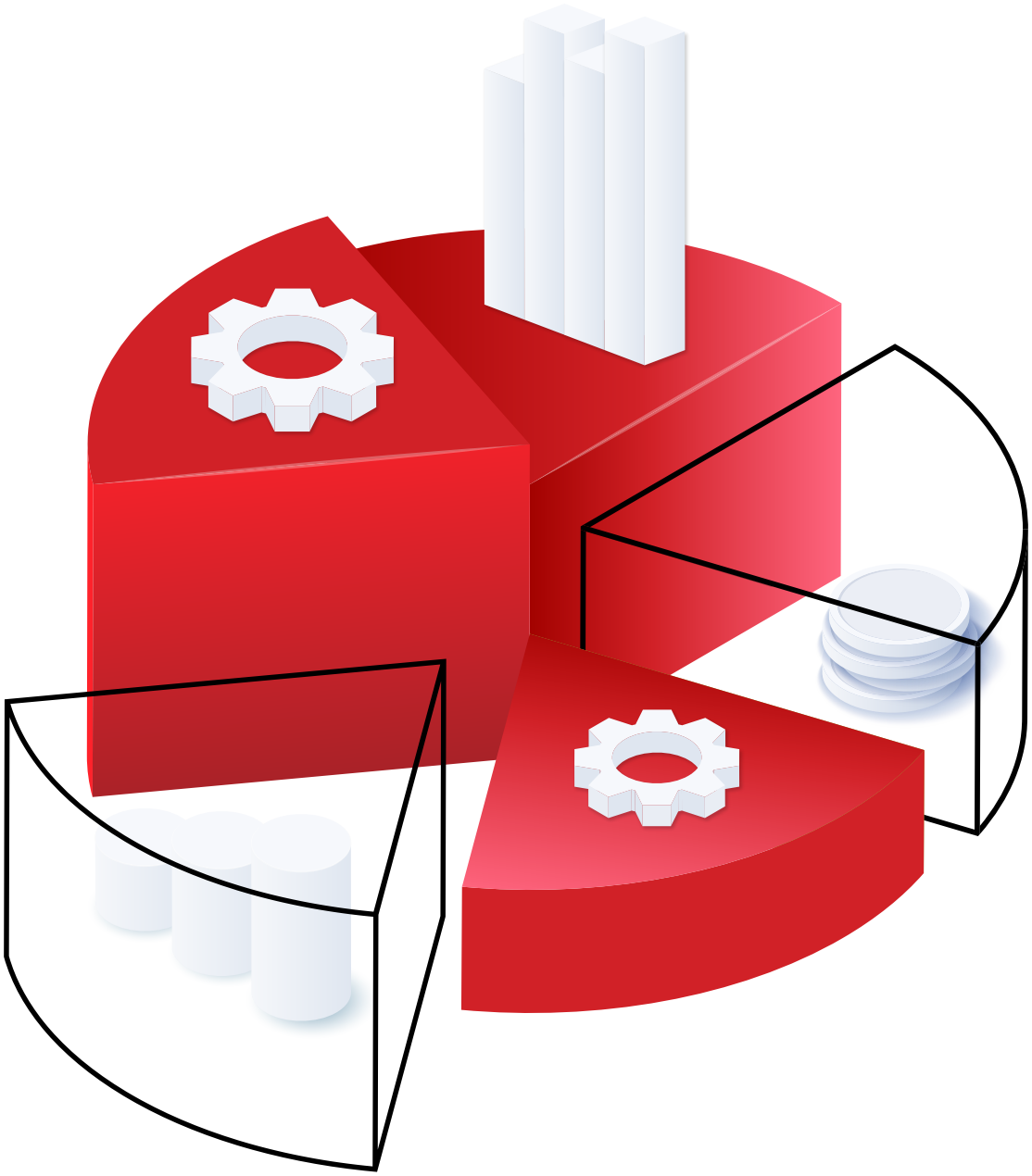

Trends in Data Management

A 2024 DATAVERSITY® Report

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1. EXECUTIVE SUMMARY

Today's economy is driven by data, with artificial intelligence (AI) and digital commerce being household concepts. Notable in this year's survey is that the top-of-mind concerns have less to do with the transformational power of AI and digital technologies, but more with concerns about how to govern the data supporting these technologies and to ensure high-quality data. Data governance and the need for cross-functional, data-literate teams managing enterprise data is a strong theme throughout this year's survey. Key highlights from responses include:

- 63% of respondents feel that their organization treats data as a corporate asset.
- Gaining insights through reporting and analytics was the top driver for data management, with 72% of the responses.
- The number of data silos was the top concern, with 68% of respondents listing it as an issue in their organization.
- The top initiatives planned in the next 1-2 years are data governance (39%) and data strategy (37%) as organizations look to drive more value from data while maintaining trusted, secure information assets.

2. RESEARCH AND DEMOGRAPHICS

A. Scope of Research

DATAVERSITY®'s *2024 Trends in Data Management Survey (TDM)* offers insights into businesses' directions and concerns as data management evolves. This report represents the sixth in a series started in 2019.

The overall structure and methodology of the 2024 study have remained like those of previous years from 2019 onward. When relevant, we will compare previous Trends in Data Management surveys with 2024's results to determine long-term trends.

This year's survey had a total of 334 respondents from 45 countries across the globe. Geographically, 54% of those surveyed came from the United States, followed by 9% from Canada, 6% from the United Kingdom (U.K.), 3% from Australia, and 3% from India.

Businesses of all sizes were surveyed, along with a variety of industries and roles. Most respondents worked in data governance positions. Additionally, a broad selection of industries was represented, including manufacturing, education, and retail.

This survey had 26 questions. Three of the questions were open-ended, with the remaining questions offering a selection of answers and instructions for some to check off all answers that apply.

The questions offering checked-off responses typically included an "Other (please specify)" box, with space available for a short description. Those comments will be included where relevant to the analysis.

Survey questions were sorted into 10 topics and were followed by spaces for additional comments. The sections are:

- General Demographics (four questions)
- Goals and Drivers for Data Management (four questions)
- The Current State of Data Management (four questions)
- Technology and Training (two questions)
- Data Governance and Metadata Management (three questions)
- Data Architecture (two questions)
- Data Modeling (three questions)
- Data Platforms and Storage (two questions)
- New Technologies and Trends (two questions)

DATAVERSITY recruited survey participants through an email campaign using the Data Education Month resources. Those who responded received links for the *2024 Trends in Data Management Survey*, and there was no time limit for answering the questions.

The 334 participants did not receive monetary compensation. Instead, they received the compiled preliminary results from the study. Please note that the survey's responses and comments represent only the views of these participants.

B. Principal Demographics

First, survey respondents answered a general question about their job title and country of origin. Then, they replied to three main demographic questions regarding their job function, their industry, and how many employees work at their company. We include more details on these below.

1. Job Function

Most respondents in the 2024 survey (and previous surveys) held data-centric positions [Figure 1]:

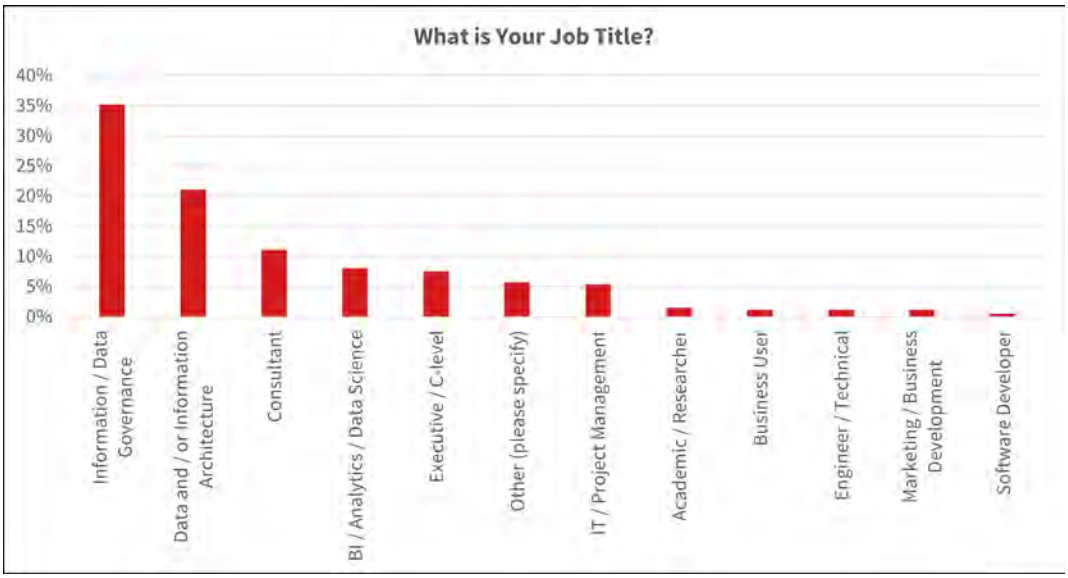


Figure 1: Job Title/Function

By profession, the top three career groups responding in 2024 are:

- Information / Data Governance: 35%
- Data and/or Information Architecture: 21%
- Consultant: 11%

The remaining roles spanned from business executives to academic/researchers to technical/ engineering roles.

