and support to program offices, regions and labs to assist their migration from programmatic stovepipe solutions to the shared infrastructure, data and tools of the EPA GeoPlatform. (FY16)

   a) Develop data services and applications identified by the user needs survey of several hundred EPA staff involved in supporting initiatives for communities. (FY16)

   b) Coordinate with the Office of Land and Emergency Management (OLEM) and the regions to develop a business process and infrastructure to develop and maintain a National Priority List site boundary geo-data set for the entire country and publish through the GeoPlatform. (FY16)

   c) Conduct surveys and interviews with the Office of Administration and Resources Management's (OARM) property management staff on data needs, analytical capabilities and application needs for managing EPA facilities. Develop at least one pilot application to support EPA facility management. (FY16)

   d) Provide GeoPlatform training to at least 700 EPA staff with a 75 percent positive feedback rating. (FY16)

   e) Provide outreach and technical support to EPA program offices, regions and labs to deploy at least two new mapping applications per quarter in the shared GeoPlatform infrastructure that support critical EPA business or public access needs. (FY16)

## Data Analytics

The EPA Digital Analytics Program (E-DAP), begun in FY15, will continue in FY16 as a community of data science experts supported by a suite of shared technical tools. E-DAP's goal is to find innovative ways to explore large, different data sets to yield new insights into practical environmental problems.

1. Objective: In cooperation with program offices and regions develop the EPA analytics program, maintaining the preliminary analytics platform for existing projects and enhancing the analytics platform based on requirements gathered from users.

   a) Implement a data analytics toolset (platform, analytics tools, metadata and API standards) leveraging EPA GeoPlatform's visualization and analytic capabilities for place-based analysis. (FY17)

      i.  Identify technical requirements, data needs and processes for managing data within the data analytics platform through participation in the EPA Data Analytics and Visualization Community of Practice (CoP).

      ii. Develop and propose use cases for implementation within the data analytics platform that take full advantage of the platform's capabilities and address clear Agency business needs.

      iii.    Perform analyses that fit regional and programmatic business needs and share those results to demonstrate the power of data across EPA and with partners.

2.   Objective: Incorporate data science and visualization techniques into the analytics platform to support EPA operations and decision making and enable a more data driven approach to environmental management.

   a)  Lead and foster the Data Analytics and Visualization CoP to increase the value of data science through knowledge sharing. (Ongoing)

   b)  Work with the Data Analytics and Visualization CoP to identify data analytics pilot projects. (FY16)

   c)  Deliver pilot and early adopter projects to demonstrate machine learning applications and other advanced data analytics techniques. (FY17)

3.   Objective: Increase data sharing across the Agency and with external partners and the public.

   a)  Develop training on data science and data visualization tools and techniques. Promote the training through the Data Analytics and Visualization CoP and other communities, as appropriate. (Ongoing)

   b)  Accelerate the inventory of data sets by identifying central EPA and partner data stores and linking them into the analytics platform. (Ongoing)

   c)  Accelerate the development and implementation of application programming interfaces (API) by working with the Developers Guild to more effectively share data through services.

   d)  Accelerate posting of data on public solutions through the use of cross government or publically hosted Web spaces (as appropriate) to make EPA data and APIs available to EPA's partners. (FY17)

4.   Objective: Work with other federal entities that are using or developing analytics capabilities to improve data sharing and analytics across the federal landscape.

   a)  Work with the cross-agency group of Chief Data Officers and Data Scientists to identify federal agencies to partner with on cross-agency projects that highlight the advantages of seamless data sharing. (Ongoing)

## Access to EPA Information on the Web

EPA.gov is the primary method for public access to the Agency's environmental and public health information. One EPA Workplace is the Agency-wide intranet. OEI continues to enhance both the infrastructure and content management services of these vital resources for the public and employees.

### EPA.gov

The transformation of EPA's website to a topic-based site was undertaken to better meet the needs of website visitors. While the One EPA Web project was substantially completed in FY2016, EPA will continue to enhance the Agency's public website.

1.   Objective: Continue improving the visitors' experience of the EPA.gov website.

   a)  Effectively maintain content and information quality using the Web Content Management System (WebCMS) tools for link management, automated review cycles and adherence to EPA standards and One EPA guiding principles. (Ongoing)

b) Train editors-in-chief to make full use of analytic tools for more effective content management based on user metrics. (FY16)

c) Leverage WebCMS capabilities, such as dynamic lists and additional content types, to integrate information across topical areas. (FY16)

d) Continue enhancing the WebCMS to meet editors' needs, including new content types like public notices and a stable, fast infrastructure. (FY16)

e) Update search engine technology to further enhance site-wide search and optimize metadata management to provide richer search results. (FY18)

*One EPA Workplace*

The Agency has worked to make its intranet site more useful to Agency employees. The intranet is the primary channel that employees use to access the information, tools, services and people they need to get their work done. OEI directly impacts employee productivity by improving the utility of EPA's intranet.

1. Objective: Modernize the intranet to make it more useful and timely.

   a) Refine the homepage's news, calendar and blog features based on employee and management feedback to meet internal employee communication needs. (FY17)

   b) Continue promoting Office 365 tools such as SharePoint for collaboration and effective document sharing. (Ongoing)

   c) Analyze next generation technology platform alternatives. (FY17)

## 2. Customer Experience—Streamlining and Improving Customer Relationships

On April 27, 2011, the President issued Executive Order 13571—*Streamlining Service Delivery and Improving Customer Service*. This order sets the expectation that levels of government customer services meet and exceed the public's expectations in a highly competitive service economy. It explicitly benchmarks government services against private services: "Government managers must learn from what is working in the private sector and apply these best practices to deliver services better, faster, and at lower cost."

OEI is establishing a new office with specific customer experience responsibilities to meet the goals in the President's Executive Order. The new office will serve as a conduit of information between OEI's many customers and its various organizational units. It will also serve as an organizational consultant enabling OEI to improve its overall level of customer service by conducting analytical studies of OEI's customers and their experience with OEI's staff, products and technology. By providing Agency customers with the services and tools they need, they will be able to better support their external customers and stakeholders. The new office will facilitate the greatest possible mutual understanding between OEI and the rest of EPA.

