



# U.S. Department of Education **Data Strategy**

December 2020



## U.S. Department of Education Data Strategy

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### Message from the Chief Data Officer

Our nation's future is grounded in education. By fostering educational excellence and ensuring equal access, the U.S. Department of Education prepares our population for civic engagement and global competitiveness. A more skilled and educated citizenry—effectively seeking information, discerning fact from rhetoric, and forming beliefs based on evidence—can engage in constructive debates over national policy, including those that shape our next generation of students. Education fuels creative and scientific innovation, which in turn powers economic growth and competitiveness in today's 21st century global marketplace. The success of its mission requires the Department to become smarter and more adept at using data to guide investments and policy.

Effectively leveraging data informs decisions in service of our nation's learners, be it for daily agency operations or national policymaking. Rigorous evaluations identify effective programs, policies, and practices, and guide educational institutions in their efforts to improve student learning and outcomes. Machine learning and other advanced analytical techniques provide opportunities to create operational efficiencies and cost savings. Open and transparent data foster innovative research and bolster trust in agency operations by enabling citizens to hold government accountable. Carrying out these functions in service to our nation's students requires accurate, useful, timely, and accessible data.

The Department Data Strategy—the first of its kind for the U.S. Department of Education—recognizes that we can, should, and will do more to improve student outcomes through more strategic use of data. I am grateful to the scores of dedicated career civil servants who contributed to its development, from front line staff and data professionals to agency executives. Diverse perspectives from every principal office across the agency were represented in its creation. Due in part to that diversity, this strategy builds on agency successes, avoids the mistakes of the past, and leverages the momentum and opportunity from recent statutory authorities, advancements in technology, and heightened expectations for government performance. It addresses foundational and short-term challenges identified from across the agency, while thoughtfully charting a course for long-term data maturity.

The Department Data Strategy goals are highly interdependent with cross-cutting objectives requiring a highly collaborative effort across the Department's principal offices. It calls for strengthening data governance to administer the data it uses for operations, answer important questions, and meet legal requirements. To accelerate evidence-building and enhance operational performance, it requires that the Department make its data more interoperable and accessible for tasks ranging from routine reporting to advanced analytics. The high volume and evolving nature of the Department's data tasks necessitate a focus on developing a workforce with skills commensurate with a modern data culture in a digital age. At the same time, safely and securely providing access for researchers and policymakers helps foster innovation and evidence-based decision making at the federal, state, and local levels.

The Department Data Strategy belongs to all those in the U.S. Department of Education, and we each must do our part to achieve its goals. Through a concerted effort to strengthen data governance, build human capacity to leverage data, advance the strategic use of data, and improve data access, transparency, and privacy, we can leverage education data as a strategic asset to deliver on mission and support the foundations of democracy.

Gregory Fortelny  
Chief Data Officer  
U.S. Department of Education



### Executive Summary

The U.S. Department of Education's (Department) mission is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access. The Department pursues its mission by establishing policies and distributing corresponding funds, focusing national attention on key educational issues, prohibiting discrimination, ensuring equal access to education, and collecting and disseminating data on America's schools and supporting research on evidence of effectiveness of education programs and practices. While these functions are at the Department's core, there has not yet been a fully cohesive data-centered approach to supporting the agency's mission.

Data underpins digital modernization and is increasingly considered the currency of decision-making. The Department recognizes that a holistic point of view in adopting an agency-wide data strategy is increasingly necessary to effectively meet mission objectives and establishing funding priorities. Such a strategy treats data as an asset from which valuable insights can be derived — insights that can be used to inform policy, effectively steward taxpayer funds, and ultimately improve national education outcomes. In 2020, the COVID-19 pandemic further drove home the need for an agency-wide approach to data management, when the Department pivoted to meet rapidly changing data needs. The agency stood up new grant programs to meet the needs of students during these challenging times and shared information with the public on how the Department is supporting states and other grantees, in PK-12 and in higher education. A cohesive agency-wide data strategy will further push the Department in responding to current and future data needs in support of the agency's mission. The Department Data Strategy describes an ambitious vision for accelerating progress toward being a data-driven organization. To achieve this vision the Department must understand, access, and connect agency data; strategically apply modern data science tools and techniques; aggressively cultivate data talent skills among Department staff; and apply and establish effective agency-wide data governance, data management, and data policy oversight.

The Foundations for Evidence-Based Policymaking Act (Evidence Act) and the Federal Data Strategy have put federal agencies on notice that data and evidence need to play a more prominent role in how the federal government functions. The Department named its first Chief Data Officer (CDO), identified existing initiatives to serve as the foundation for agency-wide efforts, and has begun its march forward under that broader mandate. The Department has contributed to the development of the Federal Data Strategy, created its own agency-wide Data Governance Board (DGB) comprised of senior leaders, completed an initial assessment of data maturity, and now looks forward with this inaugural Department of Education Data Strategy.

Summarized in Figure 1, the Department Data Strategy describes a vision, establishes strategic goals for advancing data capabilities, and envisions agency-wide outcomes. It establishes an ambitious vision as the point on the horizon: *To realize the full potential of data to improve education outcomes and lead the nation in a new era of evidence-based policy insights and data-driven operations.* This Department-wide effort will include discussions across the agency about data priorities that will help improve data maturity and the Department's capabilities to leverage data, operationalize and optimize data governance, and drive cultural change for the benefit of internal and external stakeholders.