2. Industry Representation

In 2024, over 40 industries were represented [Figure 2]:

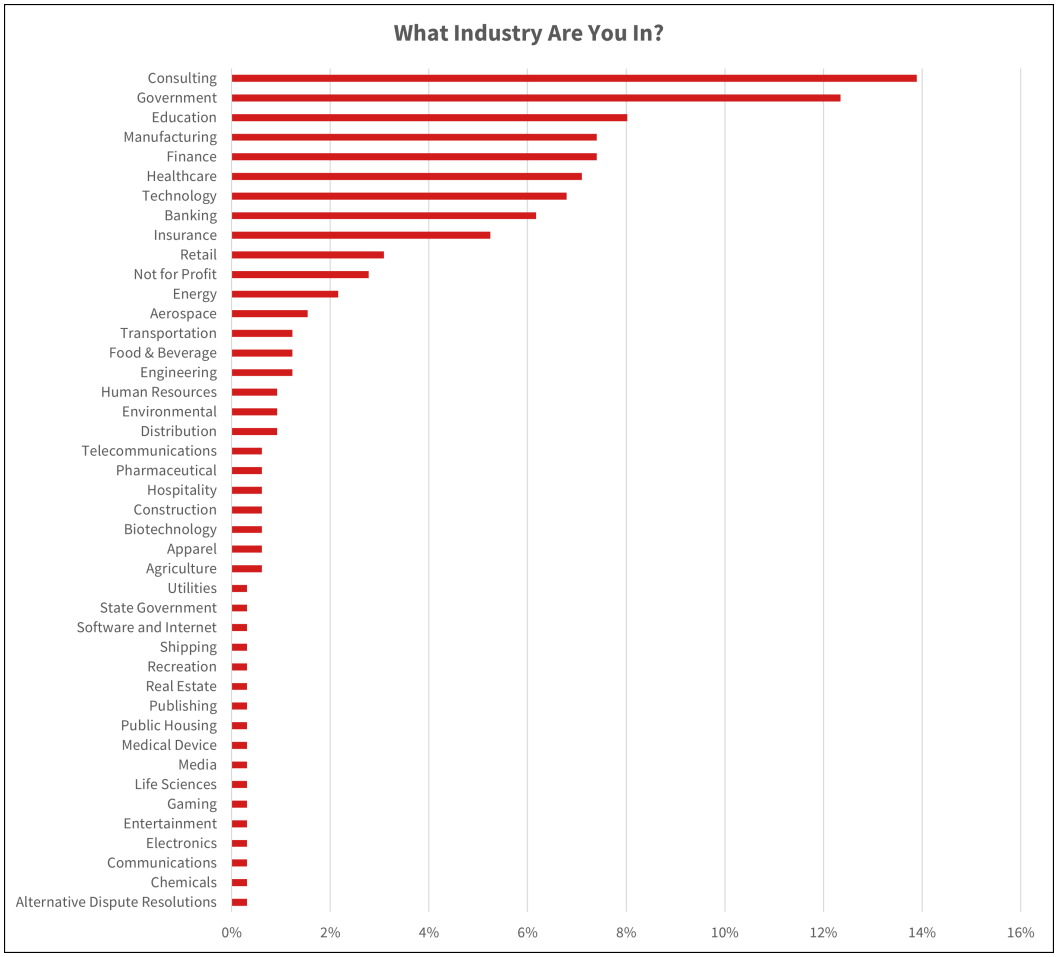


Figure 2: Industry

The top five sectors included:

- Consulting: 14%
- Government: 12%
- Education: 8%
- Finance: 7%

Results show that organizations of all types can benefit from data management. While historically data management was limited to industries such as finance and government, we are now seeing a wide distribution of industries of all types, from manufacturing to education to retail, and more.

3. Company Size

Although businesses of many sizes participated in the survey, over two-thirds of the respondents came from companies with more than 1,000 workers [Figure 3]:

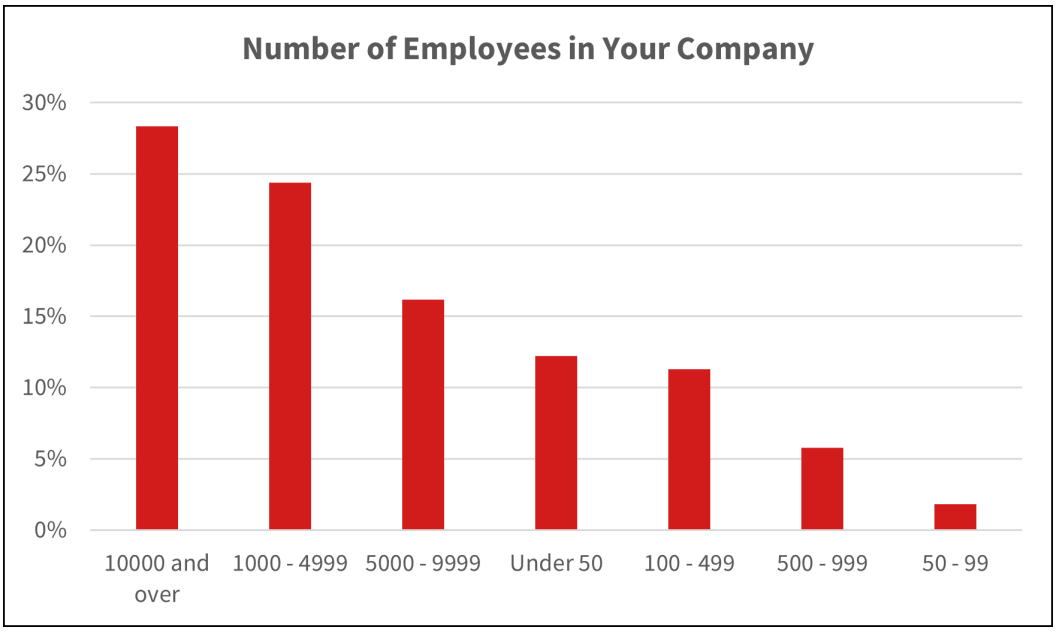


Figure 3: Number of Employees

The Top 3 segments consisted of the following:

- 10,000 and over: 28%
- 1,000 – 4,999: 24%
- 5,000 – 9,999: 16%

In the past, only the largest organizations were interested in and able to afford data management. Now, data management is of interest to and benefits organizations of all sizes. Also, the availability of tools and solutions, particularly those in the cloud, has helped make functionality available to small organizations, which was not possible in the past.

3. GOALS AND DRIVERS FOR DATA MANAGEMENT

DAMA International's "Data Management Body of Knowledge" (DAMA DMBoK) has the recognized industry-standard data management definition. It says:

> "Data management is the development, execution, and supervision of plans, policies, programs, and practices that deliver, control, protect, and enhance the value of data and information assets throughout their life cycles."

We affirm the authority of the DAMA-DMBoK as the definition used in this report. To gain an understanding of data management's importance, we asked four questions about goals, priorities, and challenges.

A. Goals and Drivers

To understand the importance of data management to organizations, the survey asked [Figure 4]:

- **"What are your main business goals and drivers for implementing data management in your organization?"**

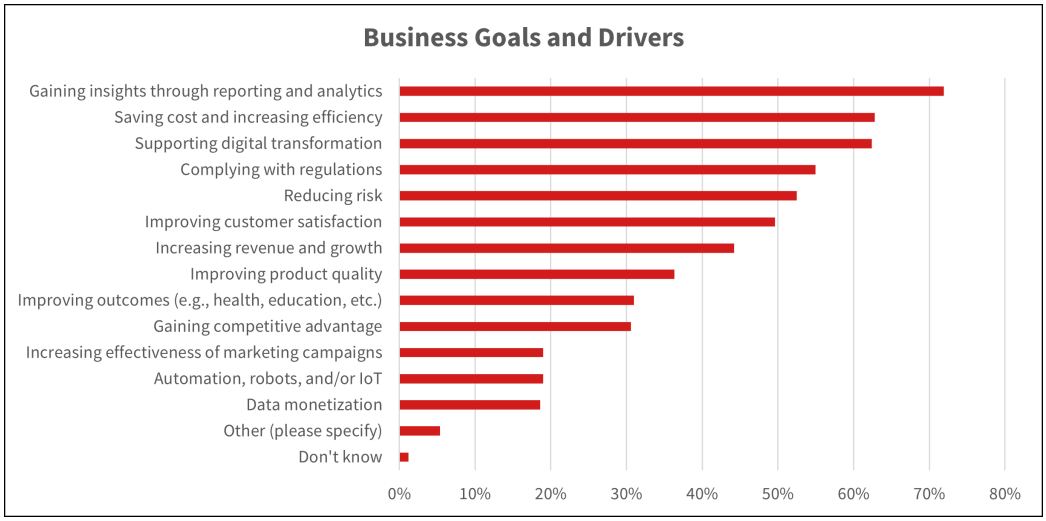


Figure 4: Business Goals and Drivers

The top five goals and drivers in 2024 present as follows:

- Gaining insights through reporting & analytics: 72%
- Saving cost and increasing efficiency: 63%
- Supporting digital transformation: 62%
- Complying with regulations: 55%
- Reducing risk: 52%

The goal of being a data-driven organization and making decisions based on data is once again the leading driver for data management, as it has consistently been year over year. Gaining insights through reporting and analytics is the number one driver for data management, with 72% of respondents listing this as a priority. More and more organizations are relying on business intelligence and advanced analytics to drive decision-making.

The use of data is not limited to reporting and analytics, however, and organizations are using data to improve their core business operations. The goal of saving cost and increasing efficiency was the second most popular response, with 63% of organizations choosing this response.

Not only does strong data management improve the efficiency of data operations as data teams spend less time on manual or inefficient effort, but perhaps more importantly, data improves the efficiency of business operations as well. Improved supply chain operations and pricing efficiencies are driven by strong product master data. Streamlined supplier onboarding and optimized purchasing can be driven by centralized supplier master data. Nearly every aspect of the organization can be made more efficient with a strong data foundation.

Similarly, digital transformation – the third top driver with 62% of the responses – is supported by a strong data foundation. The ways organizations look to use data in the digital world are as diverse as the organizations themselves. This push to become data-driven is only growing over time.

For example, as companies look to sell more product online, a strong product master data catalog is required. Organizations that are looking to optimize the customer journey in the digital world typically do so with a strong view of "customer 360" driven by customer master data and the digital thread of customer interactions.

Complying with regulations and reducing risk are top drivers that appear several times throughout the survey. With the rise in regulations, particularly around data privacy (e.g., CCPA, GDPR etc.), organizations are required to bolster their data management capabilities. For example, with data subject access requests requirements, organizations need to have full traceability of consumer data and need to increase their focus in areas such as data governance, metadata management, and master data management (MDM).

"Gaining insights through reporting and analytics is the number one driver for data management, with 72% of respondents listing this as a priority."

We also wanted to know how organizations value data and asked [Figure 5]:

- **"Does your organization treat data as a corporate asset?"**

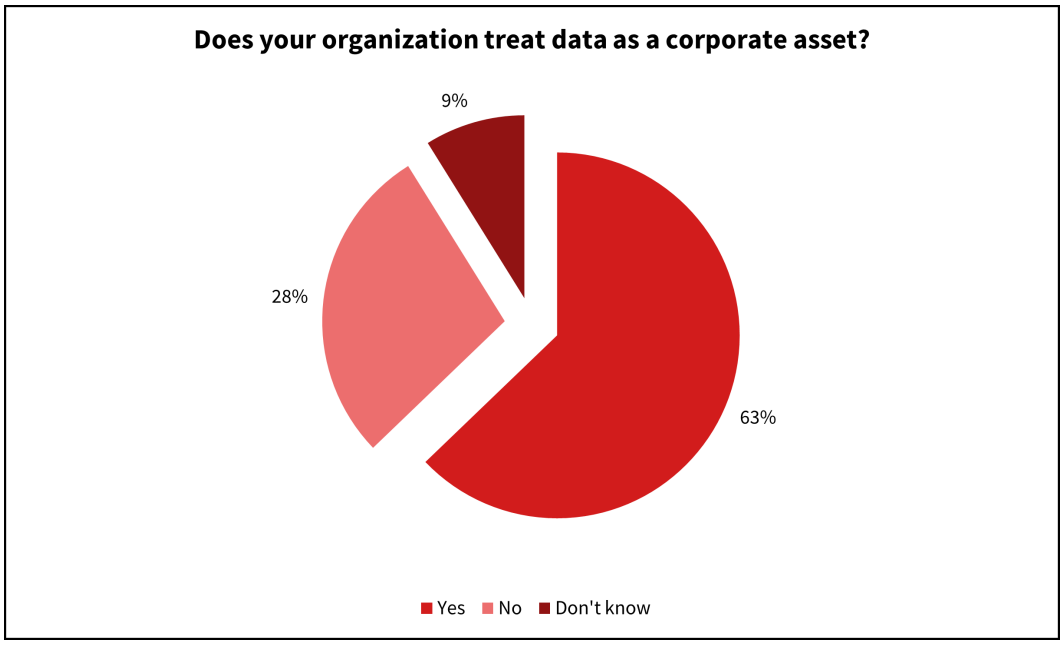


Figure 5: Data as a Corporate Asset

This survey question showed the following results:

- Yes: 63%
- No: 28%
- Don't Know: 9%

While it's clear from the previous question that there are numerous benefits to the organization from data management, only 63% of organizations feel their data is treated as a corporate asset and managed accordingly.