1. Objective: Conduct research to understand EPA customers' IT/IM needs.

    a) Conduct interviews, research and related work to develop an IT customer experience survey. (FY16)

    b) Survey OEI customers to obtain information on how customers use OEI's products and services and the current challenges they experience. (FY16)

    c) Ensure OEI staff understand Agency customers, as well as their needs and challenges by:

        i. Creating a vision describing what excellent customer service means to OEI and a plan to address the challenges identified. (FY16)

        ii. Developing customer profiles that describe how customers use OEI's products and services. (FY16)

        iii. Creating EPA IT customer journey maps that describe the customers' experiences from initial contact with OEI through the ongoing use of OEI's products and services. (FY16)

    d) Draft a roadmap towards improvement with prioritized recommendations for closing the IT services maturity gaps and improving the customer experience. (FY16)

    e) Develop a strategy to continuously refine and update the customer profiles, the customer journey maps and the roadmap. (Ongoing)

2. Objective: Establish a dedicated OEI staff to manage the customer relationship and provide the staff with training to improve customers' experiences.

    a) Hire staff with customer experience. Positions will be added to the program as resources become available. (Ongoing)

    b) Provide customer experience training to staff. (Ongoing)

    c) Create a Customer Experience (CX) Liaison Pilot program with two regions and two program offices to develop and shape the role and work of the CX liaisons. Based on the pilot,

monitor and collect feedback on the CX program, make decisions about how to allocate CX time/resources, produce and measure CX program outcomes and determine when OEI can establish a liaison in every program office and region. (FY 17)

   d)  Establish a CX Community of Practice to publicize and promote understanding and use of OEI's customer experience program as well as the practice and application of the discipline of customer experience in other Agency contexts, especially those that are public-facing. (FY 17)

   e)  Evaluate the OEI CX Personas and Profiles developed in FY 16 to identify and address at least two challenges (and begin to identify solutions) facing OEI customers. (FY 17)

3. Objective: Create performance measures to gauge the success of the new office.

   a)  Capture anecdotal, qualitative data about customers' experience with OEI's services and products. (Ongoing)

   b)  Develop a set of rigorous, quantifiable and objective customer experience performance measures that chart OEI's customers' experience with OEI's services and products. (Ongoing)

   c)  Continuously assess and measure customers' experience with OEI's services and products. (Ongoing)

4. Objective: Develop an OEI-wide communication strategy and cross-OEI/IT communications team to facilitate communication of successes, challenges and plans.

   a)  Implement the following steps to create the communication strategy and cross-OEI/IT communications team:

      i.   Review existing communication strategy and processes. (FY16)

      ii.  Update communication strategy and processes to align with new customer experience structure. (FY17)

      iii. Coordinate with staff in OEI offices to finalize the communication strategy and processes. (FY17)

      iv.  Train staff on communication processes. (FY17)

      v.   Implement communication strategy and processes. (Ongoing)

      vi.  Monitor the use and effectiveness of the communication strategy and processes and update as necessary. (Ongoing)

   b)  Develop and disseminate a communication needs assessment survey to OEI line offices to inform OEI's communications strategic plan. In alignment with that strategic plan, develop a communications product schedule. (FY 17)

   c)  Evaluate and consolidate OEI communications tasks into a single communications services contract vehicle. (FY 17)

5. Objective: Develop and deliver a presentation to existing and new senior leaders that summarizes OEI services and programs, including how to use them.

   a)  Implement the following steps to communicate to OEI senior leaders about the organization's services and programs:

i. Identify information needed. (FY17)

ii. Collect materials related to existing services and programs. (FY17)

iii. Package materials for audience. (FY17)

iv. Develop delivery strategy. (FY17)

v. Conduct presentation(s). (FY17+)

vi. Continuously refine and update the strategy and presentation. (Ongoing)

# 3. EPA's Technology Portfolio—Modernizing Methods and Tools

## EPA's IT Architecture, Portfolio Management and Governance

EPA's IT architecture planning and portfolio management practices establish the framework for guiding and evaluating EPA's expenditures on software applications, data and technology infrastructure. Through architecture planning, EPA conducts analysis to define and align EPA's portfolio with its strategic direction. EPA's portfolio is the sum total of its IT/IM tools and services. The CIO uses portfolio management principles to manage EPA's IT/IM projects and investments to maximize resources, minimize costs, deliver on objectives, reduce redundancy and enable better decision making.

The intent of EPA's IT architecture planning and portfolio management framework is to eliminate unnecessary duplication of applications, data, infrastructure and contracts, and allow better planning, acquisition and management of IT/IM resources. In making decisions, the CIO must be aware of the current state of the Agency's IT portfolio, current and emerging Agency business requirements and priorities, and technology opportunities afforded by the marketplace. OEI must closely coordinate with EPA program and regional offices to ensure IT changes adhere to a well-crafted plan and the portfolio is shaped to best support EPA's mission.

The implementation of the Federal Information Technology Acquisition Reform Act (FITARA) represents a major expansion of the CIO's authority over, and responsibility for, all aspects of IT service delivery. Under FITARA, the CIO is required to approve and certify that EPA's IT/IM investment decisions meet the Agency's requirements, manage risk, reduce duplication and promote cost savings. EPA is implementing a new IT/IM governance framework that will define strategic criteria to assist the CIO in making and accepting IT/IM decisions that align with the EPA's mission and business needs. The new framework uses a proactive strategic planning approach to efficiently analyze and implement EPA's IT/IM initiatives. Collectively EPA's IT Architecture, portfolio management practices and new governance framework will assist the CIO in making timely, objective and well-informed IT/IM decisions for the enterprise.

