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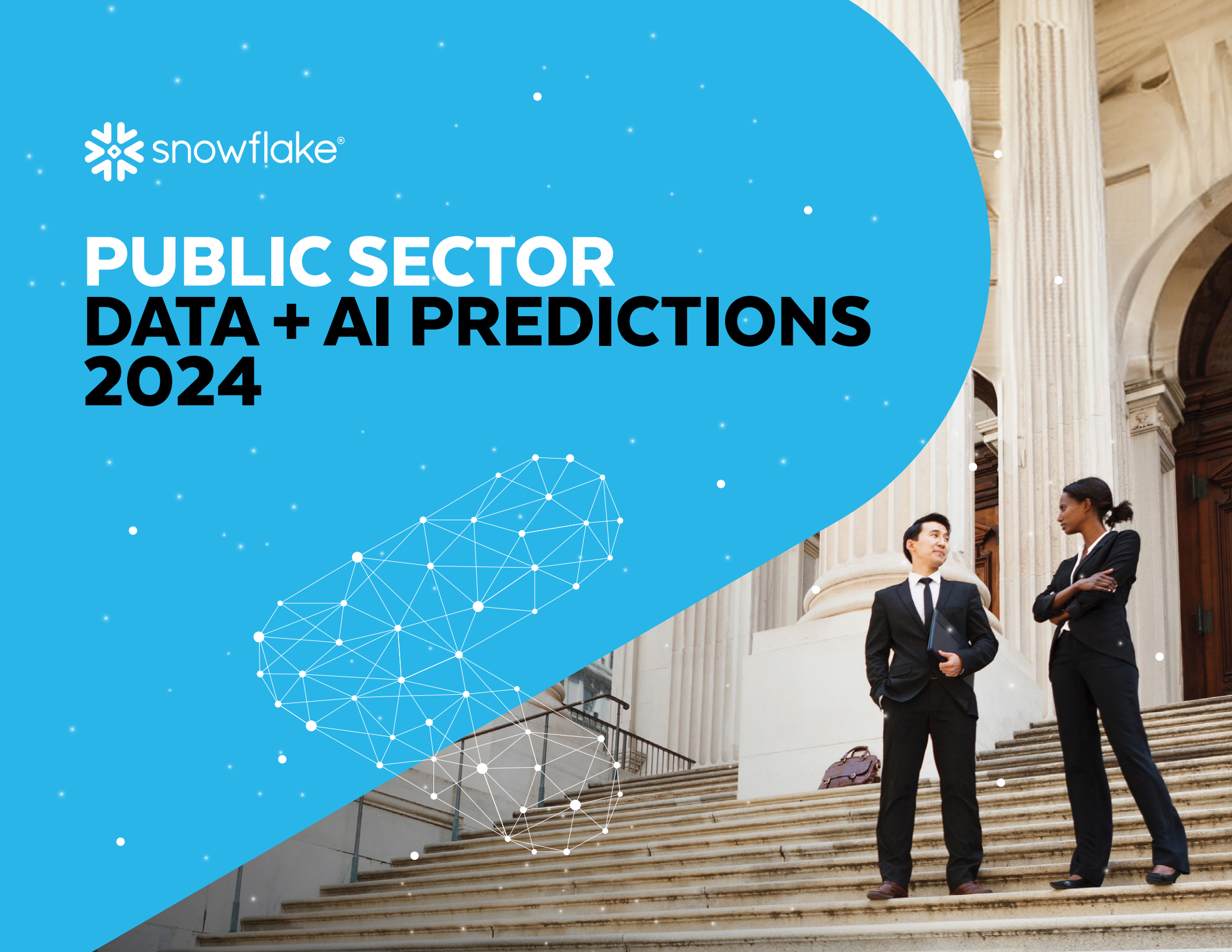
PUBLIC SECTOR DATA + AI PREDICTIONS 2024



Governments collect more data than any other type of entity on the planet. Yet their ability to use data to serve citizens more effectively has always been limited. Regulatory compliance, budgetary constraints, reliance on legacy systems and internal resistance to change all play a role. That's why when it comes to adopting new technologies, public agencies tend to lag the private sector by 18 to 24 months — and often longer.

