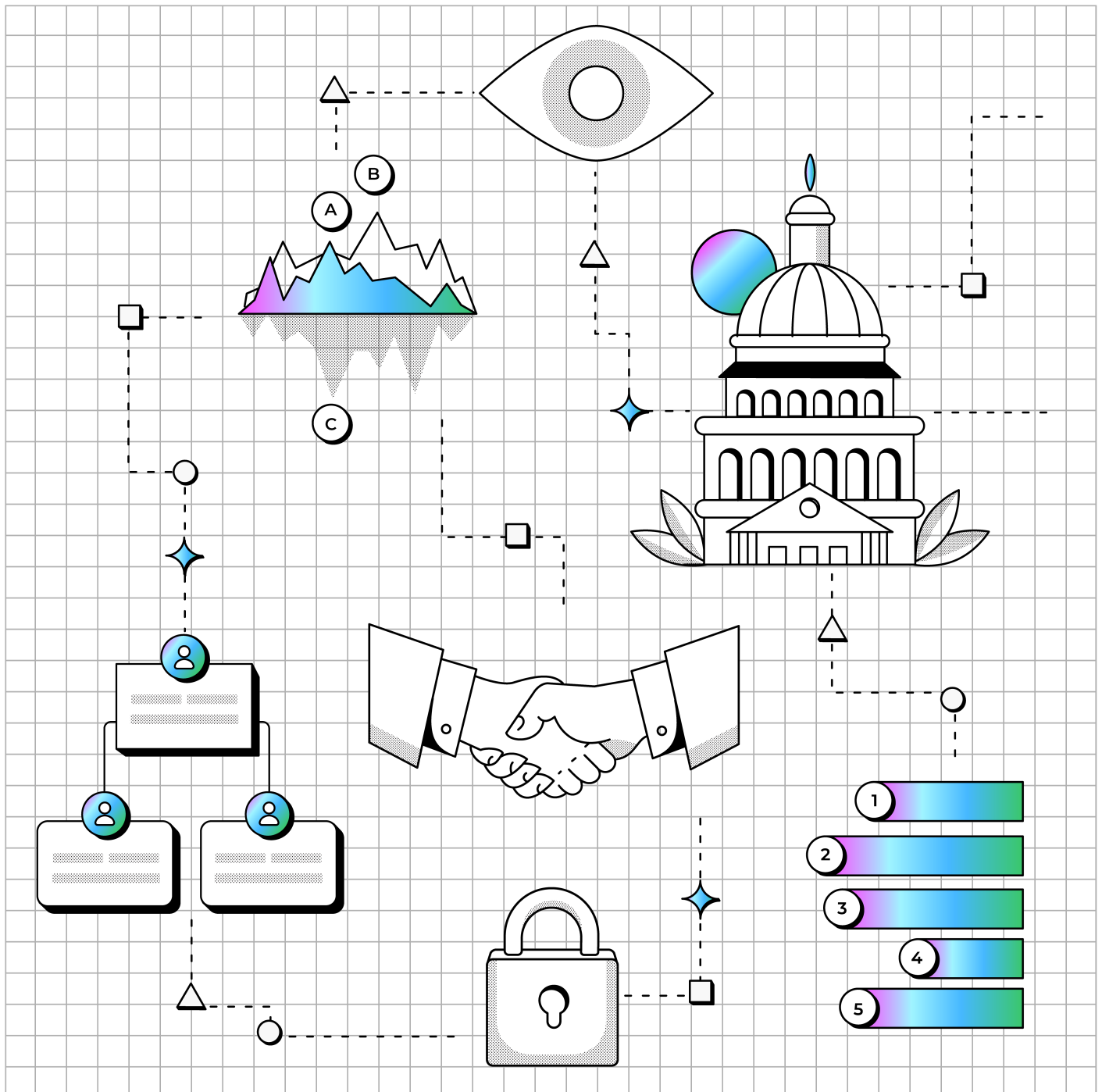
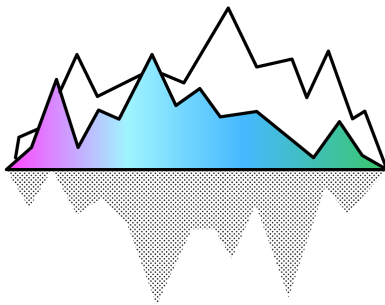


# Enabling Mission Success

A 2023 SURVEY OF FEDERAL CHIEF DATA OFFICERS





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# Executive Summary

Federal Chief Data Officers (CDOs) are a critical component of building a strong data infrastructure that enables federal government agencies to leverage data as a strategic asset for enabling mission success. The Foundations for Evidence-Based Policymaking Act of 2018 (Evidence Act) provides a statutory framework and various requirements for federal agencies to improve data generation and use for decision-making – including the establishment of CDOs.



To understand the emerging CDO role and the evolution of the CDO community needs, the Data Foundation conducts an annual survey of federal department-, agency-, and bureau-level CDOs and Statistical Officers. This report describes the findings from the fourth annual Federal Chief Data Officers Survey.

The results of the 2023 Federal CDO Survey reveal factors enabling and hindering CDO missions across federal agencies of various size, capacity, and mission areas. Findings were largely consistent with past surveys. Key insights include:

- **CDO functions are organized inconsistently across agencies.**

Although one-third of CDOs report to CIOs, 37% wrote in a variety of other reporting positions, indicating inconsistent organizational structures. This may reflect unique agency needs but introduces challenges for collaboration, standards, and resources.

- **There is an opportunity for a closer CDO-CIO relationship.**

Though most CDOs (56%) find their missions highly complementary, over half of CDOs reporting to CIOs find the reporting structure challenging. Last year, two-thirds of CDOs (66%) indicated the reporting structure between CDOs and CIOs was beneficial – double the amount of CDOs that found the relationship beneficial in 2023 (33%). Laws directing functions of data management to CIOs further cloud responsibilities. Clarifying CDO authorities and the relationship with CIOs can strengthen data and technology use.

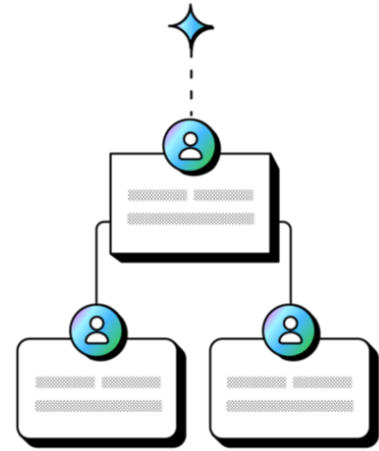
- **The CDO role is still relatively new in many agencies, though CDOs have extensive federal experience.**

Over half of respondents' (52%) organizations have only had a CDO role for three to five years, indicating the importance of the Evidence Act for establishing the formal data governance function in many agencies. However, 89% of CDOs reported having worked with the federal government over 10 years. This expertise related to federal processes lends itself well to a position that aims to improve management and governance of data assets to

improve decision-making. Continued support and guidance will be important for CDOs as the organizations' data function matures.