1. Objective: Ensure Agency IT investments represent wise expenditure of resources in accordance with FITARA, federal Capital Planning and Investment Control (CPIC) requirements and EPA's IT strategy, deliver expected return and produce expected results.

   a) Align OEI, regions and program offices on a strategy for IT operational tools and services and annually provide a roadmap in an easily understandable form. (FY17)

   b) Develop and maintain a portfolio view of all Agency applications, data and infrastructure, both in use and in development, to support informed decision making. (Ongoing)

   c) Conduct annual FITARA reviews with EPA's regions and program offices to ensure FITARA compliance and deepen understanding of shared goals and objectives. (Ongoing)

   d) Develop an architecture to link the multiple systems that track IT investments—READ, eCPIC, EPA's Budget Automation System, COMPASS and the Agency's acquisition information systems. (FY17)

   e) Develop new measures for setting priorities within the EPA portfolio, as required by the Office of Management and Budget (OMB) and the Government Accountability Office (GAO). (FY17)

   f) Align EPA's IT/IM investments to EPA's IT architecture and planning objectives. (Ongoing)

g) In collaboration with EPA's program offices and regions, conduct reviews to obtain information on IT expenditures, including the age of systems, how and where funds are allocated and the drivers for change in each program. (Ongoing)

h) Ensure EPA's IT budget submission meets the Agency's IT/IM requirements, manages risk, reduces duplication and promotes cost savings. (Ongoing)

2. Objective: Evolve the IT architecture and portfolio toward a shared services model that encourages opportunities for collaboration and reuse of resources.

a) Identify new and existing shared services that can support as many EPA programs and business processes as possible. (FY17)

b) Ensure there is financial coordination across programs, budget lines and appropriations for shared services. (FY17)

c) Efficiently manage the IT architecture to ensure it is flexible, complete and internally consistent, while maintaining appropriate levels of standardization, as it changes and adapts to a shared services model. (Ongoing)

d) Drive architectural alignment among Agency IT in support of E-Enterprise, other public-facing mission requirements and internal requirements to optimize interoperability and data sharing. (Ongoing)

e) Complete an assessment of all IT strategic applications in the EPA CPIC portfolio. Develop an additional roadmap to decommission legacy systems, consolidate redundant systems and move to shared services and the cloud where appropriate. (Ongoing)

3. Objective: Ensure that IT/IM planning activities are integrated with the governance framework.

a) Implement the Agency's new IT governance process to reduce complexity and respond to FITARA requirements and establish the Information Board of Directors (IBOD) and the Chief Information Officer Strategic Advisory Committee (CIO SAC) to ensure strong connections between EPA's information strategies and business needs. (FY16)

b) Work with the IBOD and CIO SAC to define strategic criteria for making investment decisions that align with the IT/IM and EPA Strategic Plans. (FY16)

c) Effectively work with the IBOD and CIO SAC to develop a roadmap that supports the priority initiatives within the IT Strategic Plan. (FY17)

d) Work with the IBOD and CIO SAC to evaluate progress in meeting the objectives in the IT/IM Strategic Plan and develop future plans. (FY17)

e) In conjunction with OARM and Office of the Chief Financial Officer (OCFO), implement changes to EPA policies, practices and delegation of authorities, consistent with FITARA and subsequent OMB guidance. (FY16)

4. Objective: Leverage FITARA authorities to strengthen EPA's workforce.

a) In collaboration with HR subject matter experts and per FITARA requirements, develop and refine the EPA IT Workforce Strategic Plan over time by analyzing gaps in EPA's and OEI's IT skills base to anticipate and respond to changing mission requirements, maintain workforce skills in the rapidly developing IT market and recruit and retain the necessary IT talent. (FY17)

b) Develop performance metrics to enable EPA organizations to more effectively manage toward EPA's IT workforce planning goals. (FY17)

c) Implement the EPA IT Workforce Strategic Plan. (FY18+)

## Agile and DevOps Approach

The American people have become accustomed to interacting with the government through increasingly complex digital channels presented via simple interfaces such as websites, native mobile applications and other digital media. This new reality has created a growing need to ensure that federal development standards and capabilities can rapidly deliver high-quality, powerful and meaningful data to the public, other federal and private entities, and internal EPA users.

EPA supports and embraces federal initiatives that streamline software and system lifecycles with the goal of delivering user-centric, data and value-driven systems. To achieve this goal, EPA is adopting agile development principles—an adaptable, iterative approach to managing development projects.

The agile methodology follows an incremental approach, releasing pieces of the product to end users early and often. Typically, project teams start with a simplistic product vision or concept, and then work on small, prioritized modules. The work on these modules is done in short iterations (typically a week or two). At the end of each iteration, project priorities are evaluated and working software is delivered. Figure 1 depicts the EPA's agile and waterfall development processes. The Agency is using the agile development process, which provides continuous delivery of value, as its preferred development approach. EPA will continue to use the sequential Waterfall approach when it best fits project requirements.



*Figure 1: EPA's Agile and Waterfall Development Processes*

EPA's agile process follows three phases:

1. **Discovery:** Establish the business justification for a system and explore the system requirements by interacting with end users and selecting a specialized team to produce a minimum viable product (MVP) in the form of a prototype, demo or mockup.

2. **Development:** Develop a roadmap for incrementally releasing meaningful, working pieces of the system and work in teams to develop the system with fast-paced, incremental iterations.

3. **Continuous Improvement:** Continuously improve and maintain the system over its lifetime to ensure it does not depreciate and become antiquated through stagnation and a lack of modernization.

EPA is developing infrastructure and guidance for agile development that meets the Agency's unique needs and operational constraints while still promoting modern EPA system and software development best practices. The following are EPA's Digital Delivery Guiding Principles:

- Adhere to User-Centered Design Principles and Practices.

- Practice Iterative Development.

- Practice Modular Development.

- Encourage Open Innovation through Transparency.

- Drive to DevOps.

OEI's methodology for evaluating the need for new applications and systems includes evaluating existing systems first to encourage the use of and contribution to shared resources. This step also includes the evaluation of off-the-shelf or open source products. When custom development is the preferred choice, OEI encourages development on existing EPA development platforms. EPA's methodology reinforces a focus on enterprise collaboration, efficiency and cost reduction.