# U.S. Department of Education Data Strategy

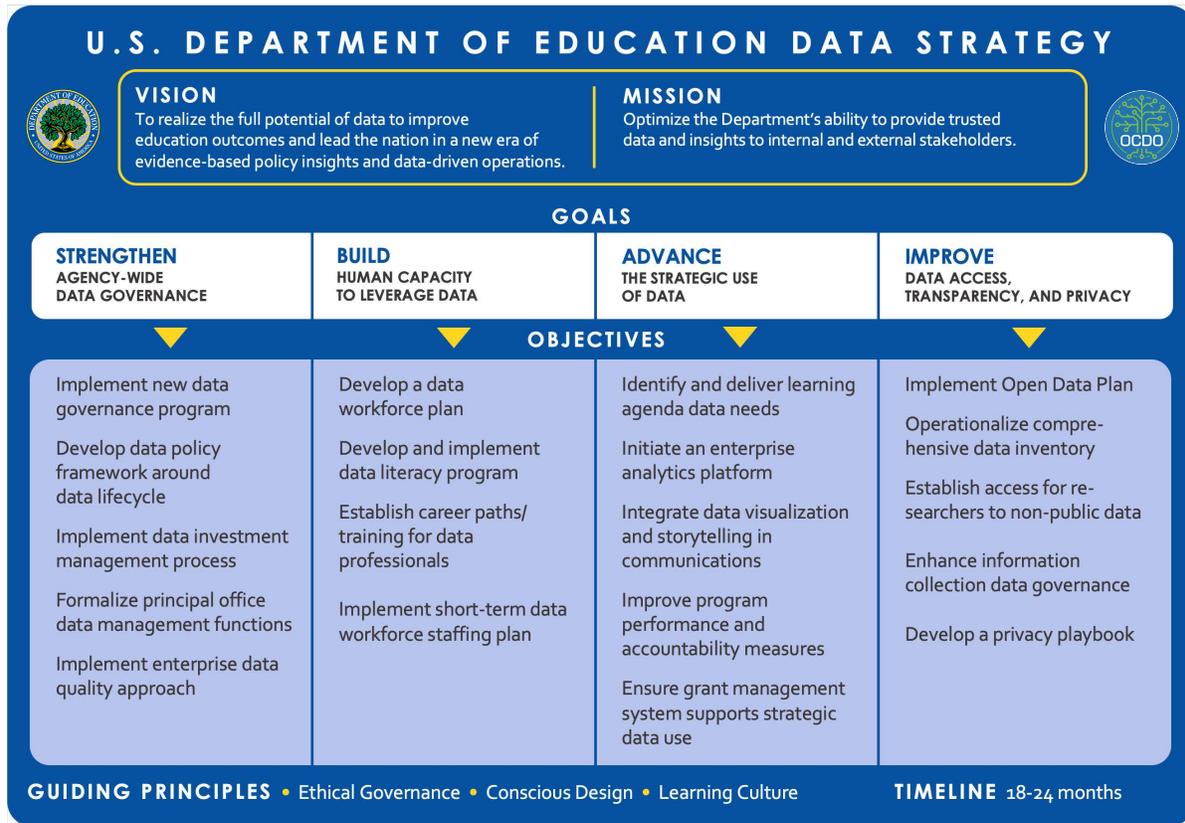


Figure 1. The U.S. Department of Education Data Strategy forges a framework of interconnected goals and objectives that set a course for optimizing the Department's ability to provide data and insights to internal and external stakeholders.

Goals to strengthen agency-wide data governance and build human capacity to leverage data enable the Department to build the foundation of critical agency data governance components and promote a data-centric culture with right-skilled staff who can harness the power of the Department's data. Goals to advance the strategic use of data and improve data access, transparency, and privacy focus the Department's efforts to build capabilities to use data for better decision-making, safely meet transparency mandates, encourage research, and innovate with data. As a portfolio, these goals contribute to enhancing program operations and ultimately the Department's data mission: To optimize the Department's ability to provide trusted data and insights to internal and external stakeholders.

The Department Data Strategy is intended to be revisited on a regular basis — to balance the need for continuity, achievement, and taking stock of the evolving data and policy landscape. In developing its Data Strategy goals, the Department carefully considered current and anticipated business drivers, legislative and administration mandates, and other environmental factors to ensure alignment and proper execution. The Data Strategy must anticipate and proactively keep the Department on the leading edge of data management and data science practices. To lead in the area will require constant attentiveness and management agility so the Department can recognize and embrace new data best practices, advances in data science, opportunities for greater interoperability and open government to better serve all its stakeholders. With progress toward this end, the Department will be well on its way to achieving its data vision to lead the nation in a new era of evidence-based policymaking and insight, and to the greater benefit of improving education outcomes.



## Vision, Mission and Guiding Principles

The U.S. Department of Education’s mission is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access. To realize the full potential of data, the Department will need leadership committed to the transformation to a future of new capabilities, where data truly drive agency policy and operations. The Department seeks to evolve a data-centric organization and culture commensurate with its role as a steward entrusted with the public’s data.

The Department Data Strategy is aligned to the Department’s mission and broader strategic planning. With its own vision, mission, and principles, the Department Data Strategy sets an ambitious course for the future, establishes the present focus, and provides the guard rails for the road ahead. The Department Data Strategy mission brings near-term specificity to its vision. It is focused on optimizing data capabilities both internal to its operations and external to its data partners who include other federal agencies, state and local education agencies, researchers, academic institutions, and the public.

The Department has fully adopted and adapted the Federal Data Strategy guiding principles and is incorporating them into its operations and implementation of the Department Data Strategy. The guiding principles of ethical governance, conscious design, and a strong learning culture underpin all the goals and objectives under this Data Strategy. The Department takes these values seriously and intends to continually self-assess to ensure that activities under its Data Strategy align with these principles.