- **Data governance and strategy are central to the CDO mission.**

Top priorities include developing and implementing data strategy or governance (28%), facilitating data-driven decision making at all levels (21%), and improving data infrastructure (20%). Progress has been made related to data culture, governance, and analytics, but data maturity remains relatively low. Guidance and clear authorities can help CDOs achieve mission success and build maturity.



- **The CDO role is expanding to include emerging innovative technologies.**

Over half of CDOs are already using basic or advanced artificial intelligence (AI) (55%), and almost all CDOs are considering adopting AI in their organization in various capacities over the next year (95%) – up from 45% having no AI responsibility in 2022. However, federal guidance related to AI implementation is unclear. Careful consideration of the CDO role with AI and clear guidance for ethical implementation is needed. As emerging technologies and AI become a larger part of agencies' mission success, specifically as agencies respond to the October 2023 Executive Order directing all agencies to establish Chief AI Officers, further clarity of the CDO role with AI will be critical.

- **Resources, skills, and authority are persistent barriers.**

Key barriers across the function areas explored in the survey include limited budgets and data literate staff as well as unclear CDO authorities. These challenges continue from previous years and must be addressed to enable CDO missions and realize the vision of the Evidence Act.

### The following recommendations are based on the 2023 CDO Survey findings:

1. Clarify CDO authorities and responsibilities to optimize organizational data and technology capabilities.
2. Provide training, professional development, and change management support to build maturity of CDO roles and data governance functions across federal agencies.
3. Equip CDOs with resources and staff needed to fully execute their mission of improving data infrastructure, governance, analytics, and strategic data use.
4. Develop clear ethical guidelines and governance frameworks to support CDOs in responsibly adopting emerging technologies like AI in service of their public mission.

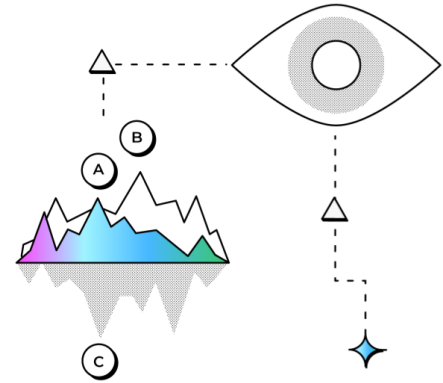
These recommendations continue emphasis on funding, authority, and clarity seen in previous surveys and build on the expanding role of the CDO related to emerging technology.

Recommendations from last year included increasing CDO funding flexibility and providing more direct resources to CDOs; issuance of clarifying guidance on CDO responsibilities from the Office of Management and Budget (OMB); creation of a Federal CDO position at OMB; and removing the statutory sunset of the CDO Council. Progress on past recommendations vary – in 2023, CDOs indicated having more adequate resources and the CDO Council continued to provide support for the CDO community, while clarity of the CDO responsibilities decreased and calls for more guidance continued to grow.

The CDO community continues to show dedication and enthusiasm to generate, manage, and use data to improve government function and mission execution. CDOs are integral to building the data culture that enables a data-driven organization and broader data community across the government and requires adequate support from Congress, the Executive Branch, and leaders across the federal government. In 2024, it will be imperative that CDOs, and their respective data management and governance activities, be treated as a core agency function and foundation for enabling mission success.

# Introduction

The United States federal government collects, stores, and disseminates vast amounts of data and has done so for decades. As technology capabilities have rapidly evolved in recent years, data are increasingly central to timely, informed decision-making across sectors, driving demand for efficient, effective approaches to data management.



Congress passed the Foundations for Evidence-Based Policymaking Act of 2018 (Evidence Act) to provide a statutory framework and various requirements for federal agencies to leverage data as a strategic asset for mission success.<sup>1</sup> Since the passage of the Evidence Act, much progress has been made to improve governance and management of data, data sharing, and data-driven decision-making.<sup>2</sup> Title II of the Evidence Act, the OPEN Government Data Act, directed agencies to designate a Chief Data Officer (CDO) – for the first time requiring by law a dedicated role to data governance and management.

To understand the emerging CDO role and the evolution of the CDO community’s needs, the Data Foundation conducted the first survey of federal CDOs in 2020.<sup>3</sup> Each year thereafter, the survey has revealed trends and ongoing challenges as well as provided specific, timely observations to developments in policy, guidance, and technology.<sup>4,5</sup> This report describes the findings from the fourth iteration of a survey of federal Chief Data Officers.

Similar to previous years, the 2023 Survey of Federal CDOs collected data from federal department-, agency-, and bureau-level CDOs and Statistical Officials across the government. The questions included topics related to organizational structure, resources, professional experience, the CDO mission, collaboration, organizational strategy, challenges and guidance related to the CDO community, and the CDO role in emerging technologies. When presenting the various responses of the CDOs, findings are organized into three pertinent functions central to enabling CDO mission success in 2023 – becoming a data-driven organization, building a strong CDO community, and leveraging innovative technology to support the CDO mission.



# Survey Results

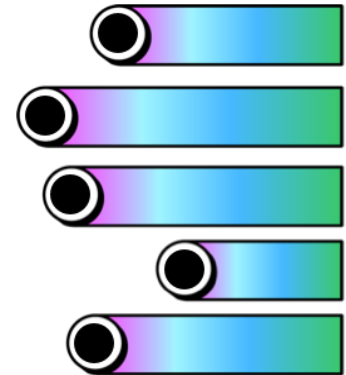
## Becoming a Data-Driven Organization

The primary purpose of the CDO is to coordinate an organization’s data management and governance efforts, focusing on evolving into a data-driven organization. Success of the CDO related to this function **depends on the CDO’s organizational structure, resources, professional experience, mission, strategy, and collaboration across functions.**

### Organizational structure for CDO offices vary

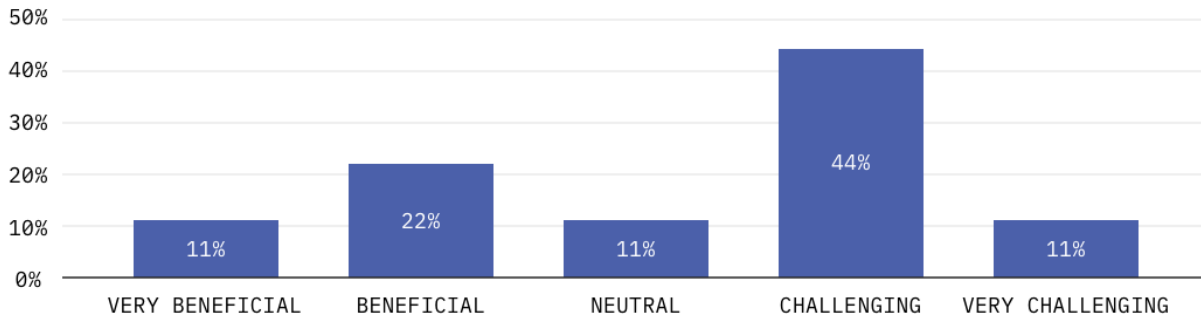
In 2023, 33% of CDOs report to Chief Information Officers (CIOs), followed by 15% reporting to the agency head. All three previous CDO surveys also found that CIO was the most common reporting position for CDOs. However, 52% of CDOs indicated different reporting structures, including reporting to the Chief Operating Officer or Chief Financial Officer – with 37% of those CDOs writing in additional other positions, indicating inconsistency in CDO placement within their agency.