1. Objective: Put in place the Digital Services infrastructure to support agile system development at EPA.

    a) Stand up a Digital Services team within OEI to deliver next-generation, public-facing applications. (FY16)

        i. Form a Business Consultancy Group to work with customers to understand where there are opportunities to improve business processes and ensure projects are on track toward iterative, Lean thinking from the earliest stages. (FY16)

        ii. Empower the Architecture Group to translate the Agency's higher-level IT architecture into opportunities for collaboration and reuse of resources—fitting the immediate project into the larger picture while considering agile methodologies and meeting immediate project needs. (FY16)

        iii. Form Pilot Teams to work with programs on agile development projects. (FY16)

        iv. Form an Agile Acquisition Group to identify and leverage strategic sourcing options to meet the needs of the programs. (FY16)

        v. Further cultivate the Innovation Fellowship Program to provide IT talent and skills that match a specific program need. (FY16)

    b) Establish an EPA Developers Guild with the goal of uniting the many communities of practice under one umbrella. (FY16)

    c) Launch the EPA Developers Guide to provide a forum for discussion and collaboration on delivering digital products and services that are easy to use, cost-effective and mission-focused. (FY16)

    d) Align with the Agency's Lean activities to ensure that business processes are optimized in advance of IT engagements. (FY16)

## 4. Infrastructure Operations and Services—Delivering Operational Excellence

EPA's IT infrastructure must not only support basic IT services, such as the desktop and network, but also the Agency's innovative programs, such as E-Enterprise. Customers and programs require speed, stability and reliability from the Agency's infrastructure. To reach and maintain operational excellence, OEI is transforming its practices to take advantage of modern approaches such as agile acquisition, cloud services and Dev/Ops. These approaches facilitate the continuous improvement of infrastructure services. Continuous improvement, coupled with the deployment of new technologies, will improve the productivity of programs within the Agency, as well as the EPA workforce as a whole.

OEI is also ensuring its decision making process focuses on the value a technology brings to the Agency, the technology's support of EPA's mission and business needs, and the communication of that value to EPA stakeholders.

EPA's objectives and activities related to infrastructure operations and services are listed below. A complete list of FY16-18 projects can be found in Appendix A.

1. Objective: Modernize and provide flexibility in application hosting to meet the growing demand for cost effective, agile IT solutions.
   a) Establish cloud broker services to streamline cloud acquisition and operations within the Agency. (FY17-18)
      i. Provide a framework to assist application owners in determining the optimal cloud service offering that meets their development, testing and production needs. Augment existing virtualization infrastructure to offer on premise private cloud hosting services.
      ii. Support agile IT by providing a wide selection of secure technology platforms, architectures and solutions through the use of third-party service providers.
      iii. Support the institutionalization of Dev/Ops practice in EPA. (FY16-17)

2. Objective: Continue to refresh existing services and deploy new services as needed to maintain or improve the user experience.
   a) Conduct market research to identify new technologies that meet Agency business and mission needs (e.g., technologies that enable secure access to EPA applications and information on a variety of end user devices (such as laptop, tablet, smart phone, etc.). (Ongoing)
      i. Create a joint OEI/Office of Research and Development (ORD)/Office of Air and Radiation (OAR) taskforce including other key Agency stakeholders to identify and respond to the needs of the EPA research and field community. (FY16)
      ii. Architect new solutions and work with customers to conduct proofs of concept to determine if new technologies meet their needs and operate efficiently in EPA's environment. (Ongoing)
      iii. Identify resources, pilot and deploy the new technologies. (Ongoing)
   b) Deploy services and technologies that address unique requirements of various EPA communities (e.g. scientists, EPA laboratory staff). (FY17-18)

c) Support the transition of applications out of Lotus Notes to minimize the Lotus Notes footprint and reduce redundancy. (FY16)

d) Continue collaboration with OCFO and OARM to implement the recommendations from the Employee On-Boarding/Off-Boarding Process Lean events. (FY16-18)

   i. Conduct a Lean event to improve the Employee Provisioning Process. (FY16)

   ii. Implement the Phase 1 Employee Onboarding Process and the Phase 2 Employee Provisioning Process. (FY16)

   iii. Conduct a Lean event to improve the Move, Add and Change Process. (FY17)

   iv. Conduct a Lean event to improve the Employee Deprovisioning Process. (FY17)

3. Objective: Identify opportunities and partner with other agencies as both a service provider and consumer to leverage economies of scale. (Ongoing)

   a) Collaborate with other government agencies to optimize Office 365 for government use. (Ongoing)

   b) Work with GSA to develop a plan to migrate their infrastructure to EPA's data centers. (FY16)

   c) Prepare to use GSA's Government Wide Acquisition Contracts (GWAC) to procure desktop printers, equipment and services. (FY17)

   d) Use GSA's Federal System Integration and Management (FEDSIM) Center to support the continued evolution of EPA's IT services. (FY17)

4. Objective: In conjunction with OARM, improve current and future IT procurement practices to provide improved delivery of quality products and services while reducing the number of vendors involved in OEI-managed processes.

   a) Award the ITS-EPA III contract. Establish key performance indicators (KPIs) and reduce the number of IT service support task orders from nineteen to four, resulting in more effective performance, operations and financial management and accountability. (FY17)

   b) Partner with OARM to identify areas to consolidate the procurement of enterprise IT services. (Ongoing)

5. Objective: Enhance project management tools to increase efficiency and demonstrate value.

   a) Improve project management tools to provide visibility into work performed to balance operations with special projects and innovation. (FY16)

   b) Shift customer focus from complex IT cost reports to value based consumption models that emphasize increased customer control over costs. (FY17)

# 5. Enhancing Core IT Programs

EPA's IT programs vary greatly in terms of their environmental and mission support functions, their users and the degree to which they use the latest technologies. This section specifically highlights opportunities in the Quality Program, Libraries, Records Management, Discovery Services, the EPA Docket Center, E-Rulemaking and FOIAonline.

## Quality Program

Data is central to EPA's mission. EPA uses data to develop and enforce regulations, conduct studies on environmental issues and publish information to inform the public about Agency activities. The goal of EPA's Quality Program is to ensure that EPA's decisions are supported by data of known and documented quality. The program oversees the quality of information being collected, produced and used by EPA organizations. Some information may be directly reported to EPA by regulated entities, by states and tribes or by contractors and grantees conducting work on EPA's behalf.

The Quality Program has relied on paper-based processes and cumbersome internal annual Quality Assurance (QA) reporting processes. OEI is making strategic modifications to its Quality Program to ensure it is responsive and efficient.