### VISION

To realize the full potential of data to improve education outcomes and lead the nation in a new era of evidence-based policy insights and data-driven operations.

### MISSION

Optimize the Department’s ability to provide trusted data and insights to internal and external stakeholders.

### GUIDING PRINCIPLES

Ethical Governance  
Conscious Design  
Learning Culture

*Figure 2. The Department’s Data Strategy Vision, Mission and Guiding Principles.*



### GUIDING PRINCIPLES

#### ETHICAL GOVERNANCE

- Uphold Ethics: Monitor and assess the implications of the Department's data practices. Design checks and balances to protect and serve the education community.
- Exercise Responsibility: Practice effective data stewardship and governance. Employ sound data security practices, protect individual privacy, maintain promised confidentiality, and ensure appropriate access and use.
- Promote Transparency: Articulate the purposes and uses of the Department's data to engender public trust. Comprehensively document processes and products to inform data providers and users.

#### CONSCIOUS DESIGN

- Ensure Relevance: Protect the quality and integrity of the data. Validate that data are appropriate, accurate, objective, accessible, useful, understandable, and timely.
- Harness Existing Data: Identify data needs to inform priority research and policy questions; reuse data if possible and acquire additional data if needed.
- Anticipate Future Uses: Create data thoughtfully, considering fitness for use by others; plan for reuse and build in interoperability and data standards from the start.
- Demonstrate Responsiveness: Improve data collection, analysis, and dissemination with ongoing input from users and stakeholders. The feedback process is cyclical; establish a baseline, gain support, collaborate, and refine continuously.

#### LEARNING CULTURE

- Invest in a Data Culture: Promote a culture of continuous and collaborative learning with and about data through ongoing investment in data infrastructure and human resources.
- Develop Data Leaders: Cultivate data leadership at all levels of the Department's workforce by investing in training and development about the value of data for mission, service, and the public good.
- Practice Accountability: Assign responsibility, audit data practices, document and learn from results, and make needed changes.

*Figure 3. The Department's key principles around data.*

## Data Strategy Goals

In the last year, the Department has undertaken a significant effort to understand the data landscape and develop the inputs for its Data Strategy. Led by the Office of the Chief Data Officer (OCDO), the Department inventoried current data challenges, conducted its first agency-wide data maturity assessment, and collaboratively took stock of organizational data strengths and weaknesses. Throughout this exploration, key themes arose and provided context for goal development. One core theme that surfaced was the need for agency-wide data governance processes and initiatives that would serve as the framework and foundation on which all other elements of the Department's Data Strategy would be built. The other core theme that emerged focused on supporting the Department's people, emphasizing learning and skill development to further enable and support the other elements of the Data Strategy.



The Strategy addresses new and emerging mandates such as open data by default, interagency data sharing, data standardization and other principles found in the Evidence Act and Federal Data Strategy. However, improving strategic data management has benefits far beyond compliance; solving persistent data challenges and making progress against a baseline data maturity assessment offers the Department the opportunity to close capability gaps and enable staff to make evidence-based decisions. The Department has therefore identified four strategic goals around data. These goals are broad and represent core components of the Department Data Strategy. The interconnected goals are comprised of objectives, each designed to be meaningfully achievable within the two-year time horizon of the Department Data Strategy.



Figure 4. The Department Data Strategy includes four interconnected goals.

### Goal 1. Strengthen agency-wide data governance

Data governance is the organizing framework for establishing strategies, objectives, and policies for effectively managing data. The Department requires sound data governance processes to administer the data it uses for operations, answer important questions, and meet legal and ethical requirements. Public trust is paramount and data governance must support transparency while protecting privacy and confidentiality.

The Department Data Strategy recognizes the strategic and critical need for consistent governance and management of the Department's data assets. This goal seeks to strengthen data governance by establishing and evolving foundational data governance processes across the agency and within the respective principal offices. It seeks to improve coordination and planning of agency-wide data initiatives and mandates and provide mechanisms for escalating data policy issues and ensuring holistic strategies for resolution. Importantly, it also places an emphasis on elevating data maturity across the organization by placing focus on developing coordinated processes for data management and oversight.

#### Objective 1.1: Implement a new data governance program to evolve structures, policies, and procedures

Each of the objectives under this goal are critical to the overall success of the Department Data Strategy but none more so than Objective 1.1. The Department will need a strong data governance program to make progress on the other objectives in this Data Strategy and better connect data governance with broader organizational governance. The Department will develop a holistic agency-wide framework with established data governance structures, functions, roles, policies, and procedures.



The Department has mature governance bodies and the connections between new and existing bodies must be strengthened to support effective data management within and across the agency's principal offices.

The Department's data governance will occur at three primary levels. The Data Governance Board (DGB) is central to the strategic level that will form agency-wide data policy, develop strategy, and set relevant priorities. Coordination is inherent at the tactical level, where the Department will evolve existing cross-office data management structures to help execute various applications, programs, and projects that impact data in one or more offices across the Department. The execution level encompasses the daily activities of the agency, with changes to operational data governed by the Department's data stewards and other staff within principal offices. Enhancements to agency data governance will connect existing organizations and create pathways for data-related decision-making, establishing common data management processes, resolving shared data challenges, and enabling data governance across the agency.

During Fiscal Year (FY) 2021, the Department will improve the structure for agency data governance by: identifying the various governance entities across the organization that impact data or that should consider how changes to data may impact others; comparing their purposes and functions; and addressing potential overlaps and gaps as they relate to the governance of data assets. The agency's data governance framework will include policies, procedures, and constructs in support of collaborative decision-making that will enable execution across these interconnected governance bodies. The governance structures solidified under this objective will be leveraged by the work under each of the other objectives of this strategy, helping to ensure optimal implementation of the rest of this Data Strategy and the sustainability of these efforts.

