United States Department of Commerce

COMMERCE DATA STRATEGY

Fiscal Years 2021–2024

Foreword

The Department of Commerce is charged with creating the conditions for economic growth and opportunity for all Americans and American communities. Achieving this mission requires having data about our communities, our businesses, and our economy to spur the creation of good-paying jobs, foster innovation, and ensure that all American workers and businesses have the necessary tools and equitable opportunities to compete. As America's Data Agency, the Department of Commerce provides foundational statistical, scientific, and other data to support evidence-based decision-making by individuals and institutions.

Ranging from disaster response and weather prediction, to assisting communities with economies that lag the national norms, data are critical to ensuring our recovery programs are reaching underserved communities that have been hardest hit by COVID-19.

The Commerce Department, through its many data-driven bureaus, provides critical support to those who need it most. In order for larger minority businesses to grow, they need to export. However, 80% of new markets are currently outside of the United States—the International Trade Administration (ITA) and the Bureau of Industry and Security (BIS) can help.

The National Telecommunications and Information Administration (NTIA) is expanding broadband and the quality of broadband to underserved communities. Broadband access is essential for business growth. The Minority Business Development Agency (MBDA) is committed to helping minority businesses take their rightful place in the economy. The National Institute of Standards and Technology (NIST) and the United States Patent and Trademark Office (USPTO) support invention and innovation, essential ingredients for prosperity in any community, especially those that have been underserved.

The National Technical Information Service (NTIS) brings industry-leading partners to government, and the National Oceanic and Atmospheric Administration (NOAA) is leading the Department with high-tech instrumentation and cutting-edge research along with its Big Data Program. The Bureau of Economic Analysis (BEA) produces some of the most closely watched and influential economic indicators, and the U.S. Census Bureau serves as the leading source of quality data about the nation's people and economy. The Economic Development Administration (EDA) continues to lead the Federal economic development agenda where our data are both a strategic asset and a critical piece of American infrastructure.

I want to thank the Commerce Data Governance Board (CDGB) for its leadership in developing the first Commerce Data Strategy and ensuring our data drive an economy that is equitable in access to capital, build resilient communities, and provide all businesses with the opportunities to thrive. With representation from every bureau, the CDGB has my full support to co-create a set of measurable outcomes to build a data infrastructure that:

- *Governs and Manages Data as a Strategic Asset* **—** Commerce will continuously seek to improve coordination and planning of data initiatives that employ holistic strategies to transparently maximize the use of data assets by all sectors and citizens and enhance Department capabilities and culture that emphasizes data maturity across the Department through data governance best practices.

- *Enables More Efficient Data Access and Analysis* **—** Commerce's commitment to effective lifecycle data management will enhance timely access to high-quality data foundational for informed decision-making through effective data management and spur commercialization, innovation, and public use.

- *Promotes Appropriate Data Use and Equitable Access* **—** Commerce strives to deliver equitable, ethical, and secure data products and services to Commerce data users and partners. The Department and its bureaus and offices recognize the importance of protecting privacy, respecting intellectual property, addressing cybersecurity concerns, and fostering an ethical data lifecycle that minimizes algorithmic risk of unintended bias. It will provide leadership on these and any other relevant considerations to promote appropriate data use, enhance trust, and ensure U.S. competitiveness.

- *Cultivates a Modern Data Skills Workforce* **—** It is vital for government agencies to accelerate the transition to new and emerging technologies by developing data acumen and advanced analytics skills in the workforce. Commerce and its bureaus will develop strategies to assess and improve staff data skills and build a learning culture.

- *Coordinates a Collaborative Data Culture* **—** Commerce seeks to maximize the benefit of knowledge sharing through collaboration among CDOs, CIOs, CFOs, EOs, and SOs and engagement between internal and external experts and stakeholders in all facets of needs assessment, knowledge management, and technology. By harmonizing efforts across data-related requirements and coordinating strategic plans, Commerce will align shared priorities, prevent duplication of effort, effectively pivot with changing priorities, and perpetuate its standing as America's Data Agency.

Data are essential to advancing the Department's mission and serving the public. Leaders at the Department have the responsibility to ensure our data are comprehensive, consistent, confidential, credible, and appropriately accessible. Strengthening data governance and management across the Department will not only accelerate evidence building and enhance our operational performance, but it will make it easier for stakeholders to access, analyze, and use Commerce data.