In the future, we expect to see that adoption lag time begin to shrink due to the surge of large language models (LLMs) and the enormous potential of generative AI (gen AI). The undeniable efficiencies presented by AI, coupled with changes in policy guidance and public sentiment, will likely compel government and education organizations to embrace new technologies more quickly than at any time in recent memory.

To learn more about the impact AI and other developments are expected to have in the coming year, we sat down with our in-house experts to hear their predictions. In our report **Data + AI Predictions 2024** we cover AI, cybersecurity and open-source technologies that will transform the broader landscape in the years to come.

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—JEFF FRAZIER,
Global Industry GTM Lead, Public Sector, Snowflake

IN THIS REPORT, WE FOCUS ON WHAT'S NEXT FOR THE PUBLIC SECTOR. HERE ARE OUR EXPERTS' FIVE IMPORTANT INDUSTRY PREDICTIONS FOR 2024:

1. The public sector will embrace AI to solve long-term problems — eventually.
2. Agencies will accelerate cloud migration and adopt data management platforms.
3. Governments will leverage policy-making as they reach data maturity.
4. Governments will organize data marketplaces to grow gross domestic product (GDP).
5. A robust data strategy will be needed for mission success.

"The biggest change we expect to see in 2024 and beyond will be how the public sector transforms its approach to knowledge management, and the role data will play in that transformation," says Jeff Frazier, Snowflake's Global Industry GTM Lead for Public Sector. "The key to success will be how agencies manage their structured, unstructured and semi-structured data, and how well they're able to apply generative AI to that data."

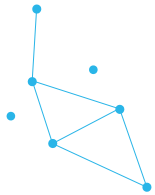
THE PUBLIC SECTOR WILL EMBRACE AI TO SOLVE LONG-TERM PROBLEMS, BUT ADOPTION WILL BE GRADUAL

Governments face many challenges that could be addressed almost immediately by the effective application of AI solutions when accompanied by the use of data management platforms. These are some of the biggest issues they would need to overcome:

- **Inability to respond quickly to citizen needs:** The public sector is overwhelmed with data, and traditional data management solutions (data warehouses and data lakes) are generally not up to the task. Agencies lack the technical resources or skills to manage all this information. Government personnel need the ability to query these mountains of data and find the right answers at the right time. In other words, they need a tech solution that "just works."
- **Siloed data that impacts decision-making:** Far too often, the data government leaders need to make expedient and informed decisions is unavailable or scattered across multiple systems. Data sharing is often ad hoc and driven by the need to put out the biggest fires first. Interagency data sharing and cross-organizational collaboration are almost nonexistent..
- **Increasing cybersecurity threats:** U.S. federal agencies reported more than **32,000 information security incidents** in 2021, according to the U.S. Government Accountability Office (GAO). A **public sector cybersecurity survey** reports that hackers account for more than half of security threats for government agencies, followed closely by careless insiders. Top priorities for U.S. agencies are improving investigation and remediation capabilities, and removing barriers to sharing information between public and private entities.

Effective data management, coupled with AI, has the power to unlock the information needed to serve the public good. For example, to inform policy decisions, an LLM-trained chatbot can tunnel through mountains of otherwise difficult-to-access social and economic data to locate answers quickly, and make them accessible to all — not just those with technical skills.

When the right people have equal access to data, decision-making can be democratized and determinations reached in near-real time. And when managed in a single secure location, data can be more easily protected, ensuring that *only* the right people have access to it.



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Agencies will accelerate cloud migration and data modernization

Before public agencies can take full advantage of AI, they will need to get their data houses in order. That involves accelerating their cloud migrations and adopting the right data management platforms.

In 2022, the U.S. federal government spent **nearly $110 billion on technology**, but only $12 billion of that went to cloud services. More than half was spent on maintaining legacy on-premises systems, ranging in age **from 8 to 51 years old**. The good news is that's already starting to change as more and more world governments migrate their mission-critical workloads to hyperscale cloud service providers.

According to Frazier, cloud and multi-cloud adoption in the public sector will grow significantly over the next three years, due to pressure from constituents to adopt more consumer-friendly platforms and the compelling number of use cases for AI adoption.