The relationship between CDOs and CIOs is complex. Notably, when asked how complementary the CDO-CIO relationship is to achieving the CDO mission, a majority find the relationship “very” or “completely” complementary. However, of the CDOs reporting to CIOs, a majority (55%) find the reporting structure “challenging” or “very challenging.” Compared to 2022 when 66% found the reporting structure “beneficial” or “very beneficial,” only 33% indicated the reporting structure “beneficial” or “very beneficial in 2023.”



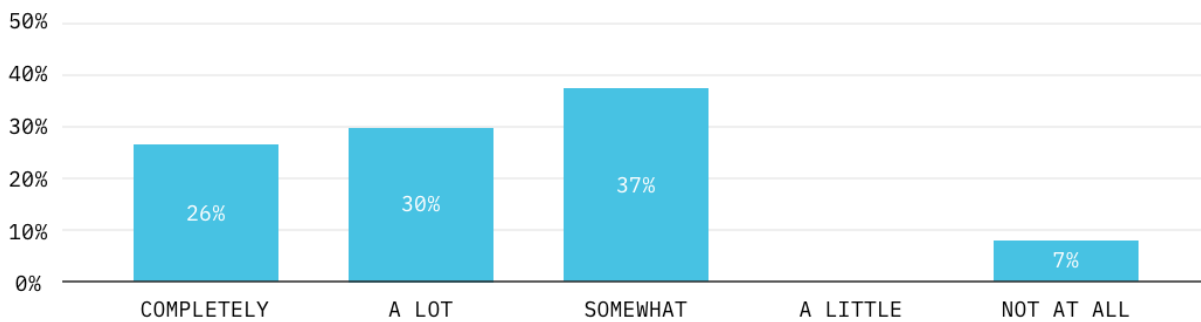
The emerging dissatisfaction with the reporting structure of CDOs to CIOs, combined with the clear complement in their missions, suggests a need for evaluating the organizational relationship between CDOs and CIOs.

**FIGURE 1: Perceptions of CDO-CIO reporting structure are mixed**



*SURVEY QUESTION: To what extent do you consider the CDO reporting to the CIO to be beneficial or challenging?*

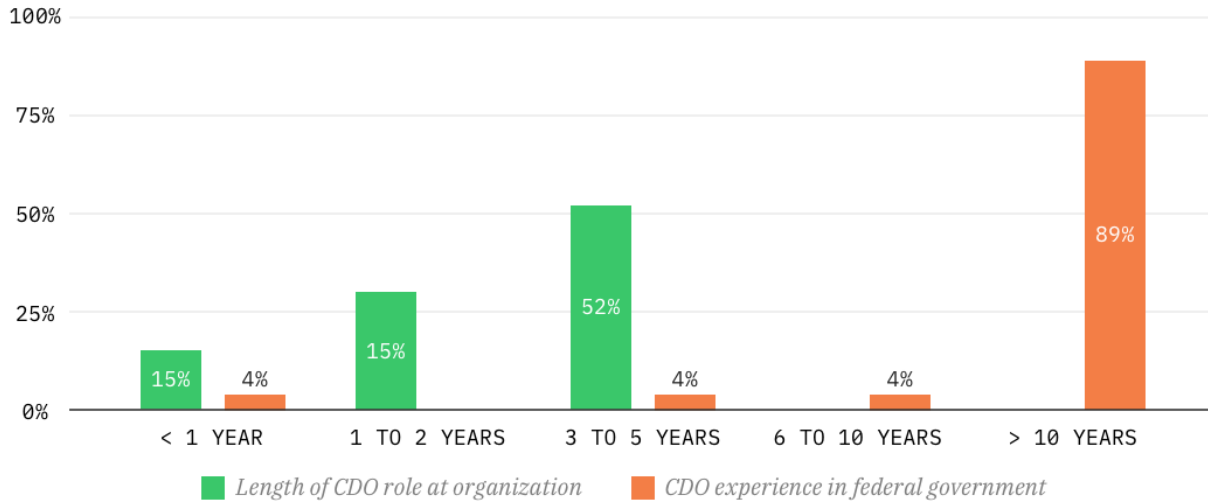
**FIGURE 2: CDO-CIO relationship is largely complementary to CDO mission**



*SURVEY QUESTION: To what degree do you think the CDO-CIO relationship in your organization is complementary to achieving your CDO mission?*

CDOs have extensive experience in the federal government. Ninety-three percent of CDOs have worked for the federal government for over 5 years, and 89% have worked with the federal government over 10 years. However, a new question in the 2023 survey asked about the duration of the CDO role within their organization. Responses indicate the CDO role is still relatively new in many agencies, with over half of respondents indicating their organization has had a CDO for only three to five years (52%). Similarly, when asked about personal experience in the CDO role at their current organization, 67% of CDOs have been in their current role two years or less, and 30% have held the role for three to five years. The duration of many CDO positions aligns with the implementation of the Evidence Act, indicating the statutory requirement for agency designation of a CDO was a primary driver for establishment of the role.

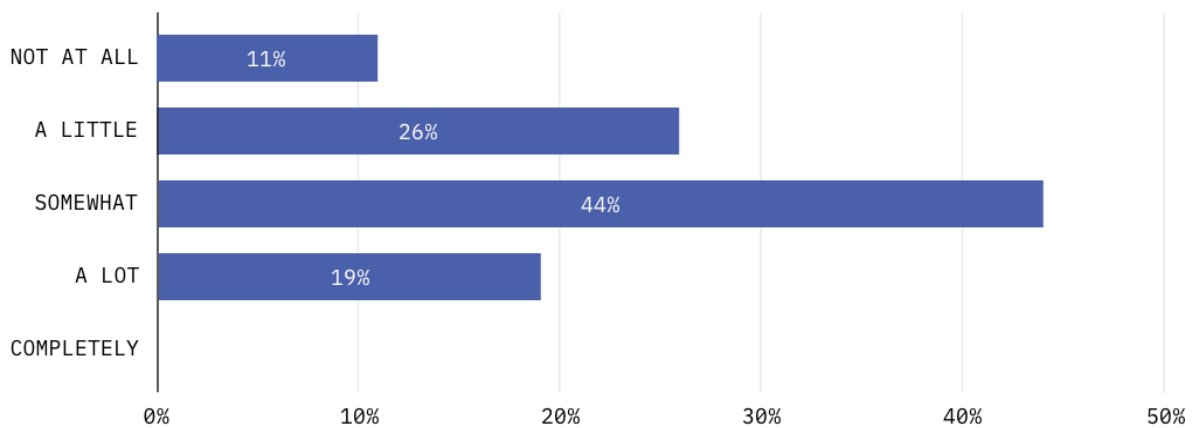
**FIGURE 3: CDO role is relatively new, though CDOs have extensive government experience**



**CDOs indicate a need for additional resources**

When asked whether CDOs have the resources necessary to achieve their mission, 44% of CDOs report “somewhat” having the resources necessary for mission achievement, with 37% indicating “not at all” or only “a little.” A majority of CDOs also pointed to a lack of resources as a consistent barrier to achieve the CDO mission across functions explored in the survey, signaling consistent underinvestment in the CDO office.