1. Objective: Efficiently manage an optimal Quality Program and respond to emerging user requirements.

   a) Develop performance measures for the EPA Quality Program as the next phase of implementation of the streamlined QA Annual Reporting Process. (FY16)

   b) Complete assessments of the Quality Program being implemented by the regions and program offices. (Ongoing)

   c) Update the EPA Quality policy and procedures to ensure they accurately represent existing standard practices and align with the latest American National Standard ANSI/ASQC E4 Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs standard. (FY17)

   d) Respond to all Requests for Correction and Requests for Reconsideration in a timely manner. (Ongoing)

2. Objective: Implement a quality assurance risk-based priority setting approach that focuses on ensuring data quality to inform Agency decision-making—decisions that, if based on incorrect data, will lead to increased environmental risks, undue financial burdens and erroneous enforcement actions.

   a) Collaborate with the Field Operations Group (FOG) Implementation Team to oversee external audits of EPA organizations who conduct field activities to ensure data is being collected using appropriate field operations (as outlined in the QA Field Activities Procedure, CIO Procedure 2015-P-02). (FY17-18)

   b) Revise the internal Quality System Assessment process to focus on key areas that pose the greatest risk to Agency decision-making. (FY17)

   c) Pilot the new Quality System Assessment process. (FY17)

   d) Integrate the oversight of EPA organizations' implementation of the QA Field Activities Procedure within the Quality System Assessment process. (FY18)

3. Objective: Enhance the efficiency of QA annual reporting processes.

a)  Implement a streamlined process for EPA QA Annual Reporting through the migration of the current paper-based reporting process to an enterprise QA tracking system that allows EPA organizations to input information about key metrics for EPA Quality Programs. (FY16-18)

## Library Program

The EPA National Library Network is an essential information partner to EPA staff and the public to support decision making, environmental awareness and protection of human health and the environment. In the coming year, the Library Program plans to extend the goals and actions captured in the EPA National Library Network Strategic Plan FY2015-FY2017.

1.  Objective: Facilitate EPA's transition from paper-based information to digital information.

    a)  Continue digitization of EPA publications and make them accessible online to EPA staff and the public. (Ongoing)

    b)  Facilitate Agency-wide access to critical information resources through maintenance of a robust desktop library and acquisition of additional electronic resources. (Ongoing)

2.  Objective: Position EPA's National Library Network to sustainably provide the right mix of services that support EPA's decision making and public environmental awareness.

    a)  Strengthen library services, governance and support through implementation of the Network's Strategic Plan for FY2015-2017.

    b)  Conduct an updated information needs assessment of internal EPA users to facilitate library interactions with end users and develop targeted services. (FY17)

3.  Objective: Create collaboration spaces that facilitate knowledge creation in addition to consumption.

    a)  Improve EPA Headquarters and Chemical Library space to accommodate patron needs for collaboration space, consultation with professional librarians and access to collections. The improved Headquarters and Chemical Libraries will serve as a model for other EPA libraries working to develop collaboration spaces.  The Network will work with OARM's facilities team and space planners to develop a plan (FY17) that will:

        i.   Create reading/research space for EPA staff and the public.

        ii.  Establish a main service desk to serve as a focal point for library services.

        iii. Create office/consultation space for Reference Librarians to meet with EPA researchers with extensive service requests.

    b)  Share best practices and trends in library space improvements with Network libraries for implementation on a local level by holding working session on library space planning during the Library Network Annual Meeting. (FY16)

4.  Objective: Promote the Library Program's information partnership with EPA staff and the public.

    a)  Cultivate relationships with other federal and environmental libraries to promote the sharing of materials and development of ideas that benefit users and librarians. (Ongoing)

    b)  Educate the professional library community about the Library Network and EPA resources to promote the sharing of materials and development of ideas that provide benefits to users and librarians. (Ongoing)

## Records Management

Operating under the authority of the Federal Records Act (44 U.S.C. 31), EPA's National Records Management Program (NRMP) is responsible for providing leadership and direction for the Agency's records management program. This includes developing an overall records management strategy; producing and updating EPA records management policies (such as EPA's Records Policy, which includes email guidance procedures), standards and guidance; cooperating with other organizations in developing policies and guidance on the application of technology to records management; developing records schedules authorizing the disposal of temporary records and the transfer of permanent records to the National Archives; conducting specialized briefings on records management; coordinating the program within the Agency and with outside parties such as the National Archives and Records Administration (NARA); representing the Agency in intra-agency records management groups; and assisting records programs across the Agency with advice and technical expertise.

EPA currently relies on multiple electronic records repositories, for example, the Enterprise Content Management System (ECMS), the Federal Docket Management System and FOIAonline. EPA is also exploring additional approaches that could facilitate and enhance records management across the Agency.

1. Objective: Develop a strategic plan for IT systems tools and approaches that support records management.

   a) Develop a high level framework outlining expected directions. (FY17)

   b) Develop a more detailed plan for implementing enhancements to EPA's records management approaches. (FY17)

2. Objective: Facilitate electronic records management and advance the proper management of digitized paper records.

   a) Develop auto-categorization capabilities to match records saved in ECMS to the appropriate records schedules. (FY18)

   b) Explore other automated approaches (e.g., role-based approaches) to facilitate records management, while reducing the burden on individual employees. (FY 17-18)

   c) Develop capabilities to support the proper management of records created or stored on SharePoint/OneDrive sites, local disk drives and network share drives. (FY17)

   d) Develop the capabilities needed to support the storage, management, search and retrieval of digitized paper records. (FY18)

3. Objective: Enhance employees' knowledge of and adherence to federal records management requirements.

   a) Provide annual mandatory records management training to all EPA employees. (Ongoing)

   b) Provide ongoing records management support to employees through the NRMP Help Desk and EPA's network of Records Liaison Officers (RLOs). (Ongoing)

4. Objective: Work with regions and program offices to meet the deadlines in the Managing Government Records Directive, issued by the National Archives and Records Administration (NARA) and the Office of Management and Budget (OMB). This Directive requires agencies to 1) manage both permanent and temporary email records in an accessible electronic format by

December 31, 2016, and 2) manage all permanent electronic records in an electronic format by December 31, 2019.

a) Use EPA's EZ Email Records tool to allow employees to save email records into ECMS, while also exploring other email records management approaches that could help reduce the burden on individual employees. (FY16)

b) Work with regions and program offices to enhance awareness of the 2019 requirement for managing permanent electronic records electronically and to develop additional records management capabilities as needed to meet this requirement. (FY18+)

## Discovery Services

Each year, EPA must provide large volumes of information in response to thousands of Freedom of Information Act (FOIA) requests, congressional requests and litigation needs.

