

Vanguard  
Report

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# Data Fabrics Accelerate Value in a Hybrid Architectural Approach

S&P Global  
Market Intelligence

Commissioned by



**Hewlett Packard  
Enterprise**

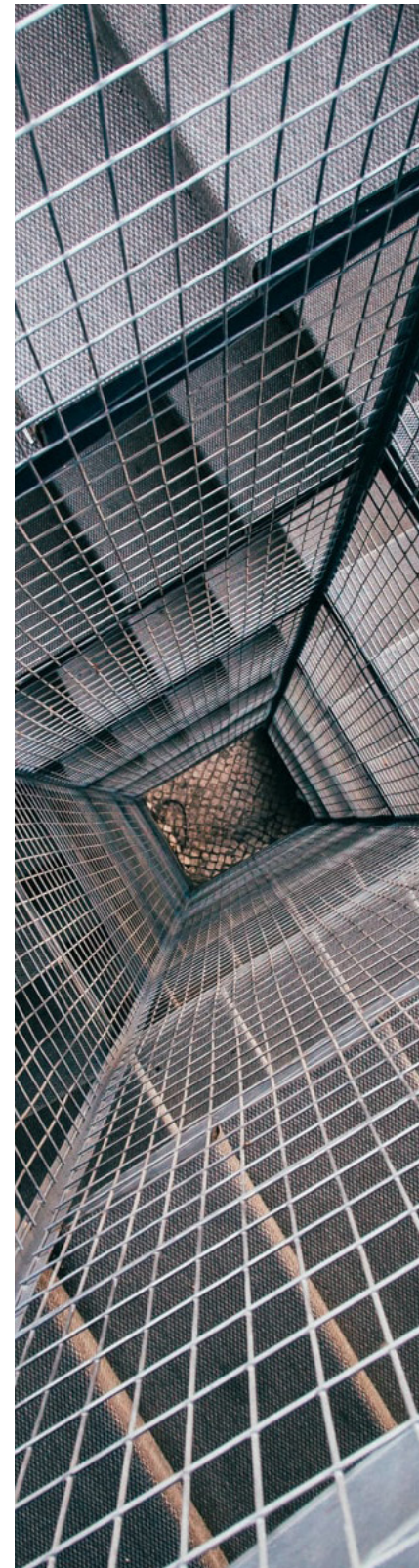
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# Introduction

The increasing diversity of IT architectural choices provides opportunities for businesses to optimize their data-driven practices, yet it also increases complexity. This complexity is driven in part by hybrid and multicloud scenarios, which have become mainstream as organizations look to mitigate the financial uncertainty of public cloud and the data gravity issues of existing on-premises applications. Other factors, such as regulatory compliance and security needs, can also play a role in architectural choices.

Based on 451 Research's Voice of the Enterprise: Data & Analytics, Data Platforms 2022 survey, 41% of respondent organizations have hybrid deployments in use for database systems, and another 28% are in the process of implementation. Respondents report nearly identical rates of multicloud deployments in use and in implementation, respectively, for their database platforms.

As IT architecture becomes more heterogeneous and data becomes more distributed, organizations face difficult choices in how to manage their information assets to drive insight and business value. Data movement is costly, complex and time-consuming. It benefits organizations to use process- and technology-based approaches to gain a more global view of data, both for proactive utilization and security. For this reason, data fabrics, which can help drive a more unified view, have been steadily gaining traction.



# The Take

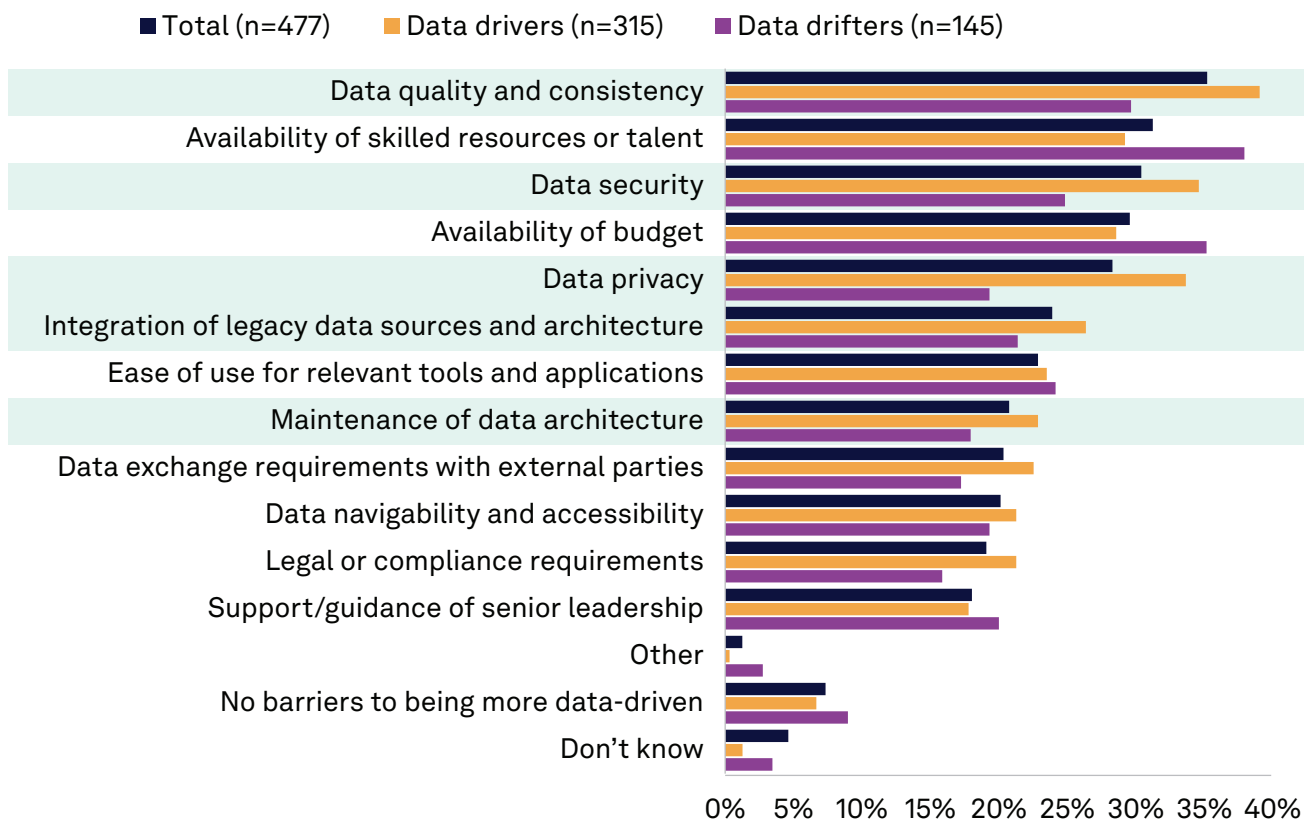
The pursuit of a more unified view of enterprise data is nothing new, but the technology used to achieve such a view continues to evolve. The contemporary terminology of methodologies and tools can be complex. Data fabrics, data meshes, data hubs, data orchestration — and more — seek to describe similar scenarios in which enterprises gain a more unified perspective on data across IT architecture.