**FIGURE 4: Many CDOs do not believe they have the resources necessary to achieve CDO mission**



SURVEY QUESTION: *Do you have the resources to achieve your CDO mission?*

The number of qualified staff is a key concern for CDOs – when asked what particular areas need more support, over 60% pointed to staffing. For example, CDOs described the need for trained data professionals, specialized artificial intelligence (AI) practitioners, program managers, people with business and technical acumen, and generally more manpower to support CDO duties. CDO offices remain relatively small, with a majority (81%) of CDOs having 25 or fewer federal full-time equivalents (FTEs). Additionally, nearly half of CDOs employ less than five federal FTEs (48%). While some CDO offices use contractors for staff support, a substantial portion (30%) do not have contractors. In addition to staffing, CDOs express a need for dedicated funding (22%) and specific resources for data management services (22%) to support the success of the CDO mission. These are areas of concern that CDOs have consistently highlighted in previous years.

The variation in the organizational structure and ongoing resource needs present challenges for mission success. For example, the CDOs' inconsistent organization placement across agencies makes it difficult for comparing agencies' CDO capacity or for Congress to direct appropriate resources.

### **Clarity of responsibilities differ among CDOs**

Only 33% of CDOs in 2023 find the responsibilities of the role “very” or “completely” clear, while a majority of CDOs indicate their responsibilities as “somewhat” clear. Interestingly, in 2022, CDOs displayed more confidence in the clarity of the role, with 52% indicating their responsibilities were “very” or “completely” clear.

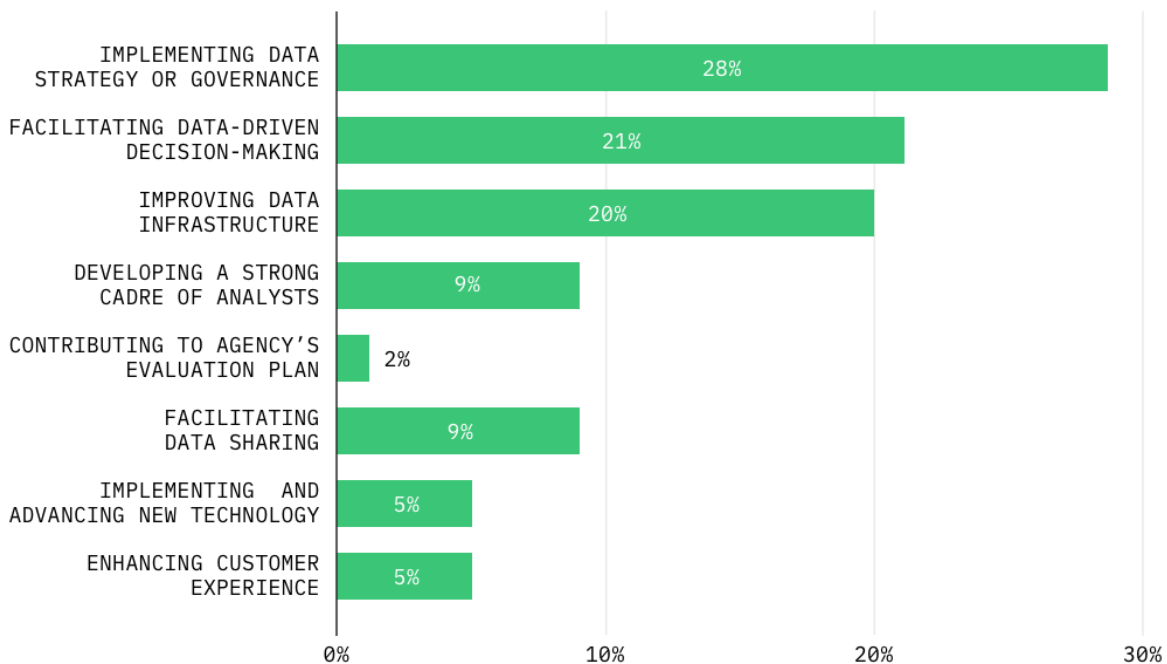
Less than a quarter (19%) of survey respondents from the previous year participated in the 2023 survey. Respondents represent various levels of the CDO position with a wide range of experience, though compared to 2022, a larger proportion of this year's survey participants represent agency- and bureau-level CDOs rather than department level. The Evidence Act required the establishment of the CDO role for the 24 CFO Act agencies, largely the department-level positions, and the subsequent guidance from OMB has also been directed toward these roles. The decline in clarity of the CDO role may be due to the broader representation of non-Evidence Act CDOs in this year's survey, which may indicate the need for more inclusive, applicable guidance that appropriately reflects the variety in CDO positions that exist today. This finding may also be impacted by overlapping responsibilities with the CIO or the need for more specific guidance on implementation of Title II of the Evidence Act related to open data practices – areas of concern indicated by CDOs in other sections of the survey. While variation in responses from previous years may be influenced by the characteristics of the survey respondents, these findings emphasize the ongoing need for support and clarification of the CDO role as CDO offices continue to evolve and mature.

The declining clarity of the CDO role and responsibilities, the increasingly strained reporting relationship to CIOs, and the growing number of data and technology-related officials in agencies all indicate the CDO position could benefit from clearly defining its responsibilities relative to other roles.

### The CDO mission prioritizes creating value from data

A majority of CDOs are focused on quality, consistency, and availability of data to inform and influence agency operations – with one CDO succinctly summarizing the CDO mission as “maximizing the value of our data.” The top priorities of CDOs revolve around leveraging advanced analytics to create value from data, thereby enabling mission success. Specifically, data governance and strategy development are central to the CDO mission, with top priorities including implementing data strategies (28%), facilitating data-driven decisions (21%), and improving data infrastructure (20%). CDOs are also focused on developing a strong cadre of data scientists and building data literacy to support use of data across the organization. Additional descriptions of the CDO mission, including “supporting the data community,” and “leading development and implementation of policies which govern the creation, collection, management, use, and disclosure of data,” reflect these priority areas.