### **Objective 1.2: Develop and implement a data policy framework around a formalized data management lifecycle**

Establishing a unified policy framework promotes clear and consistent communication around data management policy and enables the use of a common language. The Department will develop a policy framework around a data lifecycle and establish supporting policies and procedures for guiding data management throughout the data lifecycle.

The common data policy framework developed under this objective is foundational to the Department's data governance function. As such, it will be established in the first half of FY 2021 to support and inform processes for achieving data governance design in Objective 1.1. Moreover, it will enable data literacy within the agency (Objective 2.2) by helping data stewards and staff at all levels communicate about data management. This framework will be woven through the implementation of activities under all the Data Strategy goals and objectives.

### **Objective 1.3: Develop and implement a data investment management process**

At present, the Department does not have a process specific to the approval of data investments. The Department's current investment management processes do not distinguish data investments as a type or portfolio. Data investments are approved through multiple separate processes on a case-by-case basis, without an understanding of how any particular data-related project fits in the broader context of



the Department's data-related initiatives and priorities. Further, much Department data are managed in silos, leading to unmanaged data redundancies across multiple segments, obstacles to joining data to answer crosscutting questions, and other inefficiencies.

By FY 2022, the Department will review the current investment approval processes and develop an inventory of data-related projects. This effort seeks to identify efficiencies by incorporating the approval of data-related projects into existing processes including capital planning for acquisition, administration, and disposal of data, as well as intersections with IT and human-capital investment processes. Success with this objective would ensure that data-related projects align with Department-wide data priorities and increase efficiencies by identifying and mitigating potentially redundant or less effective initiatives.

### **Objective 1.4: Formalize principal operating component data management functions and advance the maturity of those functions**

The formation of the Data Governance Board created an agency-wide data governance body to set the Department's governance policies. However, the Department's first data maturity assessment revealed a gap in its data governance structure – namely that many principal offices do not have an efficient way to implement agency-wide data-related policies. Objective 1.1 addresses how the Department's data governance will occur strategically, tactically, and operationally. Formalizing the data management function at the principal office level will support tactical and operational implementation of data governance policies by enabling cohesive communication and implementation of agency-level policies in those offices, clarifying data management roles and responsibilities at both the agency and principal office levels, and generally building principal office data management capacity.

By creating a community of principal office data stewards in FY 2021, the agency will be able to effectively scope, plan, and resource data management activities in a sustainable way, while aligning with agency-level priorities and policies. This community of data stewards will develop strong principal-office leadership and cultivate a shared stakeholder approach to data management roles and responsibilities. Providing structure for the principal-office data management function will help respective offices achieve their local mission by promoting consistency in how data are managed, improving data maturity, and providing clear channels of communication for sharing agency-level policies, successful practices, and lessons learned.

### **Objective 1.5: Implement a cohesive data quality approach for the agency, leveraging best practices, technical assistance, and controls**

The Department's data quality approach defines how the agency will improve the quality of its data to improve user confidence and support better decision-making. The Department's ability to follow up on data quality anomalies is constrained by resource availability, and most current control processes address data quality at the point data are submitted. There are opportunities to develop controls throughout the data lifecycle.

By the end of FY 2022, the Department seeks to improve its data quality process by implementing a comprehensive data quality approach for the agency, throughout the data lifecycle. The Department will incorporate mechanisms for evaluating, preventing, and remediating data irregularities where possible to assure higher quality data for the agency to use in meeting its mission and strategic



objectives. Specifically, the Department will develop a data quality playbook to clarify data quality roles and responsibilities and build staff capacity to understand and address quality issues. The playbook will address how to help grantees assess and improve data quality before submission, propose meaningful incentives for data submitters, strengthen communication strategies, and propose ways to reduce the burden on both Department staff and grantees. The playbook will provide guidance for strengthening the agency's data quality standards to reduce data quality issues and improve data interoperability. It will also build common language for discussing data quality with internal and external stakeholders and provide recommendations for handling common irregularities. Developing common processes and best practices will help increase efficiencies and reduce burdens on principal offices.

## Goal 2. Build human capacity to leverage data

Staff across the Department need to understand, use, and analyze data to meet programmatic, research, and operational needs. Under this goal, the Department will build human capacity to leverage data by building a workforce that can harness the power of data.

The high volume and evolving nature of the Department's data management tasks, coupled with new requirements under the Evidence Act, means that the Department must focus on building staff with data skills commensurate with a modern data culture. This goal includes raising the data literacy of all staff, upskilling and training staff, and distinguishing roles and requirements for data professionals and other staff who need data skills to meet their mission. A cohesive plan for meeting human capital needs will yield a workforce that is better equipped to use data to make decisions and better prepared with the skills to make progress on other objectives included in this Data Strategy.

### Objective 2.1: Develop a data workforce plan that identifies goals, gaps, and strategies

In the past, the Department had taken a more ad hoc approach to human-capital data needs. Beginning in FY 2021, the Department seeks to better align its workforce with its data needs by ascertaining appropriate staffing levels, identifying training needs, and making succession planning a top priority. After assessing the current organization and defining the desired end state for the Department's overall workforce as it relates to data, the Department will conduct a workforce gap analysis to first determine the type and level of data expertise principal offices need and then develop strategies to close priority workforce gaps by building competencies. Examples of strategies may include hiring, training, restructuring, leveraging automation or streamlining processes, contracting, detailing staff from within or outside of the Department, or partnering with other agencies.