B. Challenges and Priorities

Everyone surveyed, including those who valued data as an asset, faced difficulties achieving data management goals. To gain a better understanding of these challenges, we asked participants the following question [Figure 6]:

- **"What are the biggest data management challenges faced by your organization?"**

Figure 6: Data Management Challenges

Participants chose the following top five challenges for 2024:

- Number of data silos: 68% (61% in 2023)
- Data literacy: 58% (57% in 2023)
- Data quality issues: 56% (55% in 2023)
- Lack of data governance: 51% (50% in 2023)
- Skills shortage: 41% (44% in 2023)

Data silos top the list as the number one challenge facing organizations. This issue has increased by 7% since 2023. Achieving an enterprise-wide "single version of the truth" is still only a vision for many. Silos are exacerbated by several factors: organizational reporting structures, software applications without interoperability, cultural factors, and more. The lack of data governance – which is the fourth top challenge – also contributes to the inability to resolve data management challenges at an enterprise level.

Data literacy and a shortage of skills appear as second and fifth on the list. As organizations look to become data-driven and make strategic decisions based on data, they need a strong team of business and technical stakeholders who understand how to analyze, manage, and govern the organization's data. While many organizations have started formal data training and awareness programs, skills and knowledge are still behind required levels.

Data quality is a common concern that appears throughout the survey. Without trust in data, the ability to make data-driven decisions is diminished. Without a strong data governance program, data quality is difficult to achieve.

To better understand the challenges, we followed-up with an open-ended question about organizations' priorities and goals for data management in 2024-2025.

- **"What are your top 2 - 3 data management priorities/goals for 2024-2025?"**

The top priority was overwhelmingly data governance, followed closely by data quality. The next most popular write-in responses were metadata management and the data catalog, as well as master and reference data management, which are capabilities that strongly support data governance and quality.

"We see an intensification and renewal of data management efforts in the face of renewed regulatory focus. As organizations increasingly adopt AI initiatives, the need for effective data governance becomes more critical to ensure the reliability, transparency, and ethical use of data in AI systems. To support this intensified focus on data management and governance, organizations can benefit from adopting data management industry standards and leveraging improved automated tools."

4. CURRENT STATE OF DATA MANAGEMENT

To gain a more holistic understanding of data management, DATAVERSITY asked four questions about organizational scope, roles, and components. Some participants left additional comments in the space provided.

A. The Scope of Data Management

To understand how broadly data management impacts organizations, the survey asked [Figure 7]:

- **"What is the scope of data management in your organization?"**

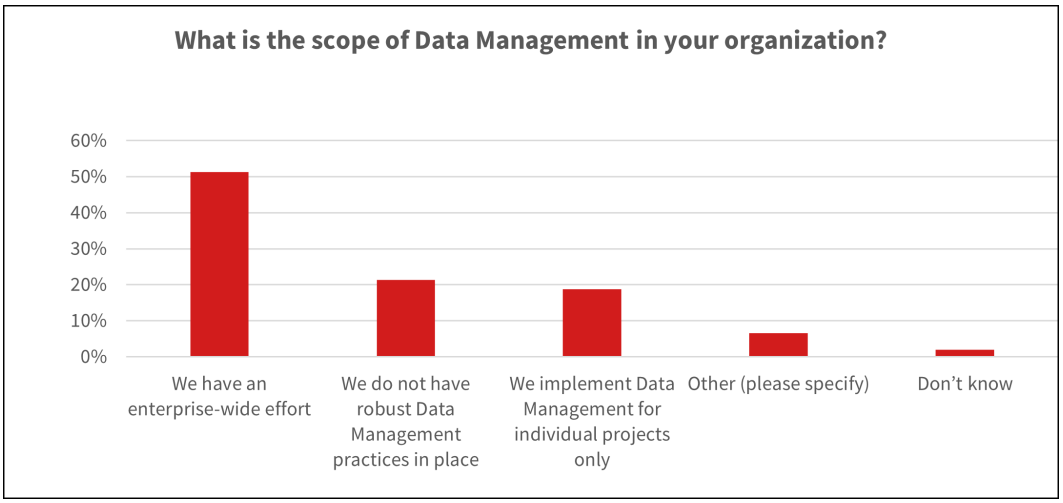


Figure 7: Scope of Data Management

Survey results showed the following:

- We have an enterprise-wide effort: 51%
- We do not have robust data management practices in place: 21%
- We implement data management for individual projects only: 19%
- Other (please specify): 7%
- Don't know: 2%

Even though there are strong business needs and benefits from data, only 51% of organizations claim to have an enterprise-wide data effort in place. This aligns with the earlier response that the top challenge in organizations is data silos. (*See Section 3: Goals and Drivers for Data Management*) Despite the value of data, or perhaps because of its value, departments and teams across the organization are challenged with working together in

a cohesive way to manage data effectively. This speaks to the need for data governance to align all key stakeholders across the organization and give voice to the disparate needs and priorities for data.

B. Roles Driving Data Management

Responsibilities in developing a data management program span a wide range of job descriptions. To gain an understanding of who is guiding and developing data management, we asked [Figure 8]:

- **"Who is driving data management in your organization?"**

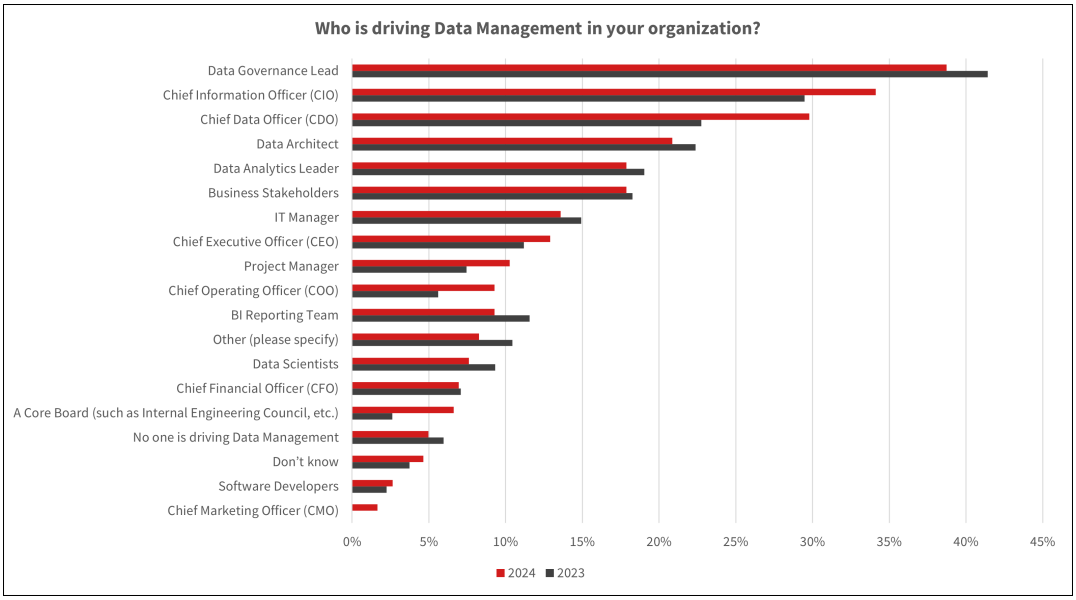


Figure 8: Who is Driving Data Management?

The Top 10 responses include:

- Data Governance Lead: 39% (41% in 2023)
- Chief Information Officer (CIO): 34% (29% in 2023)
- Chief Data Officer (CDO): 30% (23% in 2023)
- Data Architect: 21% (22% in 2023)
- Data Analytics Leader: 18% (19% in 2023)
- Business Stakeholders: 18% (18% in 2023)
- IT Manager: 14% (15% in 2023)
- CEO: 13% (11% in 2023)
- Project Manager: 10% (7% in 2023)
- Chief Operating Officer: 9% (6% in 2023)

"The data governance lead is most often the role driving data management across the organization, which has been true year over year."

The data governance lead is most often the role driving data management across the organization, which has been true year over year. This is not surprising, as the data governance lead is often a champion for data across the organization, bringing together both business and technical stakeholders. While the data governance lead might be the most common role driving data management, it is clear from the responses that it requires collaboration from numerous disparate roles working together to improve data within the organization.

C-level roles saw the largest increase from the previous year, with representation from the Chief Data Officer (CDO) rising 7%, and the Chief Information Officer (CIO) seeing a 5% increase. Additionally, we see the Chief Operating Officer (COO) increasing by 3% and the Chief Executive Officer (CEO) rising 2%. As data is increasingly seen as a strategic asset used for competitive advantage, it is not surprising that more C-level stakeholders are involved in its management.