Gina M. Raimondo
Secretary of Commerce
U.S. Department of Commerce

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Introduction

The mission of the Department of Commerce (Commerce) is to create the conditions for economic growth and opportunity. Data are critical for fulfillment of Commerce's mission to spur good-paying jobs, empower entrepreneurs to innovate and grow, and help American workers and businesses compete.

Commerce bureaus ensure fair and reciprocal trade, foster innovation by setting standards and conducting foundational research and development, lead the nation and world in intellectual property protection, and source quality data on the nation's people and economy. Commerce bureaus provide the data, products, and services necessary to support commerce and constitutional democracy through widespread broadband access, sustainable economic development, growth of minority-owned businesses, enhanced climate information, weather prediction, fisheries health, and disaster response. In the next several years, Commerce will play a prominent role in addressing climate change, racial inequality, economic recovery from the impact of COVID-19, and sustaining economic growth and jobs as the nation transitions from carbon-based energy to renewable energy. Also, Commerce will play a lead role in Space Commerce to improve space situational awareness with a data strategy envisioned to ensure safe space flight operations.

In carrying out this important mission for the nation, Commerce generates, collects, stores, and analyzes an exponentially growing abundance of data, including data on the nation's economy, population, and environment. The Department partners with the private sector to increase its capacity to efficiently collect and release data used to protect life and property and to enhance economic growth and access to opportunity. Finding new and evidence-based ways to combine Commerce data with data from other sources will enable Commerce to better leverage its data to address society's current and emerging needs.
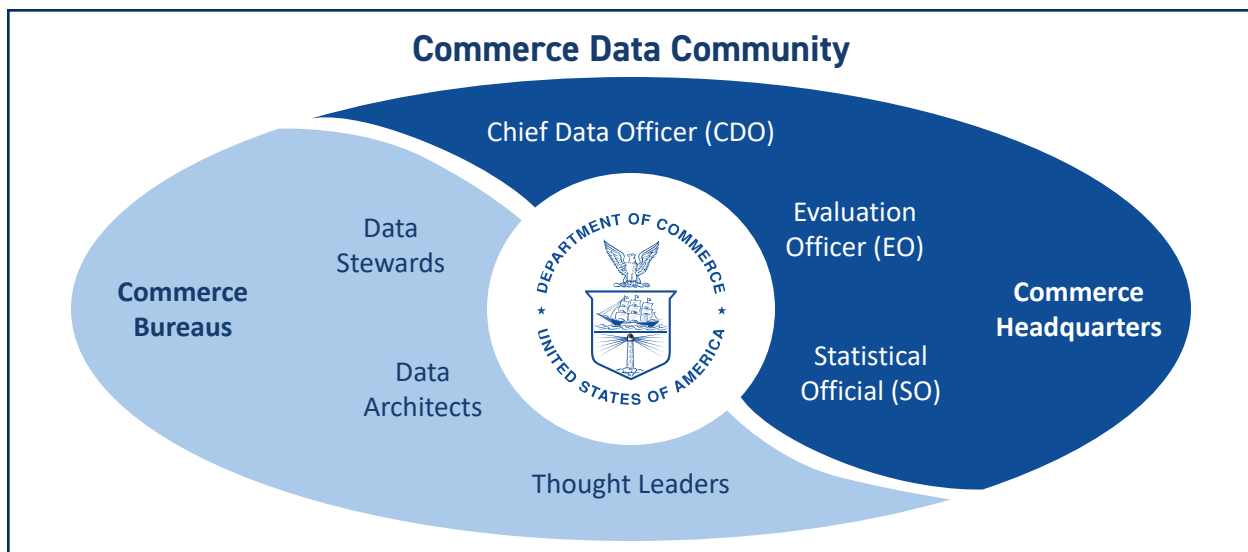
As "America's Data Agency," Commerce aspires to demonstrate its data leadership through the implementation of this Strategy. Commerce data is the international benchmark. It is and has long been comprehensive, consistent, confidential, credible, and accessible. *Enabled by new technology and data governance, the execution of this strategy will maximize the value of data as a return on taxpayer investments and provide increased competitive advantage to U.S. businesses and research institutions.*

Enabled by new technology and data governance, the execution of this strategy will maximize the value of data as a return on taxpayer investments and provide increased competitive advantage to U.S. businesses and research institutions.

Bureaus and offices execute on their distinct missions and, together, create the conditions for economic prosperity. Bureaus must be able to manage data to best serve their specific missions and stakeholders. An appropriate balance of bureau autonomy and department-wide collaboration is central to successful implementation of this strategy.