FIGURE 5: *CDOs are focused on quality, consistency, and availability of data*



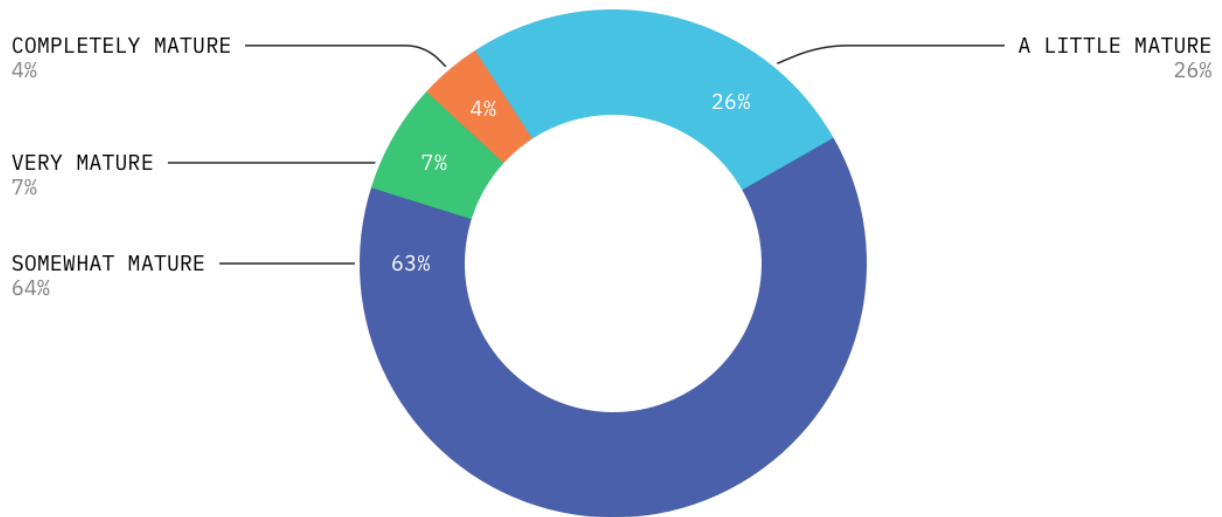
SURVEY QUESTION: *Select the top three priorities of your CDO mission*

In a separate question, CDOs identified important aspects of the CDO mission related to diversity, equity, and inclusion. CDOs focus on equitable data practices, such as quality assurance of datasets and comprehensive demographic representation (36%), promoting inclusivity in the workplace environment (30%), and hiring and staffing diverse talent (30%) as key strategies for promoting equity for CDO mission success.

Three-quarters of CDOs believe that their role influences the organization's data culture, similar to findings from 2022. Over the past year, notable areas of progress included building data culture, development of data governance frameworks, and adopting advanced analytics to improve programs. Though many CDOs (40%) reported feeling successful in achieving their CDO mission, more CDOs indicated feeling only "somewhat" successful in achieving the CDO mission (44%), with 18% reporting "not at all" or "a little." This remains consistent with findings from 2022, where 46% reported feeling highly successful in achieving the CDO mission – a slight decline from 55% in 2021.

While CDOs have made much progress in the past year, there is still relatively low organizational data maturity. When asked to assess their organization's data maturity, referring to the extent the organization leverages data for decision-making, the vast majority indicated their organization was "a little" or "somewhat" (89%) mature – and only 11% indicated "very" mature or "completely" mature. This indicates that while there are notable areas of progress, there is still significant work to be done to achieve high levels of organizational data maturity. Addressing the challenges identified by CDOs in this survey will be required to become fully data-driven organizations.

FIGURE 6: *Organizational data maturity remains relatively low*



SURVEY QUESTION: *How mature would you rate your organization's data maturity?*

### Organization-wide data strategies support CDO mission success

In 2019, the Office of Management and Budget (OMB) published the first government-wide Federal Data Strategy (FDS), a 10-year plan to leverage data as a strategic asset.<sup>6</sup> To support the implementation of the FDS, annual Action Plans are intended to specify measurable activities, establish timelines, and identify responsible parties.<sup>7</sup> CDOs indicated these Action Plans were supportive in executing the CDO mission – with 67% reporting the Action Plans were at least “somewhat” supportive for the development and success of the CDO mission.

However, while Action Plans were published in 2020 and 2021, further plans have yet to be developed.<sup>8,9</sup> In the absence of government-wide measures, the 2023 survey asked CDOs about their organizations’ own data strategies. A majority (56%) indicated that their organization has either a department- or agency-wide data strategy, and a vast majority of these CDOs found the data strategy supported the development and success of their CDO mission “a lot” or “completely” (80%). Almost one-fifth of CDOs surveyed indicated that publication of an updated FDS Action Plan would support CDO mission success.

In line with the vision of the Evidence Act and the FDS, CDOs were asked whether their organization’s data strategy included specific metrics to measure implementation success and whether the strategies were machine-readable and publicly-available. While 15% of CDOs with

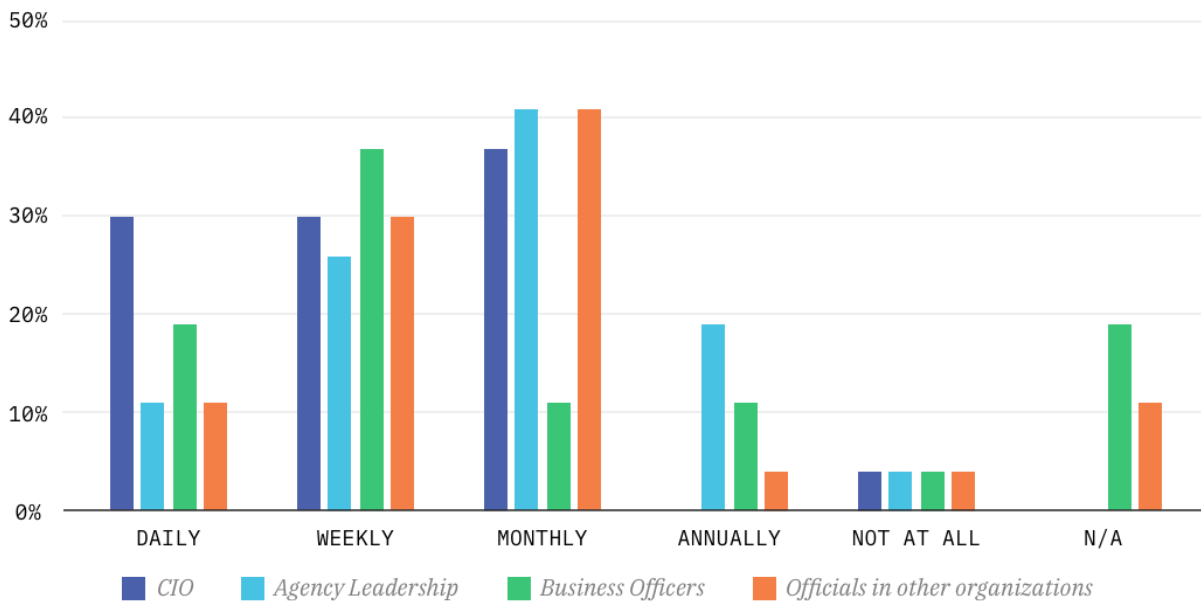
organization-specific data strategies do not have formal measurement standards, those that do identify metrics for data governance (21%), data quality (18%), and efficiency (15%), for example.