"We're going to see huge growth in technology modernization efforts by governments, driven by cost efficiency, policy and compliance issues," says Frazier. "Agency CIOs are capitalizing on and prioritizing around data. That will be their key focus in 2024."

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Governments will need to prepare data for AI

This modernization strategy will center around investing in cloud-based data platforms to integrate and scale agencies' data/tech stack. Investing in the right platforms in 2024 will help the public sector prepare to fully leverage gen AI and LLMs in 2025 and 2026. Before that can happen, however, the data needs to be "**AI-ready.**"

Today, an estimated **80 percent of analytic professionals' time** is spent taking data that is unstructured (for example, text documents, images, video and chat logs) or semi-structured (for example, emails, XML docs and web pages) and putting it into a form that can be digested and analyzed by AI. The ability to take full advantage of generative AI tools requires clean, usable data. Because of that need, Frazier expects there will be a big focus on modern data platforms that enable agencies to ingest and manage large volumes of unstructured and semi-structured data.

"Data is a predicate for AI to be successful," says Frazier. "Data acquisition and data management platforms will be high priorities for the public sector over the next two to three years, for two reasons. One, that's really the only way agencies can keep up with consumer expectations; and two, the cost efficiencies are undeniable. There's just too much public pressure for agencies not to modernize their data stack and data architecture."

With more effective data management platforms in place, gen AI and LLMs can help the public sector manage, organize and mobilize internal data in myriad ways to improve efficiency, solve problems, bridge the skills and talent gap, and deliver more effective services to their constituents.

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GOVERNMENTS MUST BUILD TRUST IN FIRST-PARTY DATA.

While the capabilities of LLMs are impressive, they come with some significant downsides as well. Gen AI models sometimes hallucinate — meaning they generate answers that sound plausible but aren't true. For example: In spring 2023 two attorneys in New York State used ChatGPT to research case law, then submitted briefs to the court that contained references to cases that did not exist. (The attorneys were later **fined by the court**.)

AI services have also been accused of (and sued for) copyright infringement. That's in part because the LLMs that drive tools like ChatGPT were trained on billions of pages of information scraped from the internet. It's also partially a result of how such AI services are designed. LLMs work like auto-complete on steroids — they're brilliant at predicting which words are likely to appear near each other in a sentence, but aren't designed to check whether those sentences have any basis in fact.

When a private company relies on what turns out to be an AI hallucination, it can be a mere embarrassment. If a public sector agency does it, it could be a major disaster. Agencies need to understand the original sources of the data they use to train LLMs. The best way to do that is to rely solely on their own, first-party data. Even then, they will need to verify any assertions made by an AI application before publishing or acting on them, as Frazier notes.

"You need to start with a corpus of data whose provenance is not in question, that you know has been vetted, and that's your internal data," he says. "The opportunity for governments is to use AI to organize and package that data to make it useful for themselves and the ecosystem at large."

Governments must find ways to bridge the talent gap

While the Biden administration has made **a strong push toward recruiting top-tier AI talent**, qualified data scientists are **in incredibly short supply**, and the demand for them is projected to grow 35 percent by 2032, according to the **U.S. Bureau of Labor Statistics**. The government will also have to compete with private industry, which can offer higher salaries and greater perks to the most qualified candidates.

"There are a couple of demographic shifts going on in government," says Frazier. "One is that people are aging out and leaving the government, creating a brain drain. The other is that it's hard to bring younger people in because of the economic disparities between public and private sectors. The most highly skilled people are going to get jobs in private enterprise. The government has a recruiting problem, which makes any products that make implementing AI easier much more attractive."

Making AI "easy" is going to be critical, especially in the nearer term. As a result, agencies hoping to jump-start their AI adoption efforts will turn first to easy-to-use software-as-a-service (SaaS) solutions, until they can recruit enough data scientists to create their own custom AI and machine learning applications. And they'll use them initially to handle common, back-office operational functions like workflow automation, financial reporting or onboarding new employees.

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Governments must work toward a more digital future

In addition, image recognition and natural language processing will enable governments to quickly digitize massive volumes of critical information, much of which is still stored and delivered on paper. For example: The U.S. Air Force Air Mobility Command has already converted hundreds of pounds of paper documents that used to travel inside the cockpits of its planes into "electronic flight bags" — handheld devices that contain instructional and navigational manuals, as well as technical orders — saving **more than $4 million a year** in fuel costs and printing.