C. Components of Data Management

Next, we wanted to know which data management components organizations use today and plan for in the future. We asked [Figure 9]:

- **"Which of the following have you already implemented in your organization?"**

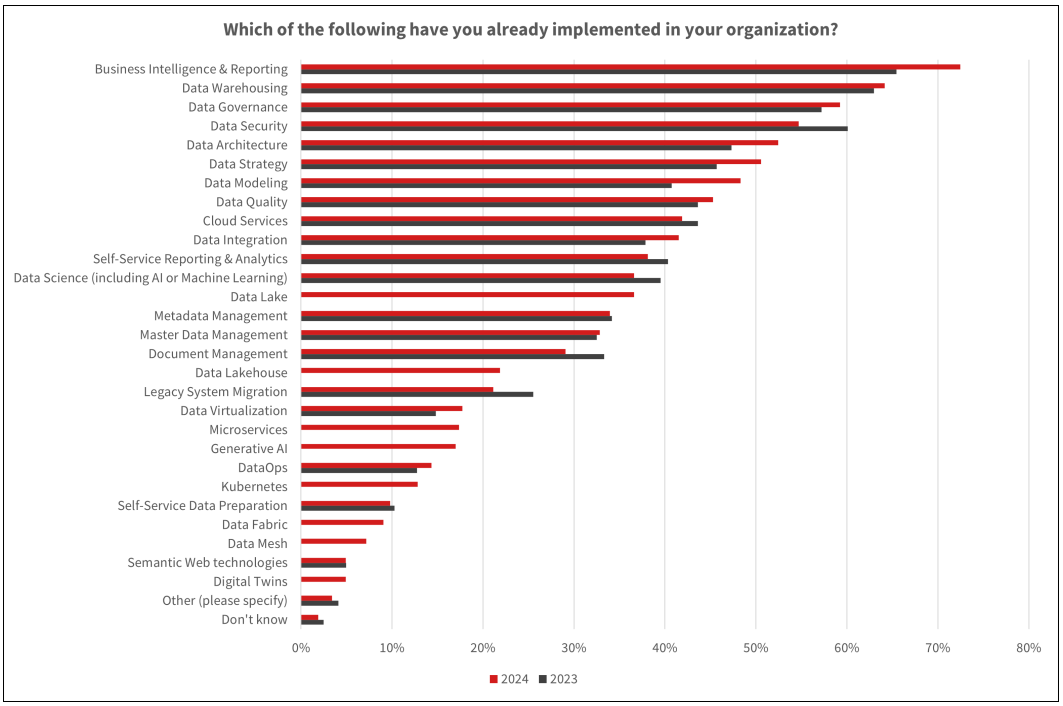


Figure 9: Current Implementation of Data Management

The top 10 implementations rank as follows. Note that items with 0 responses were not asked in 2023:

- Business Intelligence and Reporting: 72% (65% in 2023)
- Data Warehouse: 64% (63% in 2023)
- Data Governance: 59% (57% in 2023)
- Data Security: 55% (60% in 2023)
- Data Architecture: 52% (47% in 2023)
- Data Strategy: 51% (46% in 2023)
- Data Modeling: 48% (41% in 2023)
- Data Quality: 45% (44% in 2023)
- Cloud Services: 42% (44% in 2023)
- Data Integration: 42% (38% in 2023)

When looking at the key initiatives that organizations are currently implementing, "Business Intelligence (BI) and Reporting" remain the top efforts year over year, with an increase of 7% from 2023. Data warehousing, the underlying storage behind business intelligence (BI) and reporting, is a close second.

While data warehousing is the de facto standard to support reporting, some organizations are not yet at a full level of maturity to leverage a data warehouse and may be reporting directly against source applications. This can drive short-term benefits but typically has difficulty scaling over time.

With the growth of reporting comes the need for data governance to ensure that reporting is based on trusted, well-defined, traceable information. Responses show 59% of organizations had a data governance initiative in place, reporting 2% increase from 2023.

The survey followed up with participants about their plans for improvements in the future. It asked [Figure 10]:

- **"Which of the following are you planning on implementing in the next 1–2 years in your organization?"**

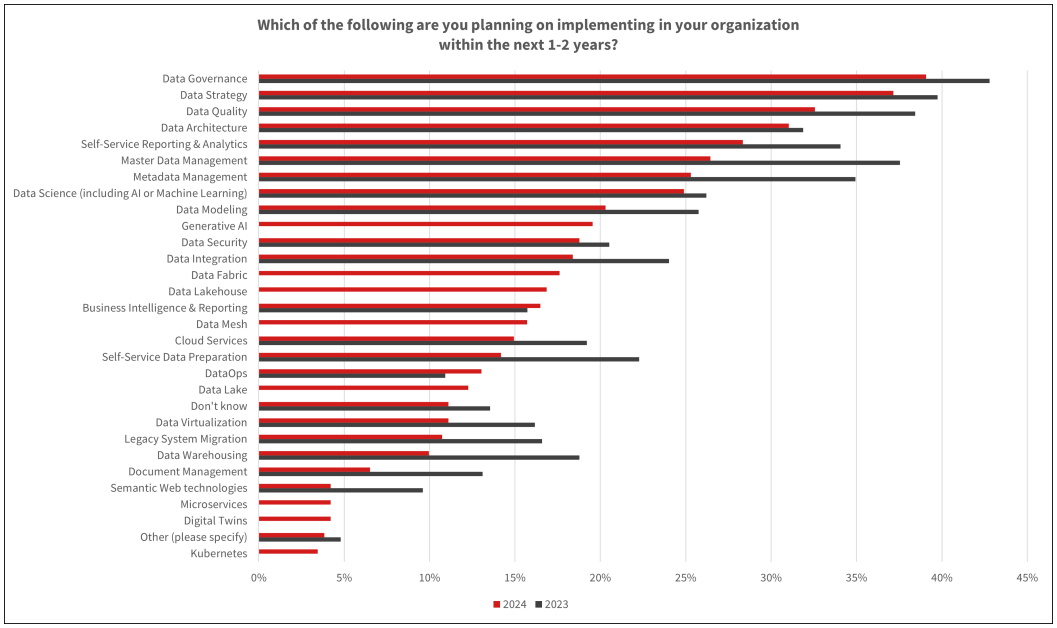


Figure 10: Future Implementation of Data Management

Between 2025 and 2026, businesses plan to implement the following top 10 components. Note that items with 0 responses were not asked in 2023:

- Data Governance: 39% (43% in 2023)
- Data Strategy: 37% (40% in 2023)
- Data Quality: 33% (38% in 2023)
- Data Architecture: 31% (32% in 2023)
- Self-Service Reporting & Analytics: 28% (34% in 2023)
- Master Data Management: 26% (38% in 2023)
- Metadata Management: 25% (35% in 2023)
- Data Science (Including AI or Machine Learning): 25% (26% in 2023)
- Data Modeling: 20% (26% in 2023)
- Generative AI: 20% (Not asked in 2023)

"Data management is very siloed within each section of the division. Everyone is handling it differently, and IT does not allow data stewards the authority to use proper data management tools. This lack of consistency and empowerment results in inefficient data processing and management."

While the hot topics of generative AI and data science (including AI or machine learning) did make it to the top 10 for 2024, it is interesting to note that the more conservative and foundational capabilities of data governance (39%), data quality (33%), and data architecture (31%) were the top concerns by a significant margin. Data strategy (37%) was the second-most chosen initiative. Organizations are looking to provide a vision and execution path that balances both the offensive approaches, such as reporting and analytics, and generative AI, with the defensive approaches of data governance, data quality, etc.

D. Concluding Comments

Write-in responses highlighted the need for data governance to support the growing AI initiatives, as well as considering increased regulatory focus, particularly around consumer data.

Comments include:

- "Ever-evolving changes happen to the data and data environments. These changes increase the need for upskilling the organization's data literacy. We are moving towards treating data as a product, with greater self-service capabilities. This shift increases the need to enhance governance."
- "Data management is very siloed within each section of the division. Everyone is handling it differently, and IT does not allow data stewards the authority to use proper data management tools. This lack of consistency and empowerment results in inefficient data processing and management."
- "We see an intensification and renewal of data management efforts in the face of renewed regulatory focus. As organizations increasingly adopt AI initiatives, the need for effective data governance becomes more critical to ensure the reliability, transparency, and ethical use of data in AI systems. To support this intensified focus on data management and governance, organizations can benefit from adopting data management industry standards and leveraging improved automated tools."

5. TECHNOLOGY AND TRAINING

The survey questions and answers from the previous section shaped current data management practices and planned future implementations. This section focuses on the physical resources organizations leverage for data management. It has two questions.

A. Tools and Technology

How has technology impacted data management decisions? We asked [Figure 11]:

- **"How much has the selection and purchase of software tools impacted your data management implementation?"**

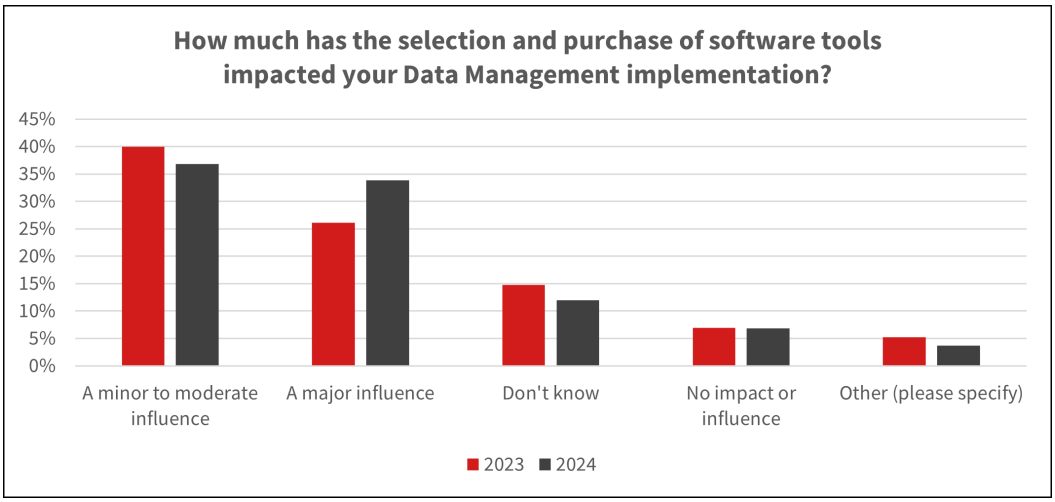


Figure 11: Software Tool Impact on Data Management Implementation

Results for 2024 show:

- A minor to moderate influence: 37% (40% in 2023)
- A major influence: 34% (26% in 2023)
- No impact or influence: 7% (10% in 2023)
- Don't know: 12% (15% in 2023)
- Other: 4% (5% in 2023)

"Business relies too much on tools without cleaning up processes first. For example, it expects a fancy new tool with AI capabilities can bring new insights without governing our data first."

While tools should not be the prime driver of a data management program, they are an important factor in success. Most respondents see tools as having a minor to moderate influence, and a growing number of 34% see tools as having a major influence. This is an increase of 8% from 2023. With the increase in regulations and complexity of data sources, this increased influence makes sense, as organizations need to automate and show the lineage of key data assets.

Software vendors have also gotten more sophisticated in their messaging around data governance and data management and have increased their thought leadership influence in these areas.

One respondent noted:

- "Business relies too much on tools without cleaning up processes first. For example, it expects a fancy new tool with AI capabilities can bring new insights without governing our data first."