A well-equipped workforce uses data to make decisions and improve service quality and responsiveness. Through the data workforce plan, the Department can better understand its needs, which will enable leaders across the Department to articulate where resources are needed most, make the comprehensive cases for staffing and training requests, and ensure continuity and consistency across the data workforce.



### **Objective 2.2: Develop and implement a data literacy program to ensure all staff can speak information and data**

The drive to build a data-centric culture creates the impetus for the Department to build capacity, both for staff who work primarily in data management or data science as well as within the overall Department workforce. A common language and toolset regarding data will help all staff identify new ways to use data to inform decision-making.

Ten years ago, data analysis and use at the Department fell primarily to data professionals, but data skills are needed today for all leaders and staff to make well-informed decisions in day-to-day operations, make policy, or monitor grants. The activities under this objective will create a shared data language to help staff improve how they use the Department's data, in turn aiding them to correctly source data for its intended purpose, effectively read and interpret data insights and visualizations, and better recognize opportunities for data sharing and collaboration.

During FY 2021, the Department will develop a data literacy program that presents a clear case for change and a blueprint to begin the shift to a data-centric culture. The program will identify needs for staff who require data skills, document existing resources and gaps, and identify and repurpose internally and externally available training and support activities to close gaps. This program will present a key opportunity for staff growth and have a meaningful impact on staff capacity to address other parts of this Data Strategy.

### **Objective 2.3: Establish clear career paths and training curriculums for data professionals**

Objectives 2.2 and 2.3 have been designed to work together to build the capacity for data-related work for all Department staff. While Objective 2.2 focuses on the broader Department workforce, Objective 2.3 focuses on the more specialized and technical roles and skills of the data professional. Skilled data professionals bring depth to analysis and decision making via data visualization, advanced analytics, and data management. They also possess a broader awareness of, and experience in, infrastructure design, cloud computing, and data warehousing.

To date, the Department's efforts in building data management and data science capacities have been driven by immediate needs and have been concentrated in pockets within the Department. This reactive, ad-hoc approach has created challenges for succession planning and knowledge transfer for data professionals. Advancing the Department's capacity and data skills will improve employee retention, increase knowledge transfer, and help staff better leverage data as a strategic asset.

By FY 2022, the Department will take an agency-wide approach to building data management and analytics capacities, including providing training and other skill development. The Department will provide structure for its data professionals by identifying competencies and developing career paths. A properly positioned and equipped cadre of data professionals will position the Department to provide greater value to its many stakeholders and constituents, improving how it delivers on its mission.



### Objective 2.4: Develop and implement a short-term data workforce staffing plan

While Objective 2.1 focuses on the development of a multi-year data workforce plan to outline the human capital needs related to data, the Department recognizes it also has immediate data-related human capital needs. This short-term objective focuses on filling known vacancies, supporting the pressing data coordination and collaboration needs and efforts among principal offices.

In FY 2021, the Department will leverage creative staffing solutions, existing hiring flexibilities, and recruitment strategies to fulfill immediate workforce priorities. This objective will enable the Department to address short-term needs while building a longer-term strategy to attract, recruit, and retain the workforce of the future. The intent of this objective is to help bridge offices' needs when current staff do not have the capacity (either in time or expertise), until more permanent solutions can be determined, and with consideration to how near-term hires can help fulfill the long-term strategy.

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## Goal 3. Advance the strategic use of data

The Department's strategic use of data depends on its ability to leverage insights from data and analytics to drive better policy, program, and operational decision-making. Key evidence may come from a variety of sources, including data internal to the Department, data sourced from states and other grantees, and data from other agencies and institutions. Highlighting dependencies across goals, success requires improving access to data while maintaining quality and confidentiality.

This goal seeks to improve the Department's strategic use of data to support and communicate program insights, program evaluation and operational management. The Department must be able to connect fragmented data from disparate sources if it is to successfully answer its most critical questions and effectively tell its own and grantees' stories. Moreover, because the Department is primarily a grantmaking organization, priorities under this goal will also strengthen grant programs' performance and accountability measures and help ensure that pending updates to the Department's grant management system ensure that data are accessible and effectively support decision processes.

### Objective 3.1: Identify and deliver data needed to complete the agency's Learning Agenda

The Department's Learning Agenda, required under the Evidence Act, will outline critical questions relevant to the programs, policies, and regulations of the Department that, if answered, will make it better able to meet its mission and strategic goals. Activities under this objective support the execution of work called for in the Learning Agenda by piloting an approach for identifying the data needed to address the Department's priority questions and then making it available for analysis. The Department will do this in FY 2021 by developing a common template that, for a given priority learning question, details the data generally required to address a question; key data stakeholders; potential analytic approaches and the specific data requirements associated with each approach; an assessment of the accessibility of the required data; preliminary steps associated with securing the data needed each approach; and a timeline for data access.



Realizing this objective will accelerate the Department's achievement of goals and strategic objectives identified in its Strategic Plan; support execution against the Department's Learning Agenda; build agency-wide coalitions for surfacing priority learning questions; and test approaches to securing data, within and beyond the agency, needed to address priority learning questions. Given the impact COVID-19 has had on every facet of education in 2020, the Department anticipates that questions related to COVID-19 may be included as priority learning questions in the future.

### **Objective 3.2: Identify prioritized use cases and initiate an agency data analytics platform**

Like many other agencies and organizations, the Department's individual data systems and structures have been developed over time in response to specific needs. While decisions about the data architecture were made based on the best information and data management practices of the time, they have resulted in fragmented data sources that make it challenging for staff to connect data to answer cross-cutting agency questions. The data analytics platform initiated under this objective in FY 2021 will support Department-wide data access, analysis and reporting.