1. Objective: Increase the capacity of EPA's Discovery Services to meet existing customer demands and support growing future needs.

a) Implement an intake process to identify similarities across requests, reduce search duplication and streamline the collection and processing of information. (FY17)

b) Increase staffing to enhance case management and requester support, while also increasing support for collecting/processing information and providing related analytics. (FY17-18)

c) Implement a dedicated team for search, collection and processing of general FOIA requests. The general FOIA team will have a dedicated FTE for case management and will allow for reduction in the backlog, a dedicated priority queue and quicker turnaround times. (FY16-17)

## FOIA Program

The Freedom of Information Act (FOIA), 5 U.S.C. § 552, provides access to federal agency records except when such records or portions of such records are protected from public disclosure by a FOIA exemption. EPA's National FOIA Program provides leadership, direction and support for FOIA activities by working in conjunction with the Agency's FOIA community to develop policies and procedures for administering statutory and regulatory requirements under the Act.

1. Objective: Streamline existing processes.

a) Work to consolidate and disseminate information from previously conducted FOIA-related Lean events across the Agency. (F17)

b) Work with programs and regions to build on the results of FOIA-related Lean events to improve FOIA processes, as appropriate. (FY17)

2. Objective: Reduce the backlog of pending FOIA requests.

a) Provide a contract vehicle to support key offices in closing pending FOIA requests, with the goal of reducing the FOIA backlog. (FY17)

b) Deploy MyProperty 2.0 to help reduce the number of incoming FOIA requests for location-based environmental assessment data. (FY 16)

c) Ensure that all FOIA requests submitted to EPA headquarters are proper requests before assigning them to program offices, in an effort to streamline the process. (FY16)

d) Implement an intake process to identify similarities across requests, reduce search duplication and streamline the response process. (FY17)

e) Provide on-going training for FOIA professionals in FOIA processes and FOIAonline functionality. (Ongoing)

f) Increase EPA's capacity for managing FOIA requests. (FY18+)

2. Objective: Reduce demand for information by providing it proactively.

a) Monitor recurring themes to enhance content provided on EPA's public website. (Ongoing)

b) Provide responses through FOIAonline to give the public access to all records released though FOIA. (Ongoing)

3. Objective: FOIA process improvements

a) Increase coordination and communication among the National FOIA Program, the FOIA Executive Assistance Team (FEAT) and EPA's Discovery Services program. (FY17)

b) Update the FOIA procedures based upon the FOIA improvement Act of 2016. (FY17)

c) Explore centralization of the intake of all FOIA requests through EPA headquarters in order to more effectively identify and consistently process duplicate requests that are submitted to multiple regional offices. (FY 17)

## Section 508 Program

Section 508 of the Rehabilitation Act of 1973, as amended in 1998, requires the federal government to ensure that the electronic and information technology (EIT) that it develops, procures, maintains or uses is accessible to persons with disabilities. EPA's Section 508 Program provides resources and support for the Agency and its stakeholders to ensure the Agency complies with Section 508 requirements.

1. Objective: Institutionalize "Think 508 First" from the beginning and throughout all relevant information technology/information management (IT/IM) system life cycle processes.

a) Revise the Section 508 Procedures and relevant IT/IM-related policy, procedures and guidance to ensure Section 508-related language is incorporated. (FY17)

b) Provide outreach and communications to EPA employees to raise awareness of Section 508 requirements by expanding the 508 Community Forum, engaging 508 Liaisons and increasing communication with EPA's IT managers. (Ongoing)

2. Objective: Enhance the computing experience of persons with disabilities.

a) Expand Section 508 Training offerings on what Section 508 means, how to successfully incorporate Section 508 into acquisitions, and how to make common work products accessible, including documents, websites and meetings. (FY 17)

b) Establish a "How To" helpdesk to include how to use assistive technology with EPA's EIT, as well as how to make work products (e.g., documents and websites) and meetings accessible to all users. (FY 17)

## Information Security and Risk Management

Information is a valuable national resource and a strategic asset to EPA. It enables the Agency to fulfill its mission to protect human health and the environment. EPA's Information Security program is designed to protect the confidentiality, availability and integrity of the Agency's information assets. The

program includes, but is not limited to, Agency-wide policy, procedure and practice management; information security awareness, training and education; compliance and oversight; mission assurance; incident response management; and governance reporting.

The Information Security Program works with staff in the program offices and regions, contractors, OMB, Department of Homeland Security (DHS) and other external partners to implement the program requirements. EPA is adopting more comprehensive and proactive security strategies to respond to the ever more sophisticated threats that it and other government agencies face.

1. Objective:  Improve EPA's security posture.

   a) Implement the approved Information Security Task Force (ISTF) recommendations (including revamp information security staffing, consolidate and centralize security processes, and increase oversight of the system authorization process). (FY16)

   b) Implement remedial actions to address weaknesses identified by the Senior Agency Information Security Officer (SAISO). Remedial actions are listed in Appendix A.

   c) Implement a robust continuous monitoring program for configuration, vulnerability, asset management and insider and advanced persistent threats. (FY16-18)

   d) Proactively identify incidents and decrease response and mitigation time. Specific activities are listed in Appendix B. (Ongoing)

   e) Implement identity and access management capabilities, including the Homeland Security Presidential Directive 12 (HSPD-12) requirements for logical and physical access, to incorporate physical access control management and interoperability with other federal agencies and partners. (FY16-19)

2. Objective:  Increase employees' awareness of their roles and responsibilities in keeping EPA's information secure.

   a) Mature the information security communications program, resulting in an EPA culture that understands its roles and responsibilities and is aware of risks and vulnerabilities. (FY18)

   b) Improve the knowledge, skills and abilities of security professionals with significant security responsibility (e.g., Information Security Officers (ISOs), Senior Information Officials (SIOs), System Owners (SOs) and Information System Security Officers (ISSOs)), through rigorous role-based training and credentialing. (FY17)

   c) Improve the security knowledge, skills and abilities of all employees through training and credentialing. (Ongoing)

# 6. EPA's Shared Services—Expanding Capabilities and Partnerships

## eRulemaking

E-Rulemaking is a cross-agency shared service that supports the development of federal regulations. Forty principal partners and over 180 sub-agencies use the service. EPA is the service's managing partner and maintains the Regulations.gov portal, which provides online access to regulations published by all federal agencies. FDMS is the operational system supporting the eRulemaking federal partners. Through FDMS, agencies manage proposed rulemakings, public notices and other federal dockets throughout the life cycle of the action.