AI tools can greatly accelerate knowledge management, slicing through bureaucratic red tape and making agency policies and procedures easier to understand and implement. Among many other benefits, making information more accessible could allow ground crews to get planes in the air more quickly, speed the ability of auditors gauging the effectiveness of government programs and help administrators respond more quickly to constituent requests. Besides helping the government become more humane and responsive, these tools can also help alleviate talent-skills gaps.

But perhaps the most important public sector application of AI will be detecting and preventing fraud, waste and abuse in government programs. Many such efforts are already underway.

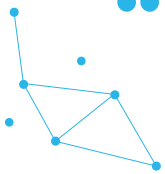
In January 2023, for example, the U.S. Department of Health and Human Services (HHS) initiated a pilot program designed to detect fraud within the more than 1 million transactions analyzed daily by **the Centers for Medicare and Medicaid Services**. HHS has also begun implementing computer vision to accelerate the FDA's ability to detect counterfeit drugs. Other public sector agencies employing AI for fraud detection include the **Securities and Exchanges Commission, the IRS and the Treasury Department**.

GOVERNMENTS WILL LEVERAGE DYNAMIC POLICY-MAKING AS THEY REACH DATA MATURITY

As agencies gain expertise and experience in data management and AI, they will increasingly rely on it for data-driven decision-making. This will lead to greater democratization of the decision-making process within organizations.

This will be enabled in the U.S. federal government by SaaS solutions achieving **FedRAMP** (Federal Risk and Authorization Management Program) certification. By creating transparent standards and processes for security authorizations, FedRAMP allows agencies to deploy cloud technologies using government data in a safe and secure way.

In addition, cloud-based software solutions that were once only accessible to private enterprise will increasingly become part of the public sector toolkit, allowing agencies to address problems previously unaddressable due to security and compliance issues. The **FedRAMP marketplace** now features more than 400 services that have been classified as FedRAMP-authorized, FedRAMP-ready or in progress. Approved solutions range from traditional office suites to online collaboration tools, data storage, threat detection, analytics platforms and much more.



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POLITICAL HEADWINDS AND TAILWINDS WILL SWIRL AROUND AI.

AI usage is facing increasing scrutiny from governments around the world. For example, the European Union is currently reviewing guidelines for generative AI. The **AI Act** would identify which AI-based activities pose an unacceptable risk to safety, and provide rules around how to assess and manage high-, medium- and low-risk activities.

The White House's recently released **Executive Order (EO) on Safe, Secure and Trustworthy Artificial Intelligence** helps clarify how agencies can legally and ethically employ AI to provide services to constituents, establishing appropriate guardrails and providing guidance for federal agencies. The broadly scoped EO mandates that the Department of Homeland Security (DHS), the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST) and other agencies develop principles and best practices to mitigate potential harms and maximize the benefits of the technology.

At the same time, Congress is pushing back against perceived monopolistic practices by cloud providers by mandating the adoption of multi-cloud solutions. Introduced in September 2023, **the Multi-Cloud Innovation and Advancement Act** enjoys bipartisan support and is anticipated to be taken up for Congressional review in 2024.

"Mandating multi-cloud solutions will enhance the ability of different agencies to work together," says Frazier. "There will be a lot more pressure put on proprietary business models to permit interoperability among platforms, which should make interagency data sharing and collaboration easier to achieve. I see this kind of legislation also happening in the EU, Asia Pacific and Latin America as well."

GOVERNMENTS WILL ORGANIZE DATA MARKETPLACES TO GROW GDP

Governments are both the largest producers and biggest consumers of data. Everything from weather predictions, census data, financial information, property ownership records, demographic trends, statistics around employment, education and energy production, and much more is collected and stored by **one agency or another**. This data has tremendous untapped value.

For example: In addition to directing how the U.S. government distributes **nearly $3 trillion annually** in federal benefits, **U.S. census economic data enables private businesses** to plan investments in new locations, understand customer demographics, predict population growth patterns, and undertake many other strategic business-building activities — all at no added cost.