This platform will ultimately provide an accessible, trusted source for the Department's data assets from across the agency, including raw data, cleansed data, and data with privacy protections. It will foster data literacy and data science by providing staff with self-service business intelligence and analytic tools. The platform will provide a means for developing useful and easily accessible executive reports and democratized data dashboards. It will provide easy access to tools for data manipulation, statistical analysis, shared libraries, and code management, and will build on early successes in the Department to develop and deploy local machine learning and other advanced solutions. It will also enable the Department's data professionals to leverage code management and agile practices to accelerate adoption and deployment of analytics and automation.

### **Objective 3.3: Integrate data visualization and storytelling into priority communications and Department culture**

With this objective, the Department seeks to improve how it shares and communicates its data, infusing it with meaning through visual stories to improve understanding and elevate insights. The Department wants internal and external stakeholders to be able to access and explore its data and it wants to weave important data stories into its own communications.

By the end of FY 2021, the Department will increase its capacity to use data visualizations by identifying and prioritizing topics for data visualization, advancing cross-functional trainings in data visualization, and initiating internal data visualization and storytelling competitions. Success with this objective will improve policy and other communications with external stakeholders by leveraging the power of data, and support development of insights for more effective internal communications as well. Further, the internal data-visualization competitions will support other strategic objectives, such as data literacy, by promoting cross-functional skill building and collaboration with data.



### **Objective 3.4: Improve the development, reporting, and use of agency programs' performance and accountability measures**

The Government Performance and Results Act (GPRA) requires federal agencies to establish standards measuring their performance and effectiveness. Congress uses these standards to help guide budgetary decisions. The GPRA reporting process is intended to evaluate program effectiveness and help support improvements to grant monitoring, inherent in the Department's Learning Agenda. However, to date, there has not been a clear process to update those GPRA measures that are no longer meeting program needs and, generally, updating measures is burdensome and time consuming. In some cases, addressing data quality issues and insufficient capacity for analysis have turned the GPRA reporting process into a compliance exercise. The Department is in the process of developing and sharing a new set of tools for GPRA, including piloting those tools to assess and improve processes. These tools will help ensure that programs' performance measures assess what is most important and that program staff can better analyze the data they receive.

By the end of FY 2021, the Department will draft a framework for reviewing performance measures, incorporating budget guidance to programs; create a data quality review checklist for performance measures; identify GPRA measures that may be made common across programs; and deploy an agency-wide process for all measures. Revamping the process for GPRA development, measurement and reporting will improve the collection, quality, analysis, value and use of performance data. Outcomes will provide program staff with useful data points for grant monitoring and provide opportunities for additional grantee technical assistance.

### **Objective 3.5: Ensure modernization of the Department's grant management system meets statutory data requirements and supports strategic data use**

One of the Department's core functions is to distribute and manage public funds in the form of grants to support the nation's students. The Department's grants management system, known as G5, supports the agency's full grantmaking lifecycle and associated business processes. In addition to ensuring proper funds control for the Department's \$60+ billion grant portfolio, G5 is used by Department staff to run grant competitions and make awards, monitor grantees for compliance and performance, make continuation funding available to grantees, and close out grants at the end of performance periods. The current system was developed prior to the use of modern data management best practices and some of its functionality is cumbersome to use. For example, grantees currently submit the bulk of their data in a PDF format, making it difficult for staff to readily access, manage, use, or analyze data within the system in support of their grant monitoring activities.

As the Department begins to develop a solution for modernizing its grants management system, it will ensure that the new system meets statutory data requirements, such as those in the Evidence Act that require data collection mechanisms to support machine-readable open data, and the evolving needs of data users, including the ability to easily conduct data analyses. The next iteration of the system must support the Data Strategy objectives under the goals that advance the strategic use of data (Goal 3) and improve access, transparency, and privacy (Goal 4). Doing so will help staff make better use of grantee data to monitor grants, answer cross-cutting questions in the Department's Learning Agenda, and provide optimal technical assistance to improve grant outcomes. Generally, success will improve grants



data access and transparency. The Department anticipates building out requirements in support of this objective by FY 2022, with modular implementation of the new system slated for FY 2022 and subsequent years.

### Goal 4. Improve data access, transparency, and privacy

Improving access to Department data, while maintaining its quality and confidentiality, is key to expanding the agency's ability to generate evidence to inform policy and program decisions. Increasing access to data for Department staff, federal, state, and local lawmakers, and researchers can help the Department to make new connections and foster evidence-based decision making. Increasing access can also spur innovations that support the Department's stakeholders and help taxpayers reference data on the programs and initiatives that their tax dollars fund. While the Department has strived for increased transparency in recent years, there is still considerable room for improvement. The Evidence Act mandates that all data be "open by default," meaning data are machine readable and can be freely used, reused, and redistributed by anyone. Adherence will require changes to policies, practices, and technologies. Increasing access to and use of the Department's data will require navigating legislative requirements and applying protocols designed to protect the privacy and confidentiality of individuals.

The Department seeks to improve on user access by ensuring that released data are in machine readable format and accessible via the Department's comprehensive data inventory. The Department will better leverage expertise in the field to expand the Department's base of evidence by establishing a process for researchers to access non-public Department data. Further, the Department will develop a cohesive and consistent approach to privacy and enhance information collection processes to ensure that Department data are findable, accessible, interoperable, and reusable.

