



CENTRAL DATA EXCHANGE

CSC

Streamlining the Flow of Essential Environmental Data

The EPA's Central Data Exchange (CDX) has helped the agency improve the timeliness, accuracy and cost effectiveness of obtaining essential environmental data. Launched in 2002, CDX has greatly enhanced information collection and sharing between the EPA and its partners: state governments, American Indian tribes, local governments and regulated industry.

A Single Point of Entry

Before CDX there was no standardized approach or uniform data collection method for submitting environmental data to the EPA. Many reports were filed in paper forms, which had to be manually entered and often led to gaps and inaccuracies in data. In addition, the data that was reported via computers

went to several systems managed by different EPA program areas. This often meant redundant processes to feed data into different systems.

CDX is now the point of entry to the Environmental Information Exchange Network (Exchange Network) for environmental data submissions to the EPA. As such, it delivers significant benefits for everybody:

- EPA program offices can better manage incoming data.
- External stakeholders can save time, money and effort in meeting EPA reporting requirements.
- The public benefits from more timely access to accurate environmental information.

Collecting and analyzing environmental data is crucial to the Environmental Protection Agency's vital science, research, education and assessment efforts. Since much of the data required comes from disparate, non-EPA sources, the agency needed to standardize and unify its nationwide data submission process. The solution: the award-winning Central Data Exchange. Developed by an EPA/CSC team, CDX offers a fast, easy and secure way to exchange environmental data.



**Benefits of CDX:**

- Highly secure
- Easy to use
- Cost effective for EPA and stakeholders
- Streamlines processing
- Improves information quality
- Increases data accuracy
- Improves information timeliness

First Government Service-Oriented Architecture

Selecting and incorporating the right technologies was imperative in building a central data exchange that not only meets current needs but also has the ability to grow and evolve. CDX was built using Web Services and supports submissions for critical information on air, water, waste and toxic substances in a variety of formats, including flat files, XML and Web over the Internet.

CDX was also the first service-oriented architecture (SOA) implemented in the federal government. The implementation of SOA—with its component-based, reusable services—reduces development and maintenance costs and has been key to launching a long list of CDX enhancements and new products and services.

Supporting Multiple CDX Projects

CSC's current partnership with the EPA has created 48 production data flows that support EPA program offices, states and other federal agencies. Several more are planned or currently in development. Among the programs that the EPA-CSC collaboration has produced are:

Toxics Release Inventory: The Toxics Release Inventory (TRI) is a publicly accessible EPA database that contains information on toxic chemical releases and waste management activities. More than 25,000 federal and industrial facilities that handle toxic materials report data annually to states and the EPA through TRI. CSC developed TRI-MEweb, an Internet-based application using CDX for electronic submission of TRI reporting forms. As a result, the time frame for issuing TRI reports to the public has been cut by months.

Verify Engine and Vehicle Compliance System: The EPA's Office of Transportation and Air Quality tapped CSC to consolidate, modernize and expand its outdated systems. Currently under development, the Verify system uses CDX to collect emissions and fuel economy compliance information for light-duty, heavy-duty and non-road engines and vehicles. Eighteen applications are planned and four are currently in production.

Safe Drinking Water Accession and Review System: Under the Unregulated Contaminant Monitoring Regulation, the EPA requires select public water systems to monitor 25 contaminants and five analytical methods. CSC developed the Safe Drinking Water Accession and Review System (SDWARS) so that laboratories responsible for sample analysis can efficiently post data to states and the EPA through CDX and public water systems can review and act upon that data.

Risk Management Plan: The Clean Air Act requires certain facilities to maintain and submit a Risk Management Plan (RMP) to ensure that plans are in place to prevent and respond to chemical emergencies. CSC developed a Web-based process so that these regulated facilities can use CDX to efficiently update their registration information. We are currently working to expand the application so that the entire RMP can be submitted electronically using CDX.

Integrating New Technologies

The EPA is continually integrating emerging technologies to improve efficiency and keep pace with changing requirements. CSC is playing an important role in this effort. Our projects include:

Next Generation Node: The Next Generation Node (NGN) allows Exchange Network partners to more easily gather, publish and share data. Developed by CSC, this open-source tool is designed for flexible and rapid data exchange and is adaptable to a wide range of hardware and software environments. Accredited by EPA's Node Certification Tool, NGN supports both Exchange Network 1.1 and 2.0 protocols.

CDX-Lite: CDX-Lite is a streamlined approach to developing and maintaining EPA program data flows. Ideal for routine data flows, CDX-Lite uses reusable components to reduce the time and costs required to bring a new data flow into production.

GIS: CSC has helped the EPA develop an environmental metadata editor that standardizes and automates the creation and management of geospatial data. The editor provides a common method for tagging geospatial data so it can be shared more easily within EPA and with other federal, state and local agencies.

CDX Infrastructure Services

In addition to our work developing the CDX solution, CSC also helps support the program's IT infrastructure assets. This includes:

- Hardware, software and network support for all CDX programs
- Support for CDX's Developmental and Test Data Center in Maryland and Production Data Center in North Carolina
- Help desk management for CDX and the Environmental Council of States (ECOS)

Recognized for Excellence

The EPA/CSC team's work on CDX and the Exchange Network has been recognized for excellence. The team has won seven major EPA awards in the last three years, including Gold, Silver and Bronze Honor Awards and two CIO Innovation Awards. CDX also received accolades from several industry publications, including a 2008 Government Computer News Award for its geospatial metadata system and the 2004 Government Computer News Award for the National Environmental Information Exchange Network.

CSC North American Public Sector

3170 Fairview Park Drive
Falls Church, Virginia 22042
+1.703.876.1000
www.csc.com/epa
Contact us at epa@csc.com