### CDOs collaborate within and across agency functions

Despite the lack of uniform placement of CDOs, all CDOs intend to influence the management, governance, and use of data across their organization’s programs and operations. Collaboration with other functions of an organization as well as across other government entities is an important aspect of any role aiming to achieve cross-functional cohesion.

In 2023, CDOs reported high levels of collaboration both within and across agency functions. CDOs work closely with CIOs, with 60% of CDOs engaging with CIOs weekly. At least monthly, CDOs work with officials outside their organization (82%), agency leadership (78%), and business officers (67%). However, CDOs did not indicate frequent collaboration with their Evidence Act counterparts, the Evaluation Officers or Statistical Officials. When asked how often others within the organization depended on their CDO office, only 37% CDOs responded “a lot” or “completely”, a downward shift from 52% in 2022. When asked about the extent other federal agencies, Congress, and the general public depended on the CDO office “a lot” or “completely”, the percentage was much lower, at 11%, 7%, and 11%, respectively.

**FIGURE 7: CDOs collaborate often with certain officials within and across agencies**



**SURVEY QUESTION:** *How often do you collaborate with other positions?*



CDOs are also taking steps to promote active awareness and participation from the public and the data community at-large. The three top engagement strategies that CDOs identified include supporting open data and data sharing (37%), facilitating communities of practice (26%), and promoting resources to enhance awareness (22%). These strategies are similar to those identified in 2022, which included various forms of public presentations to promote resources, raise awareness, and make data products publicly available.

## Building a Strong CDO Community



As a relatively new formal function of government, CDOs benefit from cultivating a broader community from which to learn from and coordinate approaches for improving the management and use of data. Understanding the relationship between CDOs and the CDO community at-large provides key insights into opportunities to strengthen data and evidence practices across government.

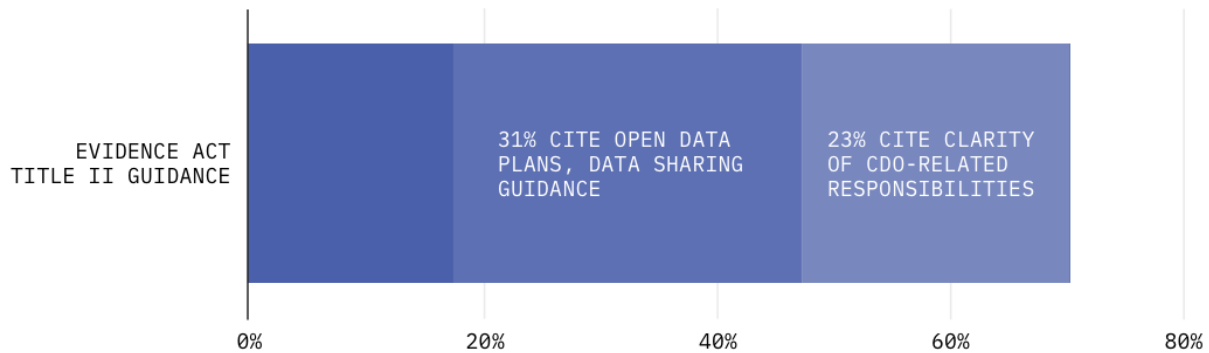
### Coordination of CDO activities and competencies is a critical role of CDO community leadership

Two primary entities provide leadership and guidance to the CDO community across the federal government. The CDO Council, established by the Evidence Act, serves to coordinate the CDO community, including through developing best practices for data management, encouraging data sharing, and exploring new technology solutions.<sup>10</sup> The Evidence Act also tasked OMB to provide implementation guidance, including related to the OPEN Government Data Act, which calls for data to be open by default and establishes the CDO role.

In 2022, over half of CDOs reported that they did not have enough guidance from OMB to implement key OPEN Government Data Act provisions – but in 2023, that dropped to 37%. However, when asked to write in what additional guidance would be helpful to be successful in the CDO role, 65% of CDOs who wished for additional guidance pointed to guidance related to Title II activities or clarity of the CDO role.

**FIGURE 8: Many CDOs want additional Title II guidance from OMB**

*CDOs specifically cite the need for guidance to open data and clarity of responsibilities*



SURVEY QUESTION: *What additional guidance would be helpful for you to be more successful in your role?*

Related to the CDO Council, there is a recognized need for coordination of CDO activities and competencies within the CDO community. Approximately one-third of CDOs called for guidance on best practices, and many expressed a desire for the Council to support network-building efforts. Certain areas where CDOs indicated room for the CDO Council to support coordination efforts included training opportunities (19%) as well as a variety of resources the CDO Council could help facilitate, ranging from collaboration on policy development and connections with subject matter experts and mentors, to data sharing across the CDO community and shared contracts.

### Future guidance needs to align with existing regulations and laws related to data governance

The majority (74%) of CDOs said that there were no examples of conflicting statutory or legal authorities that create challenges for effectively implementing your CDO mission. However, some CDOs described legal data sharing barriers and prohibitive costs related to the Paperwork Reduction Act to be in conflict with the CDO mission – issues also raised by CDOs in 2022.

The lack of clarity regarding the CDO role was reiterated when asked about conflicting authorities. CDOs noted that laws and regulations pertaining to data management often directed matters to the CIO, which blurred the relationship between these positions. Notably, 7% of CDOs that indicated the existence of conflicting authorities pointed to AI guidance as an emerging issue.

## Leveraging Innovative Technology to Support CDO Mission

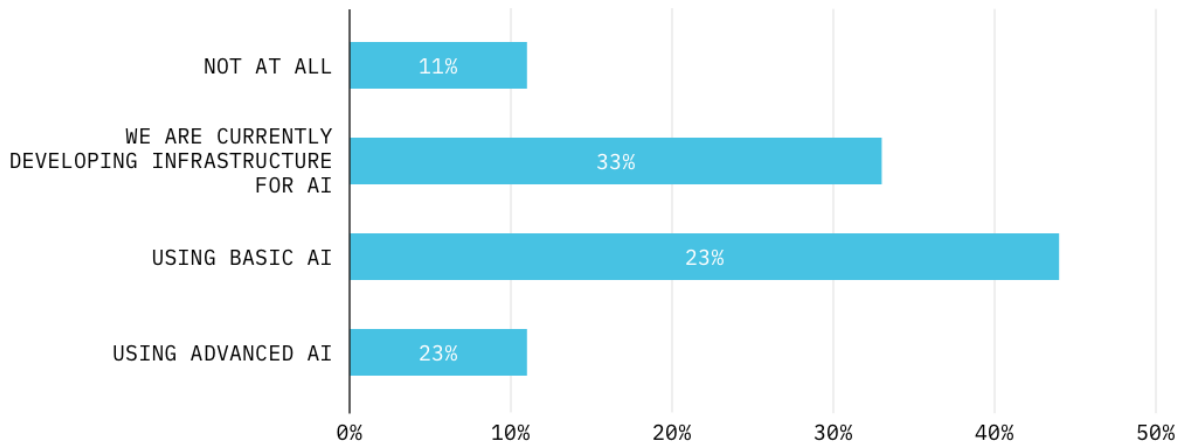
Rapidly evolving technology and the role of data is of increasing interest and concern for the federal government. Since the passage of the Evidence Act, the Executive Branch has taken various steps to develop guidance and prepare for the development and deployment of technologies like artificial intelligence (AI) to support agencies' missions.<sup>11</sup> These technologies are trained on large quantities of federal data, introducing a need to understand how CDOs are interacting with these efforts.