1. Objective: Plan and develop enhancements to improve the experience of public commenters and agency partners.

   a) Improve system search capabilities, making it easier for the public to find, review and comment on rulemaking, public notices or other dockets. (FY17)

   b) Deploy APIs to partner agencies so they can insert comment-response widgets into their Web pages. (FY18)

   c) Develop public and executive dashboards for better data visualization. (FY18)

   d) Expand the capabilities of current auto-categorization and de-duplication functionality. (FY18)

## EPA Docket Center and Regulations.gov

The EPA Docket Center has several roles:

- Uses Regulations.gov and the Federal Docket Management System (FDMS), available through the eRulemaking Program, and maintains the internal EPA partnership that relies on them.

- Helps EPA program offices create dockets in FDMS and prepare them for publication at Regulations.gov.

- Receives public comments on docketed materials, provides initial processing of comments to post them on Regulations.gov and makes comments available to program offices for their review.

In recent years, the EPA Docket Center's workload has grown due to an increase in the volume of public comments that require review and response. EPA received, at most, one million public comments before 2010. In 2015, it received more than seven million public comments. The Agency will continue to explore approaches to facilitate efficient review and response processes.

1. Objective: Streamline the commenting process on EPA's docketed actions.

   a) Encourage commenters to use Regulations.gov to provide comments. Adjust Agency Federal Register templates and websites to steer more commenters to the Regulations.gov Web form for submitting comments. (FY16)

   b) Use application programming interfaces (APIs) that support public commenting processes, when such APIs are made available by EPA. (FY18+)

2. Objective: Leverage FDMS to serve as an electronic recordkeeping repository for docketed materials.

a) Develop and implement standard operating procedures to facilitate and promote EPA's use of the FDMS records module. (FY17)

b) Provide information to EPA programs about the FDMS records module and encourage its use in handling the full lifecycle of docketed electronic records, from receipt to final disposition. (FY17)

## FOIAonline

EPA provides FOIAonline to 12 partners as a federated, shared service. Through FOIAonline, members of the public can submit FOIA requests to any participating agency, track the status of their requests, receive responsive records electronically, create a dashboard of submitted requests, search for requests submitted by others, access previously released records and generate agency-specific FOIA processing reports.

1. Objective: Ensure that FOIAonline provides high quality services to its partners and the public.

a) Continue to expand FOIAonline partnerships. (FY16-17)

b) Develop a connector between Relativity, a review and redaction platform, and FOIAonline to enable the seamless uploading of documents. (FY17)

c) Enhance FOIAonline to allow partner agencies to view and track additional information about certain types of FOIA requests (e.g., FOIA appeals). (FY18)

d) Provide responses through FOIAonline to give the public access to all records released though FOIA. (Ongoing)

e) Support the implementation of the FOIA Improvement Act of 2016 in partnership with Department of Justice and others. (FY17-18)

# 7. Skills Development—Building a 21<sup>st</sup> Century Workforce

EPA's IT/IM workforce is generally de-centralized, distributed across the Agency's program offices and regions. There are nearly 600 IT Specialists working throughout OEI and across EPA to carry out IT-related activities. OEI employs about 400 staff who support the mission outlined by EPA's CIO and include a wide variety of job series, such as IT/IM specialists, information security specialists, accountants and program analysts, among others. OEI is responsible for producing training related to the Agency's IT demands to assist all EPA employees in navigating newly released or upgraded technology.

OEI is in a unique position as it is undergoing a transition within EPA.  As a result of this transformation, OEI plans to help its internal employees transition to new organizational areas and new work and job duties, so that we can more effectively meet the mission of EPA. For other IT staff across the Agency, this transition will have a positive impact on their interactions with OEI and their communities of practice.

OEI is working to ensure the Agency attracts, hires and supports a workforce that can adapt and succeed in EPA's unique technical, policy and business operations environment. OEI is leading efforts to develop a modern IT/IM workforce with the skills to support both OEI and the Agency. In addition, OEI is employing innovative federal human resources (HR) methods to ensure managers and staff have the skills they need to be successful.

1.  Objective: Creatively recruit talent through internal and external partnerships.

    a)  Working under the Merit Principles, ensure that OEI's hiring practices reach a diverse candidate pool and support the hiring of diverse and qualified employees. (Ongoing)

    b)  Utilize the full suite of government recruiting opportunities, including Veterans Hiring Authority, Presidential Management Fellowship Program, Returned Peace Corps Volunteers, Pathways Program, and more. EPA recently expanded its recruitment to include CyberCorps interns and plans to utilize this program more fully in the future. (FY16-18+)

    c)  Create a team of HR partners who work and consult with managers to identify the best recruiting strategy for hiring talent that meets their business objectives. (FY16)

    d)  Implement EPA's Innovation Fellowship as a method to recruit industry talent to EPA.

    e)  Partner with outside organizations (e.g., local STEM high schools, local colleges/universities, associations that promote a specialty such as engineering or have a special emphasis on diversity) to increase the number and diversity of future potential candidates for employment. (FY16-18+)

    f)  Participate in targeted job fairs to attract talent to work at EPA. (Ongoing)

    g)  Use available tools (e.g., Skills Marketplace, cross-functional teams and EPA Innovation Fellows Program) to leverage needed job skills across the Agency to deliver results. (FY16-18)

2.  Objective: Support the Agency IT workforce by empowering employees with professional development and collaboration opportunities that enhance their skills and knowledge and advance their careers.

    a)  Assess opportunities for employee training and professional development to provide employees with the skills they need to succeed.

      i.     Conduct workforce assessments to identify areas where additional training is needed, evaluate skills gaps and expand training opportunities. (Ongoing)

      ii.     Measure the effectiveness of workforce planning initiatives and the reorganization in meeting proposed objectives to ensure employees have the skills and support they need to succeed in the workplace. (FY16-18)

      iii.     Leverage results from the Federal Employee Viewpoint Survey and other Agency engagement activities. (Ongoing)

      iv.     Strengthen our work with union partners to check in on organizational health and wellness. (Ongoing)

b) Provide training and professional development opportunities to strengthen the workforce's skills and knowledge, per EPA's IT Workforce Strategic Plan and in support of FITARA implementation.