The Foundations for Evidence-Based Policymaking Act (Evidence Act) of 2018, Geospatial Data Act (GDA) of 2018, and the Federal Data Strategy direct agencies to move from a paradigm of "apps" and "datasets" to "data as a strategic asset." These new laws provide the required authorities to establish data management and institute new requirements and deadlines towards the end goal of a data-driven federal government. By design, the opportunities and requirements must be addressed across disciplines and operating units.

The Department's efforts, therefore, are driven through close collaboration among the Commerce Chief Data Officer (CDO), Evaluation Officer (EO), and Statistical Official (SO) as well as the data stewards, data architects, and thought leaders in all bureaus. The newly established Commerce Data Governance Board (CDGB) sets policy and establishes the initiatives that will execute this Strategy. The CDGB is chaired by the Commerce CDO and includes CDOs or other designated representatives from all bureaus and offices. Government-wide efforts to upgrade data management and utility are coordinated through the Federal CDO Council, the Federal Geographic Data Committee, and the Office of Management and Budget (OMB).

Commerce Data Community

Chief Data Officer (CDO)

Data Stewards

Commerce Bureaus

Evaluation Officer (EO)

Commerce Headquarters

Data Architects

Statistical Official (SO)

Thought Leaders

The Commerce Data Strategy's goals are highly interdependent. They will be achieved by tapping into the time, talents, and expertise of the world-class data scientists, statisticians, economists, analysts, and technicians that execute Commerce programs. Implementation of the Strategy will strengthen data governance and management across the Department, accelerate evidence building, enhance operational performance, and make it easy for stakeholders to access, analyze, and use Commerce data. Implementation will increase data interoperability and accessibility within the Department across agencies and for businesses, government at all levels, academia, and the public.

This Strategy also acknowledges that the high volume, variety, and velocity of Commerce data necessitates developing workforce skills commensurate with a modern data culture in a digital age. Data safety and security are addressed through the lens of new technology and know-how that address long-standing and new vulnerabilities and help the Department keep its commitment to protecting confidential information.

This Strategy is provided by the CDGB as a roadmap to maximizing the positive impact of Commerce data and staff. The goals of the Strategy will be executed through the five interdependent outcomes outlined below:

- Outcome 1 establishes Commerce data governance and data management;

- Outcome 2 provides technical considerations to inventory, curate, and disseminate data with timely and equitable access;

- Outcome 3 addresses considerations (e.g., ethical, legal, technical, policy) such that data are 'fit for purpose' and responsive to user community needs;

- Outcome 4 provides steps to continuously develop workforce data acumen and data skills; and

- Outcome 5 coordinates the many data-driven initiatives throughout the Department and the federal government.

Thomas Beach
Interim Chief Data Officer
U.S. Department of Commerce

Goals and Objectives Summary

Goals	Objectives
1 **Govern and manage data as a strategic asset**	**Objective 1.1:** Establish data governance bodies and priorities **Objective 1.2:** Empower CDOs across Commerce to effectively represent data assets within planning and decision-making bodies **Objective 1.3:** Build a culture that promotes data management, stewardship, and dissemination **Objective 1.4:** Promote cross-bureau initiatives to leverage expertise and innovation throughout Commerce
2 **Enable more efficient data access and analysis**	**Objective 2.1:** Identify data and technology needed to inform decision-making and answer key agency questions **Objective 2.2:** Build and promote a comprehensive data inventory **Objective 2.3:** Promote data interoperability and data accessibility **Objective 2.4:** Reduce the cycle time for data ingest to insight
3 **Promote appropriate data use and equitable access**	**Objective 3.1:** Promote data ethics across Commerce **Objective 3.2:** Provide leadership on data usage considerations **Objective 3.3:** Develop and maintain guidance and best practices for data licensing and intellectual property protection **Objective 3.4:** Leverage partnerships and stakeholders to continuously improve data assets
4 **Cultivate a modern data skills workforce**	**Objective 4.1:** Create a Department-wide opt-in skills assessment approach **Objective 4.2:** Identify and execute strategies to close workforce skills gaps **Objective 4.3:** Reinforce modern data skills with enabling technology to increase effectiveness and competencies **Objective 4.4:** Develop an innovative workforce that welcomes and supports opportunities for learning
5 **Coordinate collaborative data innovation**	**Objective 5.1:** Enhance the management and promote the use of Commerce geospatial data **Objective 5.2:** Support federal open data requirements **Objective 5.3:** Streamline and increase capacity for data-related reporting **Objective 5.4:** Advance the culture of improving data management, access, and protection

Strategic Goals

SKILLS

ANALYSIS

EQUITY

MANAGE

COORDINATE

ACCESS

INNOVATE

EFFICIENT

GOVERN

ASSET

Strategic Goal 1
Govern and Manage Data as a Strategic Asset

Commerce effectively governs data through data management leadership and stewardship roles across the many missions to transparently maximize the use of data assets by all sectors and citizens and enhance Department capabilities. Commerce will continuously seek to improve coordination and planning of data initiatives that employ holistic strategies and a culture that emphasizes data maturity across the Department through data governance best practices.

