E-Enterprise for the Environment Digital Strategy Executive Summary

As of April 2019

Purpose

The E-Enterprise for the Environment Digital Strategy (Strategy) outlines the key directions that U.S. Environmental Protection Agency (EPA), states, and tribes will take to improve information management practices, leading to more effective environmental protection for our external-facing tools and services. The Strategy leverages rapidly changing technology to advance strategic priorities (e.g., faster permitting, efficiencies in mandatory reporting, faster response by regulatory agencies to reduce regulated partner costs) as well as existing initiatives that environmental regulatory partners have already taken.

Core Elements

The Strategy is organized around three core principles:

- *Become Information Centric in Our Work* – E-Enterprise partners must move from managing documents to managing open data and content which can be tagged, shared, secured, mashed up, and presented in the way that is most useful for the consumer.

  To do this, partners must execute strategies to leverage high-value data and content by relying on web Application Programming Interface (APIs) and other means of connecting data sets, as well as make open data content and data connectivity the new default in building and managing data sets that currently reside in individual regulatory partners systems.

- *Build and Use Shared Platforms* – Partners must work together within and across agencies to reduce costs, streamline development, apply consistent standards, and ensure consistency in how we create and deliver information.

  To do this, partners must build shared services that can be built once and used many times to ensure consistency in approaches and cost savings and efficiencies. Cloud and shared hosting of systems and data must become a key part of our strategy. Partners must also collaborate across organizational boundaries to improve the delivery of digital services.

- *Implement Customer Centric Solutions* – User-Centered Design and Design Thinking, and a focus on business process improvement, need to guide how we create, manage, and present data through websites, mobile applications, raw data sets, and other modes of information delivery. Partners must allow customers to shape, share, and consume information whenever and however they want it.

  To do this, partners must provide systems and access to data that masks the complexity of government – customers don't care who owns the data or where it is stored. This will require a new focus on designing systems that are focused on understanding what customers of environmental data, including the regulated community, want and need and the ability to break down traditional data silos that currently prevent a streamlined experience

Many initiatives are already underway that are demonstrating the value of these strategies and innovative partnerships among EPA, states, and tribes (see examples below or visit the E-Enterprise website at https://e-enterprisefortheenvironment.net).

The next steps in implementing the strategy include building an architecture of shared services, cloud platforms, and open data available to all environmental partners and developing specific guidance to developers of systems about how to improve environmental protection processes. Partners will then be able to use the jointly developed architecture and guidance in their individual planning efforts.

Example E-Enterprise Projects

The following projects provide examples of where projects are already leveraging E-Enterprise Digital Strategies which are leading to environmental protection improvements.

Shared Identity Management: New Mexico, Wyoming, and North Dakota, working with EPA, implemented a pilot to leverage open standards and shared infrastructure to allow staff and regulated entities seamless access to designated data and resources in their partner agencies and the E-Enterprise Portal. Pilot testing this shared infrastructure provides the following environmental protection capabilities:

- Improved staff decision making by providing peer-to-peer access to partner agency data, models, and other resources.
- Reduced burden and improved customer experience for regulated entities by allowing them seamless navigation from partner to partner (including to and from the E-Enterprise Portal) and (see below) the use of common, best-of-breed tools for their specific business needs.
- Better access to common shared E-Enterprise resources: as common modeling, workflow and other resources are deployed, staff (and regulated entities) can access them, enabling both economies of scale and sharing of the expertise and best-of-breed environmental practices embedded in these resources.

Sensors Leading to Real-Time Water Quality Monitoring: E-Enterprise for the Environment Interoperable Watersheds Network project demonstrated the power of open standards, cloud platforms, and leveraging partnerships of both co-regulators and software providers to enable discovery and access of a variety of water quality data especially real time data from water quality sensors. The pilot also identified areas where more standards and technical design work is needed. The ability to discover and access these new types of distributed data sources, at large scale, directly supports improved staff decision-making by enabling more rapid access to more and new kinds of data in models and other analytic tools.

Faster, More Efficient Permitting by States Integrating Local NPDES Permitting with EPA's ICIS System: EPA's ICIS NPDES Electronic Reporting Tool (NeT). NeT uses a cloud platform to implement required NPDES electronic reporting programs. This modernization effort is maximizing cloud services provided by Microsoft Azure to better manage APIs and microservices being built for each permit and supporting business process. This architecture relies heavily on a subset of application management functionality, platform-as-a-service, and automation for scaling and provisioning. One state, Rhode Island, has integrated their local Multi-sector General Permit reporting into NeT, and several states are in the pipeline to integrate multiple permit types as well. This allows reusability of components, saves the states the costs of developing and hosting their own systems, and reduces the reporting burden for the regulated community by creating a single system of record and by standardizing the reporting experience. The system also uses a widget on the E-Enterprise Portal as a method of reporting permit status.

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