      i.     Leverage the talent from EPA's Innovations Fellowship to help EPA IT specialists with embracing and learning emerging, scalable and innovative technology solutions.

      ii.     Encourage each staff member to create a professional development plan and assist with the training to obtain their next career positions and to support the changing needs of EPA. (FY17)

      iii.     Offer opportunities to support organizational change, including trainings on managing change and becoming a more efficient and effective organization. (Ongoing)

      iv.     Develop processes to encourage smooth knowledge transfer when employees change positions. (FY16)

      v.     Develop processes for cross-organizational collaborative functions and clearly communicate the processes to the workforce. (FY16)

      vi.     Reemerge from the reorganization as a new OEI, structured to channel our staff's talent and energy in support of the Agency's mission. (FY16)

3. Objective: Support OEI's management cadre to ensure they have the skills and tools they need to help their employees achieve their organizational and career goals.

a) Continue conducting 360-degree manager assessments to provide managers with constructive feedback to use in their personal development plans. (Ongoing)

b) Provide coaching to managers to build on their strengths and opportunities for improvement. (Ongoing)

c) Institutionalize Manager Best Practices Training to assist managers in understanding and meeting the breadth of their management responsibilities. (FY16-18)

d) Offer training and tools to employees who are interested in becoming managers. (FY16-18)

e) Support first line supervisors with training and opportunities to collaborate and share best practices. (Ongoing)

f) Prioritize the hiring and filling of permanent management positions within OEI. (FY16-17)

g) Ensure all OEI managers complete the core management and leadership training courses within their first two years as managers. (Ongoing)

## Appendix A: FY16-18 Infrastructure Operations and Services Projects

The following tables list EPA's FY16-18 projects related to infrastructure operations and services. These projects follow from the objectives and activities noted in the Infrastructure Operations and Services—Delivering Operational Excellence section.

*Table 1. Hosting, Network and Infrastructure Projects*

| Project | Timeframe |
|---|---|
| Agency Cloud Services (Cloud Service Broker) | FY17-18 |
| Remote Access Enhancement (VDI) | FY17 |
| Enterprise Network Services | FY17 |
| Agency Voice Implementation | FY17-18 |
| IPv6 (Servers and Workstations) | FY17 |
| WAN/Internet Bandwidth Expansion | Ongoing |
| Data Center Optimization – Inter-agency Shared Services (GSA) | FY17-18 |

*Table 2. Desktop and Collaboration Projects*

| Project | Timeframe |
|---|---|
| Notes Email Migration | FY17 |
| Notes Assessment and Infrastructure Consolidation | FY17-18 |
| Windows 10 | FY17-18 |
| Unified Communication | FY17-18 |
| Data Management (OneDrive Analysis and Delivery Strategy) | FY17 |

*Table 3. Mobility Projects*

| Project | Timeframe |
|---|---|
| Mobile Device Backups | FY17 |
| Mobile Device Application Management | FY17 |
| Agency Wireless | FY17 |
| Mobile Device Management Multifactor Authentication | FY17 |

*Table 4. Security Projects*

| Project | Timeframe |
|---|---|
| Continuous Diagnostic & Mitigation Implementation | FY17-18 |
| FedRAMP TIC Overlay | FY17 |
| Cyber Security Projects | FY17-19 |

*Table 5. Service Management Projects*

| Project | Timeframe |
|---|---|
| Information Technology Services Contract | FY17 |
| Cost Transparency (IT Financial Management) | FY17 |
| Project Management Institutionalization | FY17 |

## Appendix B: FY16-18 Security Projects

The following are the FY16-18 Security Projects. These projects relate to the remedial actions designed to address weaknesses identified by the Senior Agency Information Security Officer (SAISO), noted in the Information Security and Risk Management section.

*Table 6. Security Projects*

| Protection Area | Project |
| --- | --- |
| Protect/Protective Technology | Technical control monitoring use of privileged accounts for those tasks only, e.g., preventing internet access, not using unnecessary applications, limited time of access, etc. |
| Detect/Security Continuous Monitoring | Vulnerability discovery, tracking and reporting system |
| Protect/Data Security | Detect covert exfiltration of information at EPA network boundary and at systems and applications |
| Protect/Data Security | Implement data-centric identification, tracking and protection capabilities |
| Detect/Anomalies and Events/Continuous Monitoring | Develop behavior monitoring and anomalous detection, response and reporting capability |
| Detect/Anomalies and Events/Security Continuous Monitoring | Implement advanced adware/anti-phishing, malware and malicious website blocking, detection and protection solution |
| Detect/ Security Continuous Monitoring | Implement Network Access Control (NAC) capabilities |
| Detect/Anomalies and Events/Security Continuous Monitoring | Implement capability to monitor incoming email traffic and safely test embedded URLs, content and attachments and quarantine or block suspect emails |
| Detect/Anomalies and Events/Security Continuous Monitoring | Implement a capability to safely test apps activity on mobile devices |
| Detect/Security Continuous Monitoring | Improve vulnerability alerting capability |
| Detect/Security Continuous Monitoring | Implement a capability to scan remotely connected devices for malware upon connection |
| Protect/Access Control | PIV Enable Applications |
| Protect/Access Control | Implement a Single Sign On (SSO) that leverages PIV cards and privileged account management capabilities |

| Protection Area | Project |
| --- | --- |
| Response/Mitigation | Implement capability to isolate suspected compromised devices for remediation and forensics work |
| Detection/Security Continuous Monitoring | Implement email sender authentication protocol |
| Detection/Security Continuous Monitoring | Implement capability to do network traffic full packet capture and analysis |
| Detection/Security Continuous Monitoring | Improve ability to conduct endpoint forensics to include mobile devices |
| Detection/Security Continuous Monitoring | Improve monitoring and response capabilities for APT and APT-like threats |
| Detect/Anomalies and Events/Security Continuous Monitoring | Implement capability to conduct penetration testing of systems and networks |
| Detect/Security Continuous Monitoring | Implement capability for comprehensive threat intelligence consolidation and dissemination |
| Detect/Anomalies and Events | Leverage big data capabilities to improve incident detection and response and develop predictive analytics capability |
| Protect/Data Security | Procure secure/hardened USBs drives for international travelers |
| Protect/Awareness Training | Implement adult-learning-based Information Security and Privacy Awareness improvement |