B. Training

As organizations demand data literacy skills, training will continue to grow in importance. To explore this further, we surveyed participants on their learning experiences with data management. [Figure 12]:

- **"What type(s) of training have you received in data management?"**

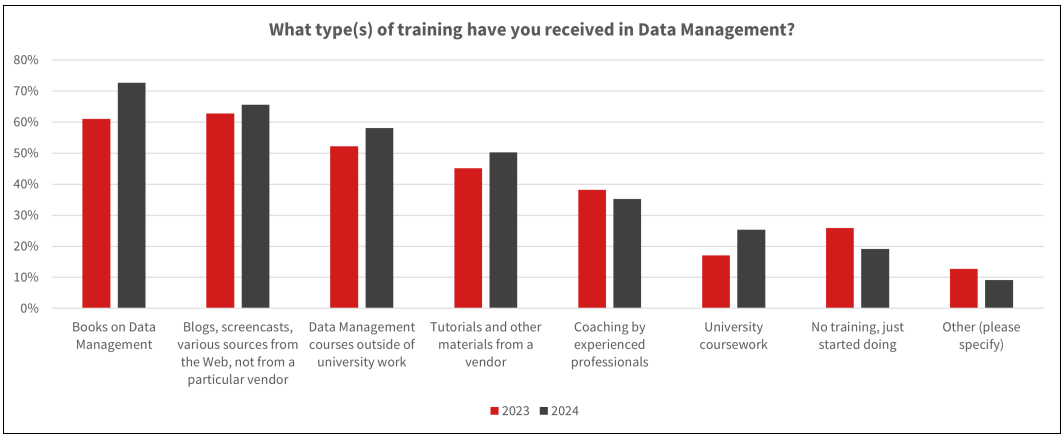


Figure 12: Training in Data Management

Top training types for 2024 include:

- Books on data management: 73% (61% in 2023)
- Blogs, screencasts, and various sources from the Web, not from a particular vendor: 66% (63% in 2023)
- Data management courses outside of university work: 58% (52% in 2023)
- Tutorials and other materials from a vendor: 50% (45% in 2023)
- Coaching by experienced professionals: 35% (38% in 2023)
- University coursework: 25% (17% in 2023)
- No training, just started doing: 19% (26% in 2023)
- Other (please specify): 9% (13% in 2023)

Data management professionals are typically very focused on growth and learning, particularly with the constant and rapid changes in the industry, and they receive information in a variety of ways. Interestingly, despite the highly technical and digital aspect of data management, most respondents preferred books as their primary knowledge source, with an increase of 12% since 2023. Other methods include a mix of blogs and webinars, courses and tutorials, and more.

Notably, the number of professionals who had “no training and just started doing” decreased by 7% since 2023. With the highly technical nature of data management and the significant risks associated with errors, especially given the rise of regulations, this decrease in the learn-by-doing approach makes sense.

6. DATA GOVERNANCE AND METADATA MANAGEMENT

This section asks three questions, one about the organizations' state of data governance and the others on the use of metadata management.

A. Data Governance

To better understand the extent of data governance within the organizations surveyed, participants were asked [Figure 13]:

- **"Which of the following best represents your company's state of data governance?**

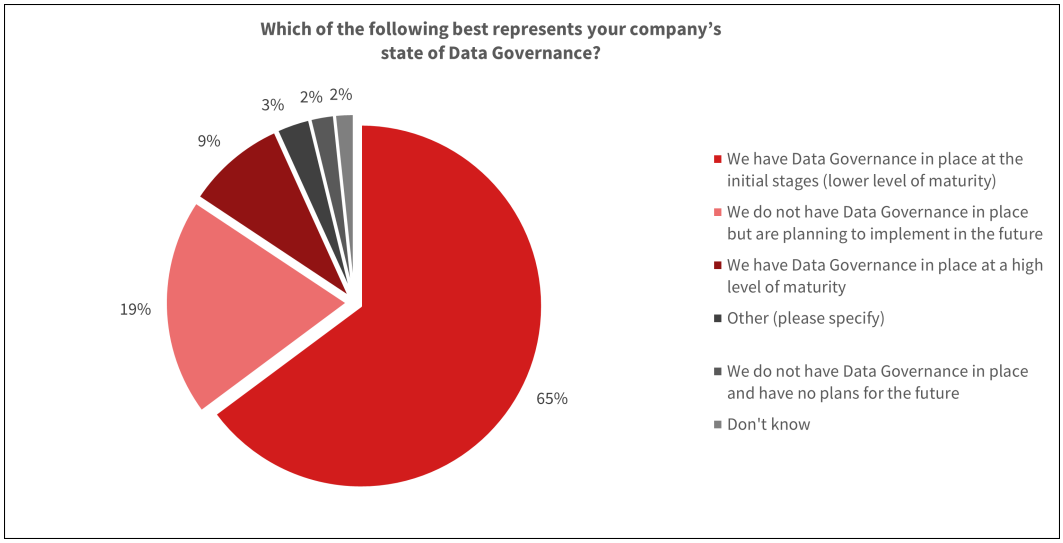


Figure 13: State of Data Governance

Participants in the 2024 survey responded as follows:

- Data governance is in place at the initial stages (lower level of maturity): 65%
- No data governance in place but a plan to implement it in the future: 19%
- Data governance at a high level of maturity: 9%
- Other (please specify): 3%
- No data governance program in place, nor any plans for the future: 2%
- Don't know: 2%

Given the increased interest in data governance, and the growing number of organizations beginning to address data as an asset, it is no surprise that 65% of respondents indicated that they are in the early stages of their data governance program, with 19% planning on implementing a data governance program in the future. Fewer organizations (9%) have a mature program in place, and we expect this to grow over time as data continues to be a priority for organizations.

B. Metadata Management

Metadata, or data in context, supports data governance and other data management processes. We wanted to see if organizations had a program for their metadata management [Figure 14]:

- **"Do you currently have a metadata management effort in place?"**

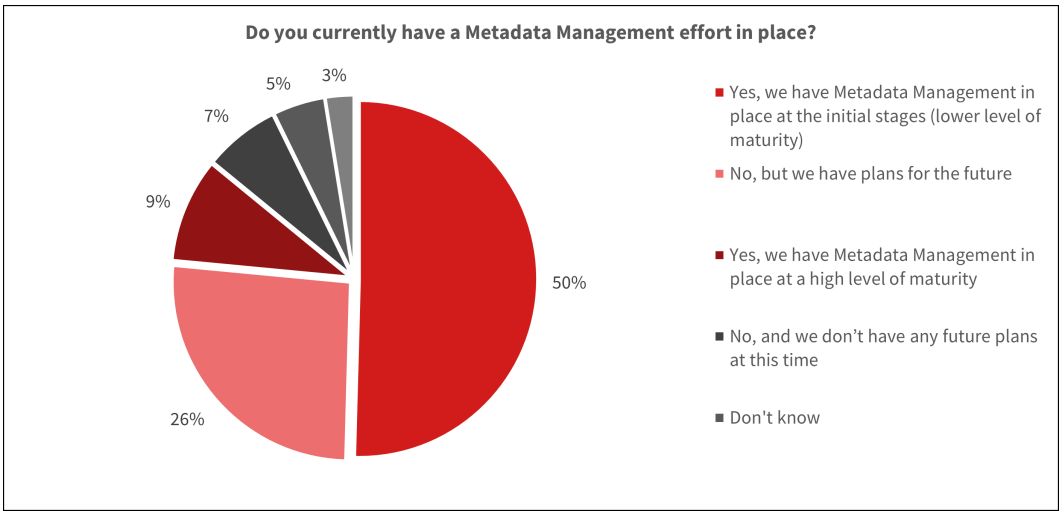


Figure 14: Metadata Management effort [Q18]

Results show:

- Yes, we have a metadata management in place at the initial stages (lower level of maturity): 50%
- No, but we have plans for the future: 26%
- Yes, we have a metadata management in a place at a high level of maturity: 9%
- No, and we don't have any plans for the future: 7%
- Don't know: 5%
- Other (please specify): 3%

Given the strong interest in data governance throughout the survey, it is no surprise that most respondents have a metadata management effort in place. Metadata management provides the foundation for data governance. From a business perspective, metadata artifacts such as a business glossary provide consistent definitions for key terms and metrics found in business intelligence reports. From a technical and compliance perspective, metadata supports things like data lineage, which provides the detailed provenance of information found in reports and other user-facing data products.

DATAVERSITY wanted to learn about metadata management use cases in 2024 and asked [Figure 15]:

- **"What are your current main use cases for metadata management?"**

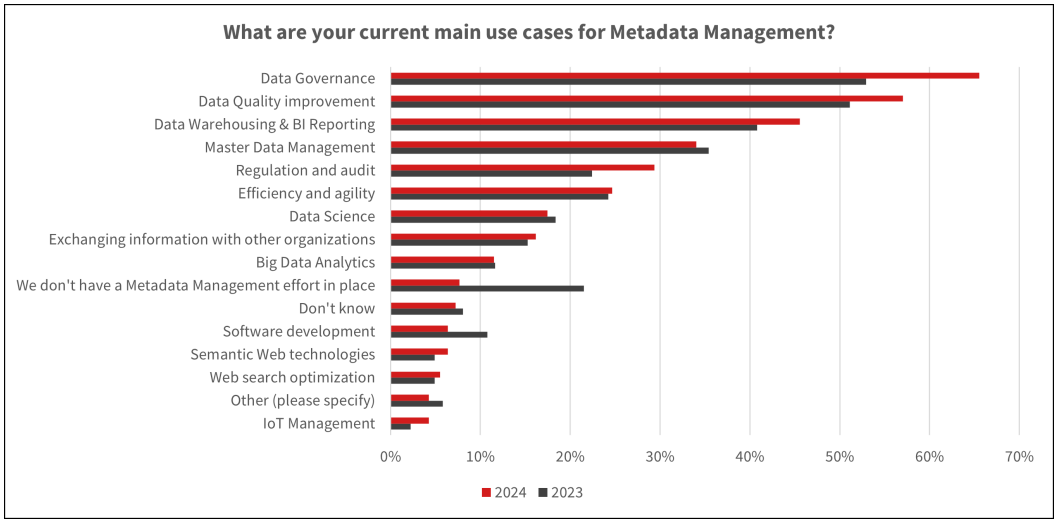


Figure 15: Metadata Management Use Cases

The top five metadata management use cases read as follows:

- Data governance: 66% (53% in 2023)
- Data quality improvement: 57% (51% in 2023)
- Data warehousing and BI reporting: 46% (41% in 2023)
- Master data management: 34% (35% in 2023)
- Regulation and audit: 29% (22% in 2023)

As mentioned above, data governance continues to be a key driver for metadata management, showing an increase of 13% from 2023. Metadata supports not only the defensive aspect of governance, with tools like data lineage to support regulation but also provides an offensive aspect for business intelligence reporting through clear and consistent definitions of the core information that drives business decisions.