#### Objective 4.1: Develop and implement an Open Data Plan that describes the Department's efforts to make its data open to the public

To meet the requirements of the Evidence Act, Department data must be "open by default." The Department is now required to release far more data than it has in the past and must determine how best to do that. Making data accessible is burdensome for the Department, and some data that might be shared have not yet been. In addition, processes for accessing data can be burdensome for internal and external stakeholders, including the public, other agencies, and Department staff.

Not to be confused with prior Open Government Plans, the Open Data Plan required under the Evidence Act and developed under this objective will be completed in FY 2021. Enabling researchers and citizen data scientists to use the Department's data to conduct their own analyses will support collaboration with external stakeholders, expand the Department's evidence base, and increase public accountability for the Department's work. In 2021 and beyond, this access will be particularly valuable in understanding the impact of COVID-19 on the educational landscape and on students; there is a critical need to quickly build that evidence base and leverage the work of external stakeholders. Results will improve how policies are measured, increase government efficiency, enable deeper analytical insights, strengthen citizen participation, and boost education outcomes.



### Objective 4.2: Operationalize a comprehensive data inventory for the agency

The Department's Open Data Platform, a central repository for its data assets, is a fully featured, robust, and highly scalable data repository that maintains public data assets in a fully searchable catalog. As required by the Evidence Act, during FY 2021, the Department will build toward a comprehensive data inventory by expanding on the current Open Data Platform and previous inventory efforts. The Department will continue to catalog data assets for both external open data and internal sources, subject to priorities in the Open Data Plan, and incrementally expand the number of Department data assets listed in the Federal Data Catalog.

In addition to meeting mandates, this comprehensive data inventory will enable a single lens into all the Department's data, including internal and publicly available data. A complete data inventory will inform strategies for reducing redundancies, reveal ways for joining data to answer cross-cutting questions in the Learning Agenda, and lend insight into opportunities for streamlining the data the Department collects and maintains. Objective 4.2 also provides a means for informing the process for reviewing and approving the information collection request process, introduced in Objective 4.4. As part of Objective 4.2, the Department will also review and improve upon its data release process.

### Objective 4.3: Establish a process for external stakeholders to access non-public Department data for research purposes

As articulated in the introduction to this goal, the Evidence Act requires federal agencies to make all data open by default, with consideration to risks and restrictions related to the disclosure of personally identifiable information (PII) and data security. Related, the Family Educational Rights and Privacy Act (FERPA) prohibits the Department from making specific data publicly available, instead allowing access only to those stakeholders who have specific access rights, such as Congress, OMB, employees from other federal agencies or individuals conducting studies. The Privacy Act of 1974 establishes a code of fair information practices that governs the collection, maintenance, use, and dissemination of information about individuals that is maintained in systems of records by federal agencies.

The Department's Institute of Education Sciences (IES) has a means for providing appropriate access to PII and secure data through localized processes. However, the Department has not yet established a single Department solution for providing similar access to broader Department data, such as those stewarded by the Office of Federal Student Aid, and subsequently building a research base that could help inform the Department's Learning Agenda, agency operations, or insights into the effectiveness of Department programs. To protect PII, much of the Department's publicly shared data are currently shared only in the aggregate, limiting the extent to which studies or evaluations can draw conclusions. In response, during FY2021, the Department will develop a research-proposal review process, a technical assistance framework, and an additional tier of access.

Outcomes from Objective 4.3 will help build evidence for policymaking and support the Department's Learning Agenda (Objective 3.1). Sharing analysis that incorporates non-public data can allow the Department and other stakeholders to leverage and build on each other's work. Access can help researchers build evidence in areas of interest to the agency, including answering key questions in the Department's Learning Agenda (Objective 3.1), perhaps at little or no cost. A new tier of access and the research it enables will be especially critical in timely and urgent issues such as those related to COVID-



19. Further, achieving this objective will help create transparency, fundamental for building trust with the public and other stakeholders.

### **Objective 4.4: Enhance the Department's process for approving information collections to improve data governance decisions and support the principles of FAIR and SEER**

Internal and external stakeholders regularly use the Department's data collections when researching questions, testing hypotheses, and evaluating outcomes related to Department programs. OMB approves the Department's data collections via the Department's information collection request (ICR) process, in accordance with the Paperwork Reduction Act of 1995; however, the ICR process has not historically been managed as a strategic data function. ICRs are evaluated for the burden the data collection might impose, but more specific attention should also be given cost-value trade-offs and how collected data will be used, stored, and leveraged. In response, this objective seeks to help the Department address the needs of the Department's management, its data stewards, and its external stakeholders, and align the ICR process with broader data governance decisions.

This objective will also help the Department's information collections conform to two key principles: FAIR<sup>1</sup> (Findable, Accessible, Interoperable, Re-usable) and SEER<sup>2</sup> (Standards for Excellence in Education Research), which encourage researchers to plan and conduct studies that focus on outcomes; share findings, methods, and data; and support and facilitate generalization and scaling, as appropriate.

During FY 2021, the Department will evaluate related processes, identify additional guidance to help data stewards adhere to best practices during the definition and design of information collections, and improve technical assistance for data collection processes. Outcomes should significantly contribute to the usability and usefulness of the Department's data collections by advancing design thinking toward the earliest phases of work to reduce re-work or the production of data that has lesser value.

### **Objective 4.5: Develop a privacy playbook informed by the Department's data lifecycle and provide technical assistance to data stewards**

In a digital age where data sharing is a necessity and bad actors are increasingly sophisticated and motivated, there is an ever-growing need to ensure privacy protections are addressed. The Department has staff with expertise to ensure privacy needs are met and data are properly handled, including consent, notice, and regulatory obligations; however, the Department now needs to reassess its processes in light of new requirements under the Evidence Act.