Strategic Objectives

1.1 **Establish data governance bodies and priorities** to fully leverage and provide a culture of accountability for data as a strategic asset. The CDGB, a decision-making body with representatives from all bureaus, will establish data governance policies and priorities consistent with existing laws, regulations, and policies. This includes developing strategies for the effective management and sharing of Department data, providing guidance on data asset management practices across the entire data lifecycle, promoting effective reporting and communications for data operations, and enabling effective collaboration with nonfederal stakeholders, federal interagency partners, and the Department's bureaus and offices.

1.2 **Empower CDOs across Commerce to effectively represent data assets within planning and decision-making bodies.** CDGB aligns with the Evidence Act and serves to empower each bureau to identify and support a CDO role as an extension of data governance, decision-making, and accountability. The CDGB engages bureau CDOs as a community of practice to create consensus regarding management of data assets, relevant data ethics, innovation, and other considerations.

1.3 **Build a culture that promotes data management, stewardship, and dissemination** to create value for businesses, empower entrepreneurs to innovate, improve government effectiveness and efficiency, and provide quality public services that create new opportunities. CDOs will promote master data management and identification of authoritative data sources (the most updated, complete, and verified data) to ensure the authenticity and integrity of data assets and guide users to the most reliable data. The CDGB will foster an information-centric and informed organizational culture that recognizes mature data management and stewardship practices as prerequisites for the success of Data Strategy goals.

1.4 **Promote cross-bureau initiatives to leverage expertise and innovation throughout Commerce** to maximize the benefit of expertise across the diversity of Commerce missions and support initiatives with shared equities. Tactically, the working groups within CDGB, such as the Maturity and Data Skills (MADSkills) Working Group and the data Inventory Working Group (IWG), collaboratively reach consensus and prioritization Department wide through consultation and shared best practices for problem solving. Commerce will further enable cross-bureau knowledge sharing by facilitating coalition-building and data relationships and coordinating activities such as Department-wide workshops.

Guiding Principles

- Ethical Governance
- Conscious Design
- Learning Culture

Vision

Commerce has clear roles, responsibilities, and policies that assure effective data governance that supports results-driven decision-making, information sharing, collaboration, and consensus building to further the Commerce mission.

Strategic Goal 2
Enable More Efficient Data Access and Analysis

Effective data management throughout the data lifecycle of ingest, interoperability, sharing, and analysis will produce timely access to high-quality data foundational for informed decision-making and spur commercialization, innovation, and public use. Developing a comprehensive data inventory is fundamental to identifying and prioritizing key data assets and improving public access, operational efficiency, and accelerated mission delivery.

Strategic Objectives

2.1 *Identify data and technology needed to inform decision-making and answer key agency questions.* By anticipating data needs in support of mission execution, prioritization of datasets and analytic tools will be made readily available to Commerce-wide analysts and evaluators collaboratively. The process improvement will further advance systems that facilitate Commerce-wide dataset access and discoverability along with cross-bureau initiatives to identify new and non-traditional data sources that can be used to build comprehensive evidence for policymaking. EOs will work with CDOs to support advancement of datasets and facilitate data-driven decision-making and seek to solve real-world data concerns.

2.2 *Build and promote a comprehensive data inventory* with completeness, quality, and metadata to facilitate discovery and collaboration that will answer key agency questions, promote appropriate data use, meet user community needs, and support mission execution. Having a comprehensive data inventory is foundational to open data, innovation, and the ability to respond to questions in a timely manner in evidence building. The public-facing open data inventory portal will also provide a platform for user comments that offer business cases for improvements and new capabilities. This mechanism for customer input will be supplemented by other "listening" approaches, such as focus groups and surveys.