C. Concluding Comments

Data governance and metadata management work closely together to provide support for the key initiatives, such as business intelligence reporting and regulatory compliance that are priorities for today's organizations.

7. DATA ARCHITECTURE

Data architecture, as described by the DAMA DMBoK:

> "Defines the blueprint for managing data assets by aligning with organizational strategy to establish strategic data requirements and designs to meet these requirements."

We wanted to know if organizations had a data architecture foundation supporting their data management initiatives. This section has two questions and an area for additional comments.

A. State of Data Architecture Within Data Management

We asked the following question about the role of data architecture in data management [Figure 16]:

- **"Does your organization have a defined data architecture foundation underlying your data management goals and priorities?"**

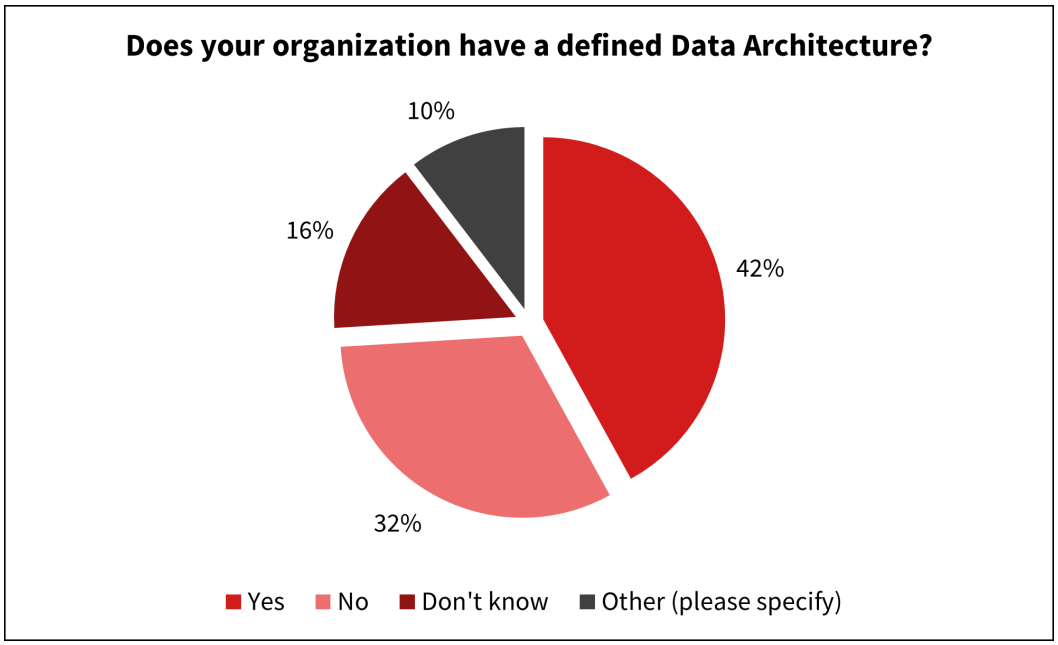


Figure 16: Having a Defined Data Architecture

We discovered the following:

- Yes: 42%
- No: 32%
- Don't know: 16%
- Other (please specify): 10%

Data architecture provides the foundational support for data management and data governance. This support includes both business-facing artifacts such as conceptual and logical data models, as well as technical artifacts such as physical data models, system architecture diagrams, and more.

B. Value of Data Architecture

Despite the fact that the majority of organizations see data governance and business intelligence as priorities, and the fact the data architecture underpins both of these initiatives, few organizations (42%) have a defined data architecture in place. This may be due to the fact that despite the value of data architecture, there is a lack of skills in the industry and data architects are often difficult to find and hire. Of those organizations with a data architecture supporting their data management, we wanted to know what value they received. So, we asked the question [Figure 17]:

- **"How has a defined data architecture helped your organization?"**

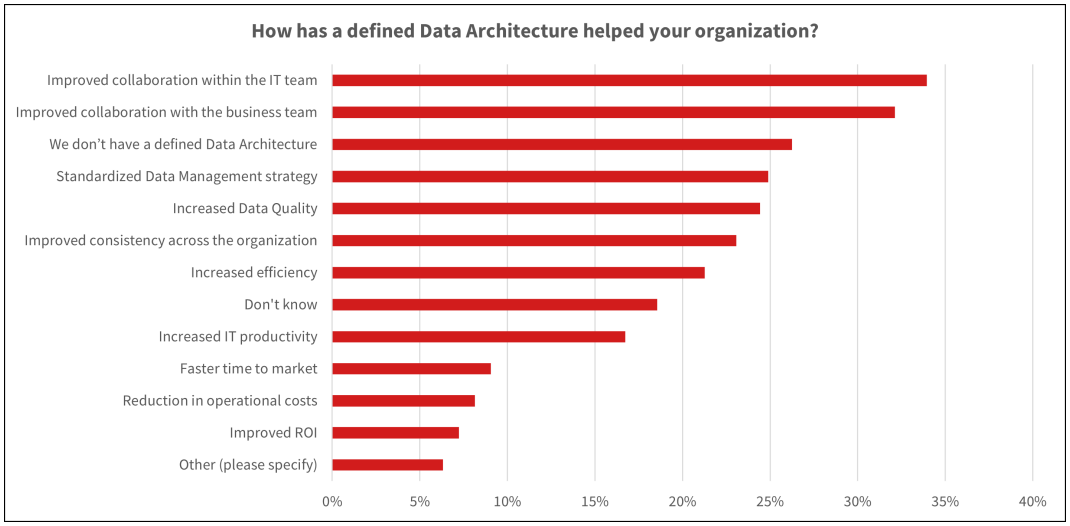


Figure 17: Data Architecture Advantages 2024

The top five benefits of data architecture chosen by those surveyed in 2024 are:

- Improved collaboration within the IT team: 34%
- Improved collaboration with the business team: 32%
- We don't have a defined data architecture: 26%
- Standardized data management strategy: 25%
- Increased data quality: 24%

Once a data architecture is in place, a clear benefit is found in collaboration, both within the IT team and between the IT team and business stakeholders. Artifacts such as data models and system architecture diagrams can provide clear and proactive communication as part of the design and maintenance phases of an initiative, rather than relying on a trial-and-error approach of coding first.

C. Concluding Comments

While data architecture is a necessary and beneficial aspect of data management, skills in this area are hard to find and many organizations do not have a clearly defined data architecture in place.

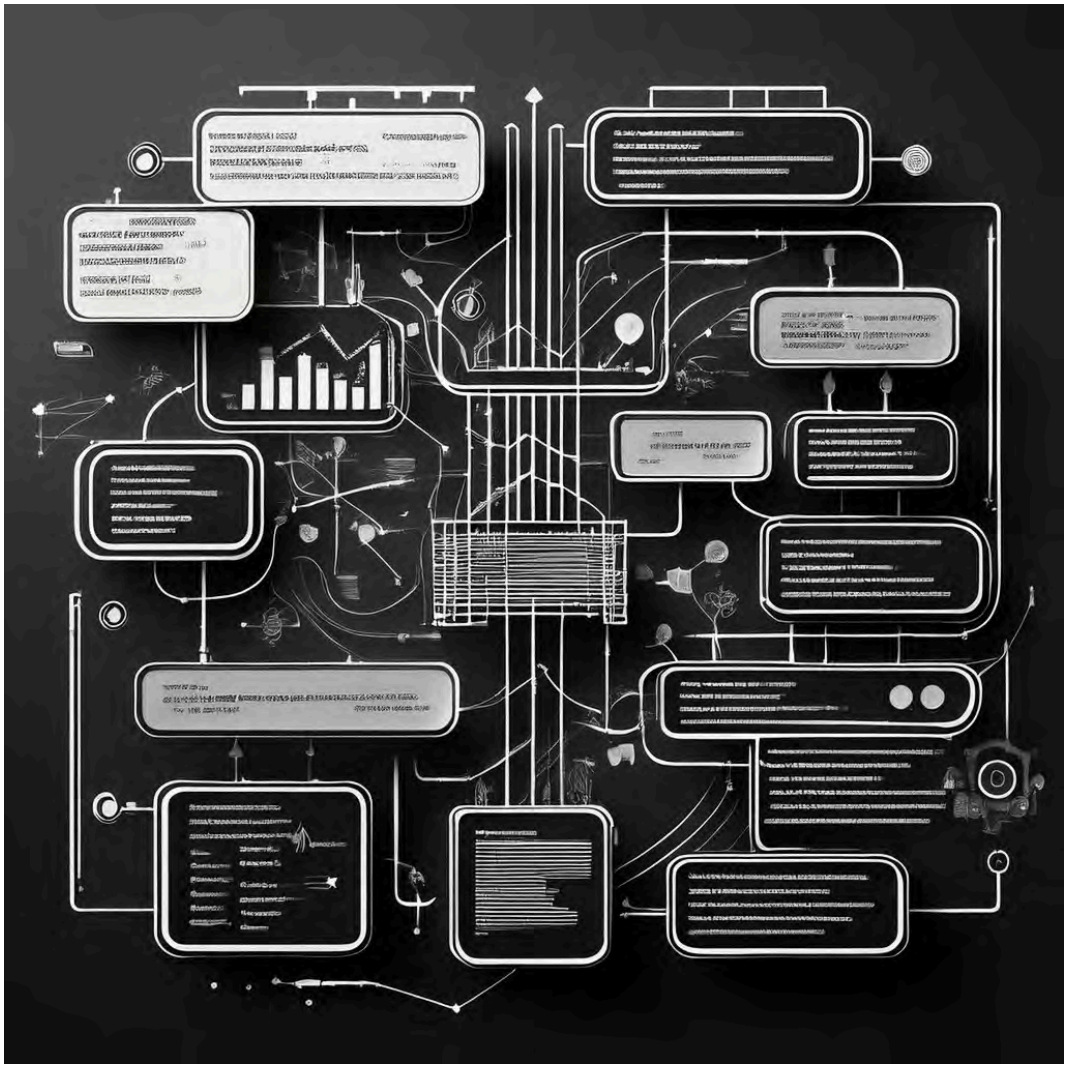
8. DATA MODELING

Data modeling, as described by the DAMA DMBoK:

> "Is the process of discovering, analyzing, and scoping data requirements, and then representing and communicating these data requirements in a precise form called the data model."