### The role of the CDO in innovative technology is growing

The 2023 survey included a new section exploring the role of CDOs in adopting innovative technologies. The survey found CDOs are eager to implement emerging technologies like AI but need clear guidance on ethical implementation and governance.

In 2022, only 45% of CDOs reported responsibility with AI; in 2023, over half (55%) of CDOs reporting already using basic or advanced AI. Almost all (95%) CDOs are considering adopting AI in their organization in various capacities over the next year, including basic AI technologies (20%), generative AI (18%), and AI infrastructure advances (18%).

**FIGURE 9: CDOs are leveraging AI technology to carry out the CDO mission**



**SURVEY QUESTION:** *To what extent is your organization currently using AI?*

Certain agencies have also developed an organization-wide AI Strategy to guide a coordinated approach to the technology. Though a quarter of CDOs indicated their organization did not yet have

an AI Strategy, of those that did, 63% of CDOs were at least “somewhat” involved in development, with 44% of CDOs “very” or “completely” involved.

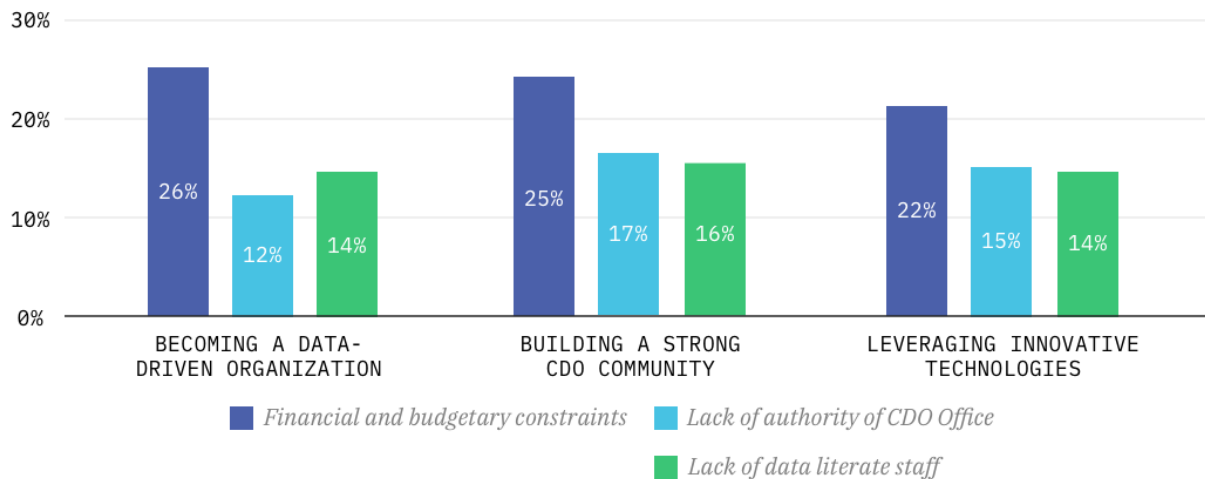
Notably, while many CDOs do not hold additional positions (44%), the most common additional title is AI official (19%). As emerging technologies and AI become a larger part of agencies’ mission success and the role of the CDO expands to include more responsibility related to emerging technologies – specifically as agencies respond to the October 2023 Executive Order directing all agencies to establish Chief AI Officers – further clarity of the CDO role with AI will be critical.<sup>12</sup>

## Barriers Hindering Mission Success Are Consistent

CDOs were surveyed across key functions that support mission success: becoming data-driven organizations, building a strong CDO community, and leveraging innovative technology. Across each function area, CDOs identified barriers to success, consistently citing certain challenges.

Each of these functions are impeded by financial and budgetary constraints, lack of authority to implement improvements, and data literacy gaps. Financial and budgetary constraints was the most cited barrier by far, with a quarter of CDOs identifying it as one of the top three challenges in each function category.

**FIGURE 10:** Budget constraints, authority limits, and staff skills are key challenges to CDO success



SURVEY QUESTION: Select the top three barriers you face

CDOs also cited additional barriers. Challenges related to data governance were identified most often following the top three barriers featured above, consistently reported by 11% to 12% of CDOs per category. CDOs reported the most variety in barriers related to becoming a data-driven organization, including 11% reporting a lack of clarity about the value of data. A lack of clear guidance was a more prominent challenge to the success of the CDO community at-large (11%) and to the use of innovative technology to support the CDO mission (16%) than compared to becoming a data-driven organization (6%). This shows while budget constraints, authority limits, and staff skills are consistently top barriers for CDOs, CDOs also face distinct challenges related to transforming organizations, community building, and AI adoption.

# Key Insights

The 2023 Federal CDO Survey revealed factors enabling and hindering CDO missions across federal organizations of various size, capacity, and mission areas. Key themes and findings illuminate an opportunity for Congress and the White House to better support CDOs to strategically leverage government data.

- **CDO functions are organized inconsistently across agencies.**

Although one-third of CDOs report to CIOs, 37% wrote in a variety of other reporting positions, indicating inconsistent organizational structures. This may reflect unique agency needs but introduces challenges for collaboration, standards, and resources.

- **There is an opportunity for a closer CDO-CIO relationship.**

Though most CDOs (56%) find their missions highly complementary, over half of CDOs reporting to CIOs find the reporting structure challenging. In 2022, two-thirds of CDOs (66%) indicated the reporting structure between CDOs and CIOs was beneficial – double the percentage of CDOs that found the relationship beneficial in 2023 (33%). Laws directing functions of data management to CIOs further cloud responsibilities. Clarifying CDO authorities and the relationship with CIOs can strengthen data and technology use.

- **The CDO role is still relatively new in many agencies, though CDOs have extensive federal experience.**

Over half of respondents' (52%) organizations have only had a CDO role for three to five years, indicating the importance of the Evidence Act for establishing the formal data governance function in many agencies. However, 89% of CDOs reported having worked with the federal government over 10 years. This expertise related to federal processes lends itself well to a position that aims to improve management and governance of data assets to improve decision-making. Continued support and guidance will be important for CDOs as the organizations' data function matures.

- **Data governance and strategy are central to the CDO mission.**

Top priorities include developing and implementing data strategy or governance (28%), facilitating data-driven decision making at all levels (21%), and improving data infrastructure (20%). Progress has been made related to data culture, governance, and analytics, but data maturity remains relatively low. Guidance and clear authorities can help CDOs achieve mission success and build maturity.