2.3 *Promote data interoperability and data accessibility* by leading and engaging with internal and external data communities to develop and identify data management best practices and metadata standards for enhanced interoperability and equitable access. Disseminated data will conform to the greatest extent possible to community consensus standards, such as the Principles and Practices for a Federal Statistical Agency, which improve relevancy and search ability. By engaging with data users and academic, federal, and industry partners, Commerce will develop data dictionaries and strategies to disseminate data in a timely manner and promote the "FAIR" principles—findable, accessible, interoperable, and reusable.

2.4 *Reduce the cycle time for data ingest to insight* by utilizing data management to produce leaner and cleaner data and improving readiness for modern and emerging technologies that extract more value from data. Standardized processes and tools for data cleansing and management will enable highly trained staff to reallocate time from data wrangling to advanced analytics. By continuing to research, pilot, and leverage new and emerging technologies, such as artificial intelligence, Commerce and its bureaus and offices will enhance data access and operational efficiency and accelerate mission delivery at all levels.

Guiding Principles

- Ethical Governance
- Conscious Design

Vision

Data are integrated and coordinated across Commerce to facilitate appropriate public and private discovery and access to information and data assets.

Strategic Goal 3
Promote Appropriate Data Use and Equitable Access

Commerce strives to deliver equitable, ethical, and secure data products and services to Commerce data users and partners. The Department and its bureaus and offices recognize the importance of protecting privacy, respecting intellectual property, addressing cybersecurity concerns, and fostering an ethical data lifecycle that minimizes algorithmic risk of unintended bias. It will provide leadership on these and any other relevant considerations to promote appropriate data use, enhance trust, and ensure U.S. competitiveness.

Strategic Objectives

3.1 **Promote data ethics across Commerce** by fostering quality, transparency, accountability, and fairness of data policies and practices throughout the data lifecycle capacity. Capacity is created to conduct analysis with data fit for purpose and better understanding of issues of bias in data and data practices. Data policies and uses will be transparent and respect the privacy and autonomy of the data subjects and confidentiality of protected information. An ethical data lifecycle can be advanced by a data user community informed of standards and best practices for responsible data use and with an inclusive and diverse data community.

3.2 **Provide leadership on data usage considerations** by leveraging the breadth of bureau and office expertise on the appropriate use of data, including both open and confidential data assets. The CDGB Guidelines for Data Inventories, including usage considerations pertaining to data quality, curation, and sensitivity, is a resource that can be used to determine what datasets are listed in data inventories and available on the public-facing Commerce inventory portal. Through initiatives of the CDGB, Commerce will research and promote best practices for sharing protected data assets, such as tiered access to sensitive and confidential data, disclosure review, data licensing, and data interoperability with federal partners.

3.3 **Develop and maintain guidance and best practices for data licensing and intellectual property protection (IPP)** of Commerce data collected/created and acquired to ensure U.S. competitiveness based on the policy and data licensing expertise as "America's Data Agency" and worldwide leader in IPP. This will include clear descriptions of relationships between intellectual property and data licensing practices and will address considerations such as attribution and third-party rights in data.

3.4 **Leverage effective partnerships and stakeholders to continuously improve data access and usage** through engagement to advance the value of data as a trusted strategic asset while addressing needs of Commerce data user communities. Commerce will encourage two-way partnerships with industry, other federal agencies, and state, local, and tribal governments, as well as other stakeholders. Commerce will leverage federal advisory committees where appropriate and other cross-sector engagements to harness relevant technologies and anticipate future and unmet data needs. These proactive collaborations will help identify and develop standards and best practices to support provenance, privacy, scientific integrity, and licensing.

Guiding Principles

- Ethical Governance
- Conscious Design

Vision

The American public and businesses consider Commerce a trusted source of data. By leveraging partnerships, stakeholder engagements, and best practices, Commerce protects privacy and confidentiality while providing data access that enables U.S. economic growth and opportunity.

Strategic Goal 4
Cultivate a Modern Data Skills Workforce

It is vital for government agencies to accelerate the transition to new and emerging technologies by developing data acumen and advanced analytics skills in the workforce. Commerce and its bureaus will develop strategies to assess and improve staff data skills and build a learning culture.

Strategic Objectives

4.1 *Create a Department-wide opt-in skills assessment approach* to identify gaps in workforce data skills and acumen needed to most effectively achieve mission goals. Together with its bureaus, Commerce will gather best practices and approaches from the private sector and other government agencies to identify growing skillsets and develop procedures for conducting skill gap analyses. The initiative will simultaneously facilitate knowledge sharing and enable bureau autonomy in developing gap closure strategies. The CDGB will develop, pilot, and refine individual skills assessment approaches that measure mastery of current data skills and properly account for the diversity of Commerce bureaus' missions and required capabilities.