By the end of FY 2021, the Department's Senior Agency Official for Privacy (SAOP) will conduct a gap assessment across the Department's newly created data lifecycle, reviewing current processes and policies to identify privacy gaps. To support the gap assessment, the SAOP will convene a working group consisting of stakeholders, including stakeholders from principal offices that act as data stewards. The working group will be tasked with understanding and documenting privacy challenges, risks, and concerns throughout the Department. By the end of FY 2022, the working group will make

<sup>1</sup> For more on FAIR principles, see <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4792175/>

<sup>2</sup> For more on SEER principles, see <https://ies.ed.gov/seer/index.asp>.



recommendations to the SAOP for the development of a privacy playbook consistent with the data lifecycle framework.

Success with this objective will help the Department to effectively protect privacy and personal data throughout the data lifecycle, protecting students, Department employees, and the public.

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## The Road Ahead

The Department Data Strategy vision sets a bold direction and asks much of Department staff and executive leadership. Progress toward the vision requires building on existing successes while also changing the way business is done and adapting to change. This Data Strategy reaches all aspects of Department operations, incrementally requiring new views of data management crossing traditional organizational and program boundaries.

The Department engaged its internal stakeholders throughout the development of this Data Strategy; staff from across the Department have brought their diverse perspectives and contributed significantly to its development. The resulting strategy addresses foundational and short-term challenges identified from across the agency, while thoughtfully charting a course to improved overall data maturity. The Department Data Strategy goals are highly interdependent with cross-cutting objectives. Managing these interdependencies across the Department's many principal offices will be a critical aspect of execution. To this end, this Data Strategy contemplates a highly collaborative effort requiring principal offices to work together to ensure practicality, proper planning, coordinated implementation and good communication. Progress against these objectives and ultimately the achievement of the four strategic goals will depend on maintaining that high-level of collaboration.

Effective tactical implementation of the Department Data Strategy is the joint responsibility of the Office of the Chief Data Officer (OCDO) and the Data Governance Board (DGB), requiring sustained management oversight to ensure accountability, coordination, and communication. The Department will leverage this executive oversight and collaboration to maintain the Data Strategy tie to the overall business strategy. This oversight will also place a cross organizational focus on data and drive how the Department uses data to drive innovation, continuous improvement, and effective decision-making.

The Department will revisit the overall Department Data Strategy goals on at least a two-year cycle to take stock of the evolving data, operations, and policy landscape. This cycle provides enough time to plan and launch new objectives, and to evaluate success against expected outcomes. As necessary, the Department will adjust the Department Data Strategy goals, objectives, and corresponding metrics to maintain overall alignment with the overall Department vision and mission. The Department will also measure success against its organization wide data maturity model with ongoing assessments. As gaps are identified, OCDO and the DGB will work to identify strategies for closing gaps and advancing agency-wide data maturity as part of overall Department Data Strategy.



## Appendix A. Relevant Laws, Regulations, and Guidance

### LAWS, REGULATIONS, AND GUIDANCE

### DESCRIPTION

**Evidence Act or H.R.4174 -  
Foundations for Evidence-  
Based Policymaking Act of  
2018**

Requires agency data to be accessible and that agencies plan to develop statistical evidence to support policymaking. For more, please see <https://www.congress.gov/bill/115th-congress/house-bill/4174>.

**Family Educational Rights  
and Privacy Act (FERPA) (20  
U.S.C. § 1232g; 34 CFR Part  
99)**

A federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. For more, please see <https://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html>.

**Government Performance  
and Results Act (GPRA)  
(1993, 2010)**

Enacted in 1993, requires federal agencies to establish standards measuring their performance and effectiveness. Congress uses these standards to help guide budgetary decisions.

GPRA Modernization Act of 2010 - (Sec. 2) amends the Government Performance and Results Act of 1993 to require each executive agency to make its strategic plan available on its public website and to the Office of Management and Budget (OMB) on the first Monday in February of any year following that in which the term of the President commences and to notify the President and Congress. For more, please see <https://www.congress.gov/111/plaws/publ352/PLAW-111publ352.pdf>.

**Privacy Act of 1974**

Establishes a code of fair information practices that governs the collection, maintenance, use, and dissemination of information about individuals that is maintained in systems of records by federal agencies. For more, please see <https://www.justice.gov/opcl/privacy-act-1974>.



### Appendix B. List of Acronyms

<b><u>ACRONYM</u></b>	<b><u>DEFINITION</u></b>
<b>CDO</b>	Chief Data Officer
<b>DGB</b>	Data Governance Board
<b>FAIR</b>	Findable, Accessible, Interoperable, Re-usable
<b>FDS</b>	Federal Data Strategy
<b>FY</b>	Fiscal Year
<b>G5</b>	The Department's grants management system, known as G5, supports the agency's full grantmaking lifecycle and associated business processes.
<b>ICR</b>	Information collection request
<b>IES</b>	Institute of Education Sciences
<b>OCDO</b>	Office of the Chief Data Officer
<b>PII</b>	Personally identifiable information
<b>Principal Office</b>	Refers to the Department's respective principal operating components (POC). For more on the Department's coordinating structure and about descriptions of offices' roles and functions, please see <a href="https://www2.ed.gov/about/offices/or/index.html">https://www2.ed.gov/about/offices/or/index.html</a> .
<b>SAOP</b>	Senior Agency Official for Privacy
<b>SEER</b>	Standards for Excellence in Education Research