Data modeling is critical in data management to describe core business rules and definitions around data. To find out more, we posed three questions about these activities and provided a space for additional comments. From there, our survey offered insights into data management, data modeling, and business alignment.

"Over 60% of organizations are actively using data modeling, with an increase of 13% since 2023. Data models are a core foundation supporting data governance and business intelligence, which are some of the top priorities shared in this survey."



A. State of Data Modeling Within Data Management

We asked [Figure 18]:

► **"Is your organization actively using data modeling?"**

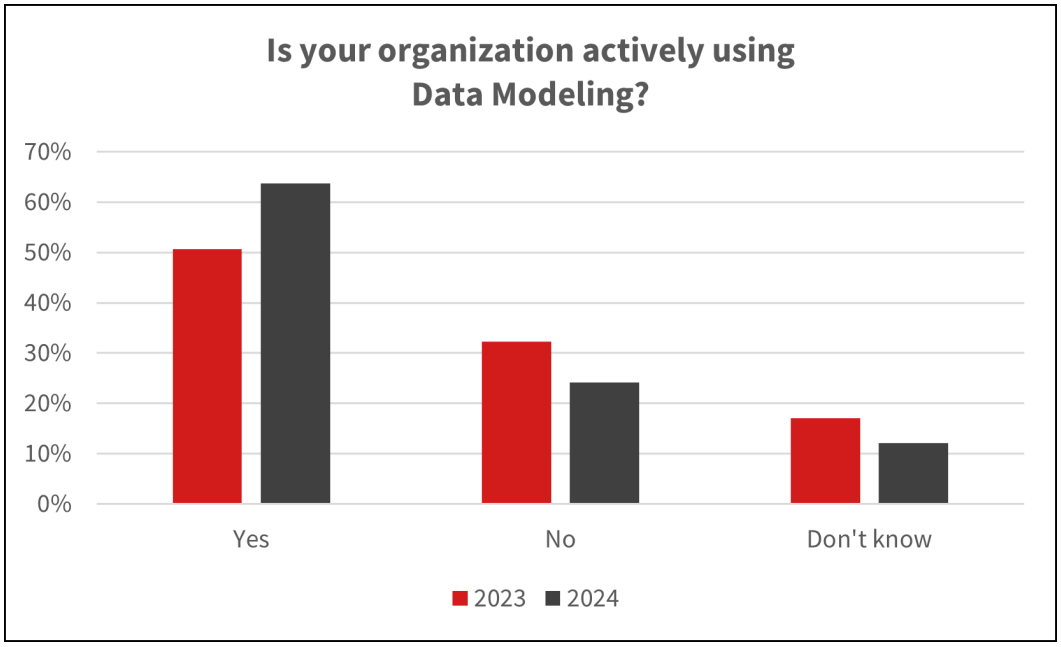


Figure 18: State of Data Modeling

Responses in 2024 appear as follows:

- Yes: 64% (51% in 2023)
- No: 24% (32% in 2023)
- Don't know: 12% (17% in 2023)

Over 60% of organizations are actively using data modeling, with an increase of 13% since 2023. Data models are a core foundation supporting data governance and business intelligence, which are some of the top priorities shared in this survey.

B. Data Modeling Methods

For organizations that said they were using data models, this study wanted to know their methods and model types. Survey participants were asked to answer the following question [Figure 19]:

- **"What methods of data modeling do you use in your organization?"**

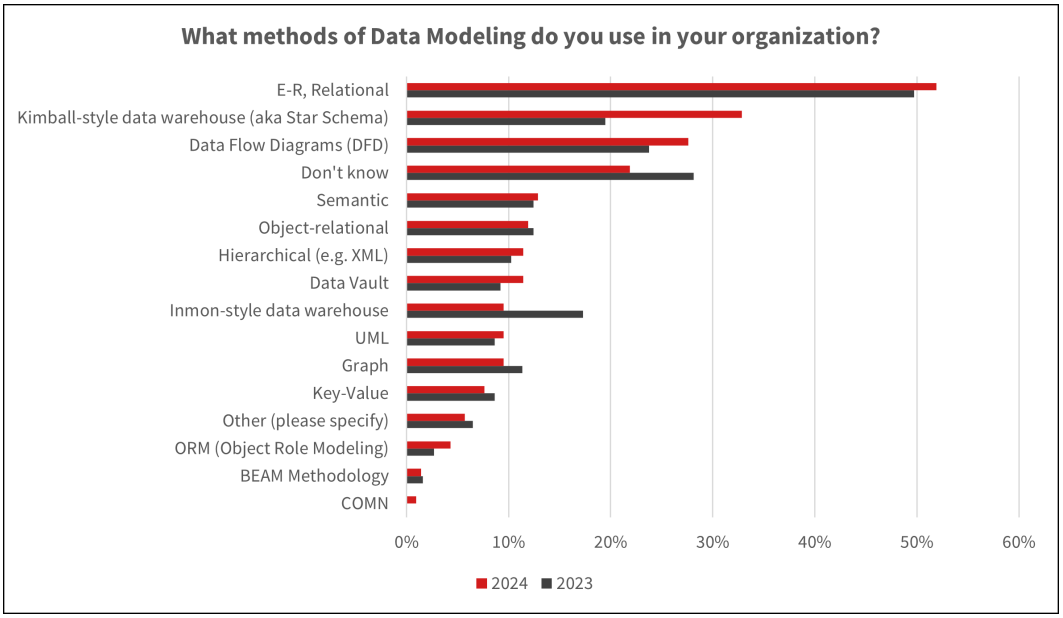


Figure 19: Data Modeling Methods

Survey participants preferred the following top three styles in 2024:

- E-R, relational: 52% (50% in 2023)
- Kimball-style data warehouse (aka star schema): 33% (19% in 2023)
- Data flow diagrams (DFD): 28% (24% in 2023)

The most popular form of data modeling is "E-R, Relational" models. Given the strong focus on data governance and data quality in the survey responses, the usage of E-R models makes sense given their strong support of data integrity. The Star Schema model for data warehousing was the second most popular. This result also makes sense, given the popularity of business intelligence reporting in organizations.

C. Types of Models and Diagrams

DATAVERSITY wanted to understand better how organizations use models and diagrams. We asked [Figure 20]:

- **"What types of models and diagrams do you use in your data/enterprise architecture?"**

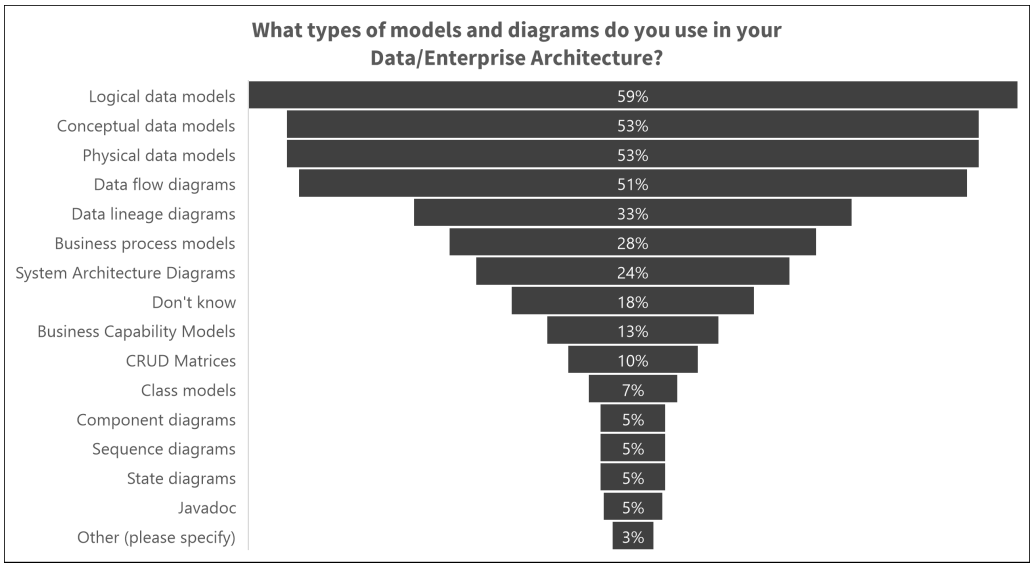


Figure 20: Data Models and Diagrams

Survey participants preferred the following top five models for 2024:

- Logical data models: 59%
- Conceptual data models: 53%
- Physical data models: 53%
- Data flow diagrams: 51%
- Data lineage diagrams: 33%

As more business stakeholders have an interest in and accountability for data in an organization, data models are strong communication and requirements-gathering tools. Logical and conceptual data models are typically focused on the business audience, and the fact that they are the most popular – with 59% and 53% of usage respectively – makes sense.

Physical models, data flow diagrams, and data lineage diagrams are the next most common, as they support the key initiatives such as data warehousing and the data integration needed to support them.

D. Concluding Comments

While automated technologies such as generative AI continue to make headlines, there is still a strong need for human-designed solutions that are aligned to specific business requirements. Data models are excellent tools for describing and implementing these requirements in data systems.

9. DATA PLATFORMS AND STORAGE

We wanted to learn about the storage and data platforms used by the survey respondents and their plans. To understand more, we asked two questions about data sources or platforms across organizations and about organizational plans for the next one to two years. Participants could leave additional comments after this section.

A. Data Platforms

We wanted to get a clearer understanding of platforms and storage applications and asked [Figure 21]:

- **"Which of the following data sources or platforms are you currently using?"**

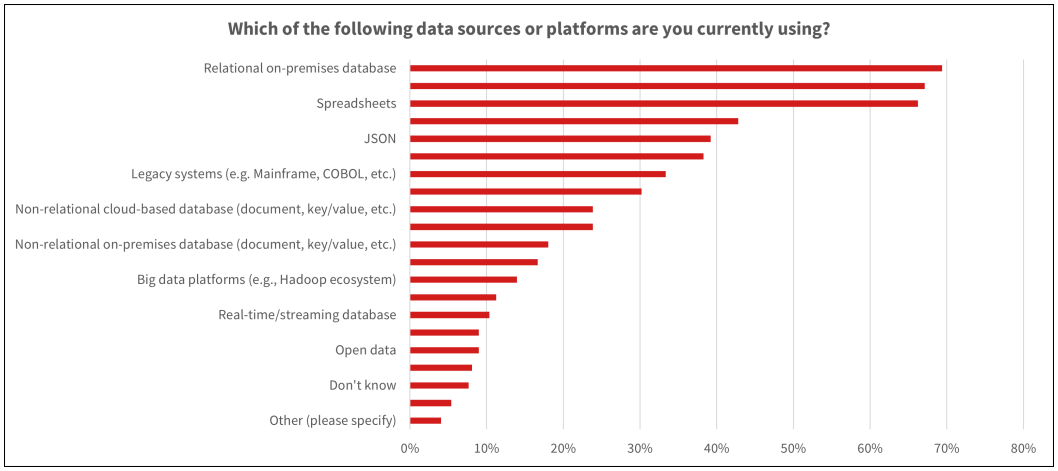


Figure 21: Data Sources or Platforms

Those surveyed chose the following top four sources in 2024:

- Relational on-premises database: 69%
- Relational cloud-based database: 67%
- Spreadsheets: 66%
- Packaged applications (e.g., ERP, CRM, etc.): 43%

With the numerous and diverse options available for data platforms, the relational database continues to be the most popular year over year. While cloud-based database options have grown, implementation still falls behind the on-premises option. Relational databases are the foundation for most operational systems and ERP, CRM, and other packaged applications, as well as for data warehousing and operational data stores, which explain their popularity.