4.2 *Identify and execute strategies to close workforce skills gaps* by improving workforce data acumen and data skills among staff who are central to advances in data analysis and management. Commerce will leverage mature approaches for developing skills in the current workforce, hiring additional data science practitioners, and contracting for expertise. Data leaders will work with human resources colleagues to update position descriptions and identify cost-effective training solutions. Bureaus and offices will establish clear priorities and short- and long-term plans to facilitate needs-based upskilling of the federal workforce and increase the Department's capacity for data management, analytics, and digestion.

4.3 *Reinforce modern data skills with enabling technology to increase effectiveness and competencies* by identifying opportunities to streamline workflow and reward execution of newly acquired skills. Engagement with academia and industry will assist in fostering a continuous learning path for employees. Data leaders, CDOs, and Chief Information Officers (CIOs) across Commerce will work to ensure that enterprise architectures and Information Technology stacks support the requirements of the data science community to effectively and efficiently respond to mission needs and facilitate innovation, human-centered design, and security.

4.4 *Develop an innovative workforce that welcomes and supports opportunities for learning* through both top-down and bottom-up approaches. Commerce will develop strategies to facilitate and incentivize the use of new data tools, services, and techniques to encourage employees to test new software. Department-wide initiatives will leverage the breadth of bureau expertise, enhance knowledge sharing, and build community through projects, such as a data scientist fellows program to train data scientists through rotations to different bureaus and agencies and a workshop series designed and presented by internal experts.

Guiding Principles

- Learning Culture

Vision

Commerce supports a workforce that embraces continuous learning and uses best practices and cutting-edge technologies in data and information management.

Strategic Goal 5
Coordinate Collaborative Data Innovation

Commerce seeks to maximize the benefit of knowledge sharing through collaboration among CDOs, CIOs, CFOs, EOs, and SOs and engagement between internal and external experts and stakeholders in all facets of needs assessment, knowledge management, and technology. By harmonizing efforts across data-related requirements and coordinating strategic plans, Commerce will align shared priorities, prevent duplication of effort, effectively pivot with changing priorities, and perpetuate its standing as "America's Data Agency."

Strategic Objectives

5.1 *Enhance the management and promote the use of Commerce geospatial data* by maturing the geospatial programs across all of Commerce. This work will support the implementation of the GDA and the National Spatial Data Infrastructure (NSDI) strategic plan. A Commerce Geospatial Strategic Plan (2021–2022) and implementation plan will support the goals of the NSDI strategic plan (2021–2024) and establish the framework for managing Commerce's National Geospatial Data Assets. Commerce will continue to lead and participate in the national and international geospatial community by engaging with other sectors and users of Commerce's geospatial data and services.

5.2 *Support federal open data requirements* by promoting data as a trusted strategic asset and making that asset available to and usable by the public to the greatest extent practicable, and in machine-readable, nonproprietary formats. CDOs and CIOs will work together to develop and refine Commerce open data and inventories with enterprise architecture in mind to improve discoverability, accuracy, and timeliness of datasets.

5.3 *Streamline and increase capacity for data-related reporting* to provide more timely and actionable analysis and to promote consistency and trust in reporting. To counterbalance the decentralized nature of the data collection system, Commerce seeks the use of a common data warehouse for mission support and financial data. Department-level reports will be generated centrally, eliminating the need for time-consuming and labor-intensive data calls. Bureaus will be able to create tailored reports on expenditures and operations and quickly analyze trends and costs by unit of output, organizational unit, and program.

5.4 *Advance the culture of improving data management, access, and protection* by engaging external and internal groups and communities to create greater public value of Commerce data and deliberate how best to protect privacy while governing its use. The CDO will prioritize support for citizen and public engagements to put data to use for innovative solutions and insights, and problem solving. The Evidence Act, OPEN Government Act, DATA Act, Paperwork Reduction Act, and Freedom of Information Act are crucial considerations to implementation. Commerce will continue to provide data leadership across the federal government by engaging in government-wide groups, such as the Federal CDO Council, OMB Interagency Council on Statistical Policy, Federal EO Council, and Federal Geographic Data Committee.

Guiding Principles

- Conscious Design
- Learning Culture

Vision

Ongoing relationships among CDOs and arbiters of other data-related activities enable aligned plans, reporting, and requirements throughout Commerce to increase operational efficiency and transparency to the American public.

Information on the Federal Data Strategy may be found at strategy.data.gov.

United States Department of Commerce

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