In 2024, as public sector agencies gain data maturity, governments will realize the value of this data and begin to establish marketplaces where this data is sold to private enterprises. "The largest producers and consumers of data are the governments of the world," says Frazier. "A lot of consumer understanding and financial modeling comes from government data. The key opportunity for governments is to organize and package that data so it can be useful for themselves and the ecosystem."

Specifically, national governments will realize the value of selling their data in marketplaces for the private sector. Achieving data sovereignty will grow GDP and boost economic growth overall.

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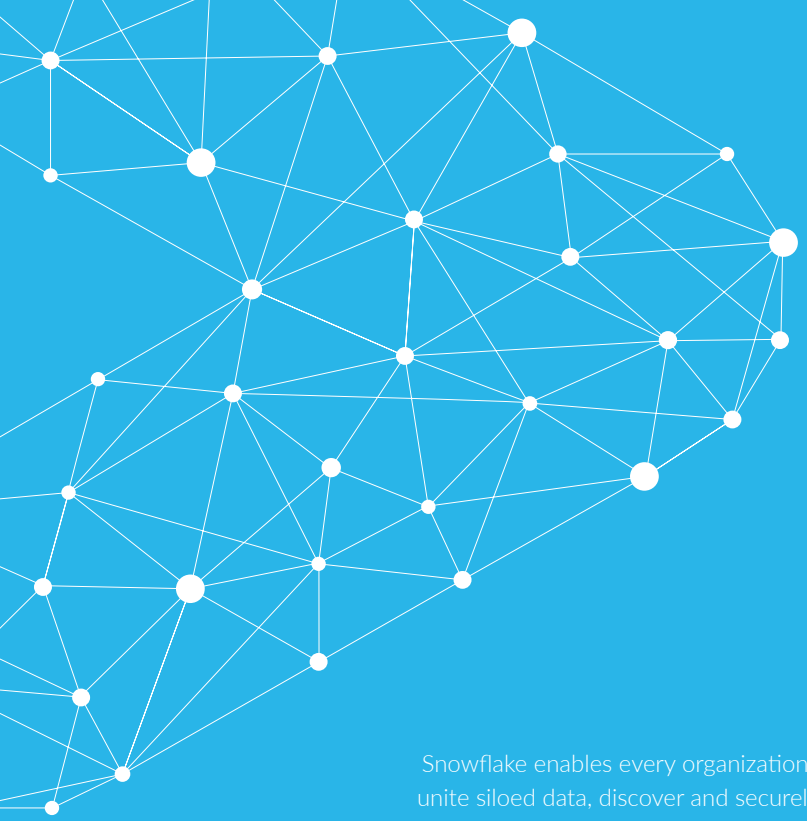
MISSION SUCCESS WILL REQUIRE A STRONG DATA FOUNDATION

Public sector organizations that want to take advantage of the benefits of AI need to be in control of their data. They need expertise in getting data AI-ready and extracting insights from unstructured data, which accounts for roughly 90 percent of the information they collect. And they need to be able to organize that data and make it useful for their employees, their constituents and the ecosystem at large.

That warrants investing in a modern cloud-data platform built to handle such use cases, preferably one that is multi-cloud and offers full visibility and governance control, and that can be right-sized to support the full variety of perpetually constrained public sector budgets.

A strong data foundation can help public sector leaders modernize their data infrastructure and collaborate with partners, policymakers and stakeholders in a secure and scalable way. And with a cloud data platform, government organizations can share and collaborate with data within and across agencies — and be prepared to fully leverage the power of gen AI and LLM to serve the public good.

Learn more about how the data cloud can help public sector leaders prepare for what's ahead.



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ABOUT SNOWFLAKE

Snowflake enables every organization to mobilize their data with Snowflake's Data Cloud. Customers use the Data Cloud to unite siloed data, discover and securely share data, and execute diverse artificial intelligence (AI) / machine learning (ML) and analytic workloads. Wherever data or users live, Snowflake delivers a single data experience that spans multiple clouds and geographies. Thousands of customers across many industries, including 647 of the 2023 Forbes Global 2000 (G2K) as of October 31, 2023, use the Snowflake Data Cloud to power their businesses.

Learn more at snowflake.com