Spreadsheets also continue as a top storage option, given their availability and ease of use, particularly for financial professionals. Although managing enterprise data with spreadsheets is not recommended, it is a practice that is difficult to eliminate from enterprise behaviors.

B. Future Plans for Data Platforms and Storage

Participants responded about their future platform and storage plans [Figure 22]:

- **"Which of the following data platforms/data storage technologies do you plan to use in the next 1–2 years?"**

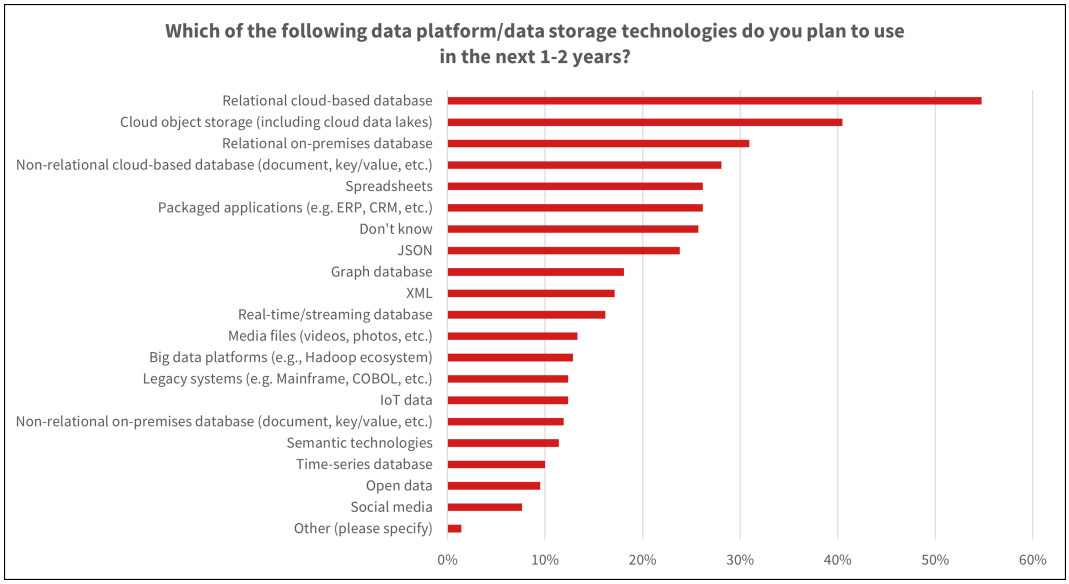


Figure 22: Data Sources or Platforms Plans in the Next 1–2 Years

Those surveyed chose the top four responses as follows:

- Relational cloud-based database: 55%
- Cloud object storage (including cloud data lakes): 40%
- Relational on-premises database: 31%
- Non-relational cloud-based database (document, key/value, etc.): 28%

Relational databases continue to be the leading choice for future implementations, although with a migration to cloud-based platforms. Cloud object storage has risen to second place for future plans, largely due to the popularity of data lakehouses. Data lakehouses offer the "best of both worlds" in that they provide the flexibility and storage options of a data lake with the data quality and reporting support of a data warehouse.

C. Concluding Comments

While many options are available in today's marketplace, the foundational technologies that support BI reporting and data governance and data quality continue to be popular. Most organizations should choose a fit-for-purpose data platform ecosystem, with options such as NoSQL, streaming, and other non-relational options to support a variety of use cases in today's digital environment.

10. NEW TECHNOLOGIES AND TRENDS

This part of the survey explores the trends taking place with newer technologies. We asked two questions. The first question covered primary trends causing the most change, while the second focused on emerging technology trends potentially significantly transforming data management.

A. Organizational Trends

We asked:

- **"What are the primary three trends in data management that are causing the most changes in your organization?"**

Artificial intelligence (AI) was top of mind among the responses regarding new trends and technology – both for the promises it can bring, as well as the risks. Not surprisingly, data governance and data quality were the second and third top topics, respectively, as respondents showed concern for the governance around AI usage and the need for data quality to support AI models. Regulatory concerns were also a top mention, particularly around consumer data with regulations such as CCPA and GDPR, which also drive the need for stronger data governance.

> **"I'd like to see a re-focus back to data management practices and away from data management tool/solution implementation projects and new trends."**

B. Future Trends

To conclude the survey, participants were asked an open-ended question:

- **"What do you see as the next top three emerging trends in data management that will cause the most profound changes in the industry?"**

AI was again the leader as an emerging trend that has the potential to change the industry. Closely following AI were data governance, regulations, data quality, and privacy and security.

Data mesh was another response that showed some popularity, with organizations looking to address organizational silos with a more federated approach to data governance, with domain-based ownership of data products.

C. Concluding Comments

With new opportunities also come new risks, and this sentiment was apparent among the respondents of this year's survey. While many were excited about the opportunities that analytics, AI, and business intelligence reporting can bring, there was also clear concern that proper data governance, industry and government regulation, as well as robust data quality, must be in place to truly leverage these new technologies to their maximum potential.

As one respondent said:

- **"I'd like to see a re-focus back to data management practices and away from data management tool/solution implementation projects and new trends."**

11. CONCLUSION

High-quality, trusted data managed by a cross-functional set of stakeholders across the organization — leveraged to make data-driven decisions through business intelligence reporting — was the theme of the 2024 Trends in Data Management survey. While new technologies such as artificial intelligence (AI) are of interest for future efforts, there was a clear consensus that to effectively leverage these technologies, the foundations of strong data governance and a solid data management practice need to be in place.

12. PRODUCERS

DATAVERSITY Education, LLC is a producer of educational resources for business and Information Technology (IT) professionals on the uses and management of data. Our team strives to provide high-quality content to our worldwide community of practitioners, experts, and developers who participate in and benefit from face-to-face hosted conferences, free online events, live webinars, white papers, online training, daily news, articles and blogs, and much more. https://www.dataversity.net/

Global Data Strategy Ltd., is an international data management consulting company specializing in the alignment of business drivers with data-centric technology. Our passion is data and helping organizations enrich their business opportunities through data and information.

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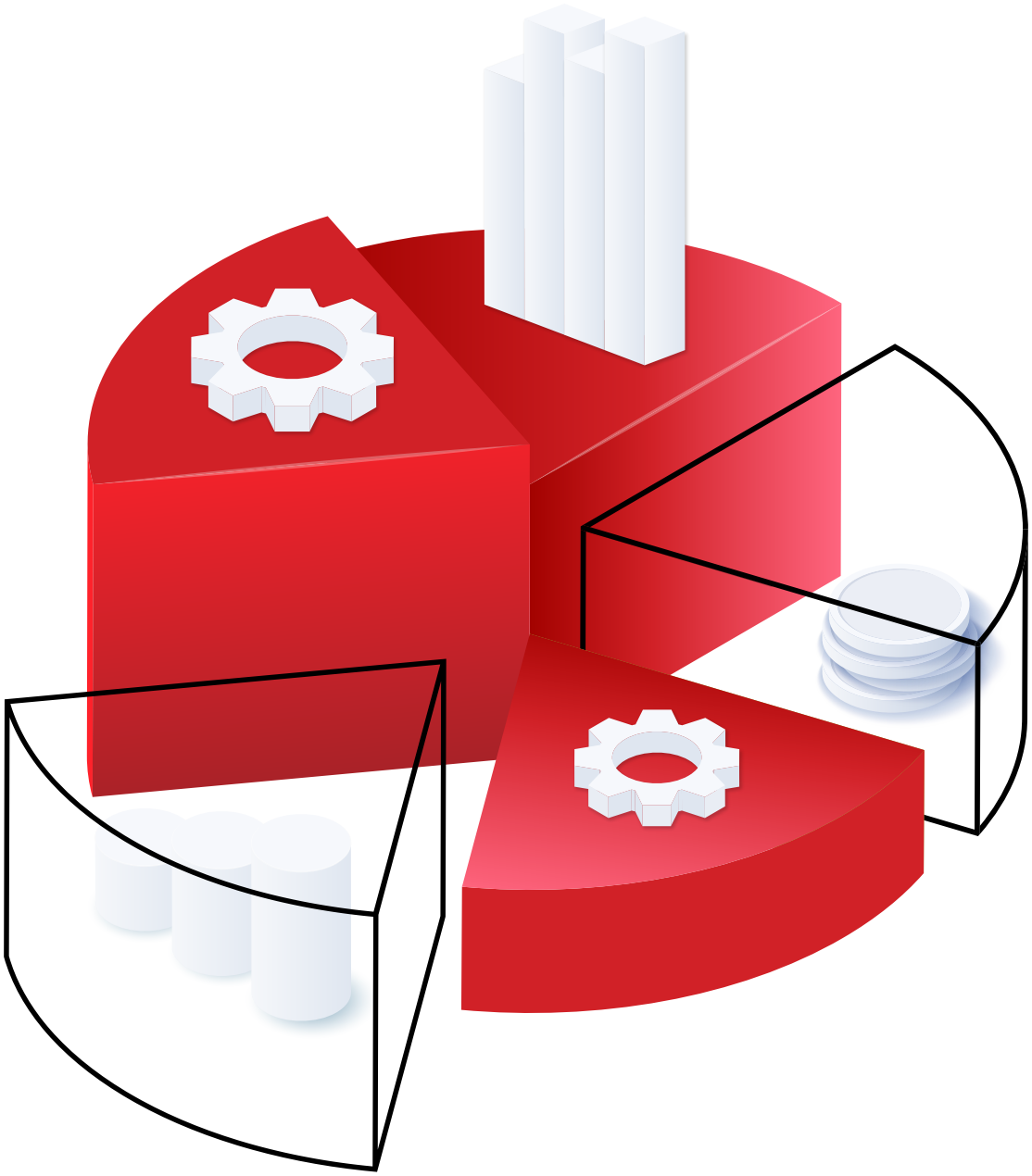

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