- **The CDO role is expanding to include emerging innovative technologies.**

Over half of CDOs are already using basic or advanced AI (55%), and almost all CDOs are considering adopting AI in their organization in various capacities over the next year (95%) – up from 45% having no AI responsibility in 2022. However, federal guidance related to AI implementation is unclear. Careful consideration of the CDO role with AI and clear guidance

for ethical implementation is needed. As emerging technologies and AI become a larger part of agencies' mission success, specifically as agencies respond to the October 2023 Executive Order directing all agencies to establish Chief AI Officers, further clarity of the CDO role with AI will be critical.

- **Resources, skills, and authority are persistent barriers.**

Key barriers across the function areas explored in the survey include limited budgets and data literate staff as well as unclear CDO authorities. These challenges continue from previous years and must be addressed to enable CDO missions and realize the vision of the Evidence Act.

# Recommendations & Next Steps

Chief Data Officers are critical to achieving the vision of the Evidence Act and fully leveraging the value of data for decision-making across the federal government. The 2023 federal CDO survey identifies various ways CDOs are enabling mission success across their organizations as well as reveals areas where CDOs require more guidance and support.

The following recommendations are based on the 2023 CDO Survey findings:

## 1. Clarify CDO authorities and responsibilities to optimize organizational data and technology capabilities.

The establishment of the CDO position designated a single individual to oversee the management and governance of an organization's use of data, reducing duplicative or contradicting efforts to leverage federal data and streamline organizational data strategy. However, the growing number of data- and technology-related officials in agencies suggest the CDO position could benefit from clearly defining its responsibilities relative to other roles. The relationship between CDOs and CIOs, in particular, introduces levels of complexity and confusion for CDOs, CIOs, and potential data users alike. More clarity of the CDO function across agencies will improve the ability to compare agencies' data capacity, strengthen collaboration between CDOs, and improve effectiveness of future government-wide guidance or regulations. OMB should provide clear guidance supporting implementation of the OPEN Government Data Act, specifically identifying standardized roles and responsibilities of the CDO. Organizational leadership should carefully consider placement of the CDO position to reflect the necessary authority to carry out the identified roles and responsibilities that fit the organization's unique data needs.

## 2. Provide training, professional development, and change management support to enable maturity of the CDO role and data governance functions across federal agencies.

The large quantities of data and coordination of a governance approach across organizations cannot be effectively carried out without appropriately trained staff. Consistency in data management across government agencies will necessitate consistency in data skills, broad data literacy, and leadership. Providing cross-agency training and professional support can help build data culture across organizations and ensure CDOs are adequately prepared to carry out their functions. The CDO Council should continue to prioritize cross-government training and the development and dissemination of shared resources. Further, CDOs and agency leadership should



leverage the Office of Personnel Management’s data science occupational series, established in 2021, to ensure adequate, consistent competencies across CDO and data-related positions.

### **3. Equip CDOs with resources and staff needed to fully execute their mission of improving data infrastructure, governance, analytics, and strategic data use.**

Increased funding is critical for CDOs to build and maintain a mature data function within agencies. Modernization of data systems, appropriate staffing, and advanced analytics all require ongoing, consistent funding streams to successfully carry out the CDO mission. Congress should consider opportunities to direct further resources to support data management and governance across federal agencies, including direct appropriations or allowing funding flexibilities and set-asides. Alignment of CDO placement across agencies can support Congressional appropriations to CDOs. Department or agency leaders should also prioritize the CDO function when planning for and distributing funding if the CDO function does not have direct appropriations. Continued advocacy from outside of the government is needed to raise awareness of the value of CDOs as a core government function and to call for consistent resources to support these efforts.

### **4. Develop clear ethical guidelines and governance frameworks to support CDOs in responsibly adopting emerging technologies like AI in service of their public mission.**

As efforts to develop and adopt AI technologies across the federal enterprise continue, consistent standards are key. AI can improve agency efficiency by streamlining various processes while also posing various risks. CDOs need to have clarity regarding their role with this technology, establishing clear responsibilities to ensure accountability and safe adoption of AI. OMB should ensure CDOs are included in relevant AI guidance because of their role in data policy and governance, and ensure there is no conflict with existing guidance related to the CDO function.

The Data Foundation’s fourth annual Federal CDO Survey reveals continued enthusiasm and focus from the CDO community to generate, manage, and use data to improve government function for mission execution. CDOs are integral to building the data culture that enables a data-driven organization and broader data community across the government. To be prepared to adopt rapidly-evolving technologies, keep pace with other sectors, and provide the best services for the American public, CDOs require adequate support from Congress, the Executive Branch, and leaders across the federal government. In 2024, it will be imperative that CDOs, and their respective data management and governance activities, be treated as a core agency function and a foundation for enabling mission success.

# Appendix: Survey Methodology

The findings presented in the report relate to data collected through the Data Foundation’s fourth annual government-wide survey of federal Chief Data Officers (CDOs). The sample frame was determined based on role and authorities described in the OPEN Government Data Act – Title II of the Foundations for Evidence-Based Policymaking Act of 2018 (Evidence Act), P.L.115-435, Sec. 3520(c). The law required all 24 Chief Financial Officers (CFO) Act agencies to designate a Chief Data Officer within each organization. Since the passage of the Evidence Act, various agencies not required to establish a CDO have established a CDO-equivalent position. To understand data management and governance activities more holistically, the sample frame includes all 24 CFO Act agency CDOs as well as agency-level and bureau-level data leadership, limited to two levels below the highest-level data officer based on agency organizational charts. Certain CDOs have dual titles, such as Chief Data and Artificial Intelligence Officers (CDAOs), and were also included in the sample frame for their CDO responsibilities. The sample frame also includes Statistical Officials (SOs), as Title II of the Evidence Act delegates the CDO functions to SOs at 3520(d).

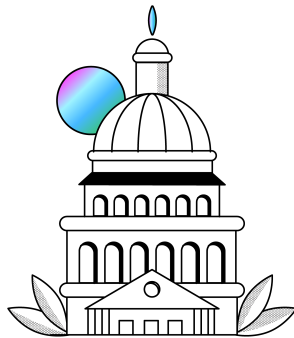
To compile an inventory of known federal CDOs and SOs that fit within the scope of the identified sample frame, the Data Foundation primarily used Leadership Connect – a directory of federal employees – as well as agency websites, social media, and Data Foundation networks. The final sample frame consisted of 201 CDOs, SOs, and individuals performing duties similar to CDOs.

Using the survey platform IdSurvey, the Data Foundation invited 201 identified CDOs, SOs, and CDO-like individuals to participate in a web-based survey, with an option for participation by phone when firewalls prevented access to the web-form. The initial invitation was sent September 9, 2023, followed by three reminder emails to non-respondents. In addition to email outreach from the survey platform, Data Foundation staff contacted CDOs by phone for two rounds of additional non-response follow up. The survey was also mentioned during Federal CDO Council activities to encourage participation, once directly prior to survey launch and one prior to survey close. The final response rate was 13.4%.

Additional insights and research conducted by report authors and Data Foundation staff supplemented the survey findings.

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