Data fabrics are emerging as a critical technological layer to help achieve this data visibility, availability and unification in a hybrid, multcloud reality. The unification of isolated data locations and other disparate data systems is a primary objective of a data fabric, ultimately ensuring the consistent delivery of high-integrity data to data “consumers” and other data-dependent individuals within the enterprise.

Data fabrics also tend to provide internal technological components, embedded within the architecture, for data governance, helping to coordinate functions for appropriate data usage and access as well as controls for data quality and reliability. Rather than just continuously integrating data via operations such as processing and orchestration, data fabrics further look to coordinate functions regarding governance, control, quality, discovery, availability and access.

To understand the core utility of a technological data fabric, it is critical to understand the pain points that a data fabric — or set of data fabrics — seeks to address. Organizations face several barriers in this effort to become more data-driven.

**Figure 1: Significant organizational barriers to becoming more data-driven**



Q. What are the most significant barriers your organization faces in attempting to be more data-driven? Please select all that apply.  
 Base: All respondents (n=477).  
 Source: 451 Research's Voice of the Enterprise: Data & Analytics, Data-Driven Practices 2022.

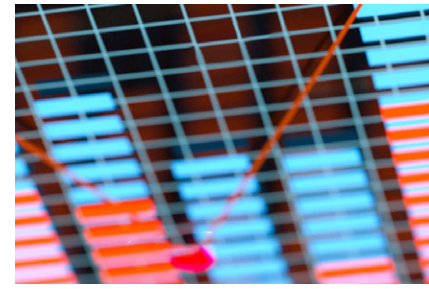
Business demographics can influence which pain points are most acute in the effort to become more data-driven. Organizations that actively leverage data — “data drivers” — are those that base all or most strategic decisions on data. Conversely, organizations that apply data less proactively — “data drifters” — are those that only base some or few strategic decisions on data.

Data driver organizations are more apt to face technical hurdles, such as data quality and consistency, in the effort to become more data-driven, while data drifters are more likely to experience cultural and organizational barriers, such as availability of budget. While organizations must address cultural barriers to becoming more data-driven from the ground up, via people and process adjustment, technical barriers are often linked to existing technology, warranting technological support to resolve.

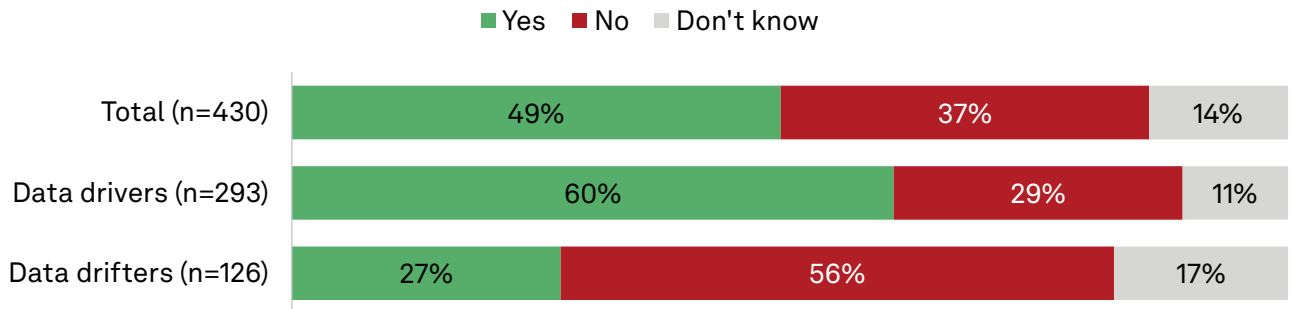
These individual technical challenges, at first glance, may seem discrete. However, many of these issues are highly interdependent. For instance, perceived “reactive” requirements related to data security and data privacy may actually align tightly with more “proactive” initiatives regarding data quality and consistency when the correct controls are applied. The common denominator to meeting overarching data management needs is the ability to achieve a more global view of data and implement consistent, granular controls. With heterogeneous IT infrastructure that incorporates legacy systems, hybrid architecture and multicloud deployments, a unified view of data becomes even more critical to maintain control of data.

# Use cases

Adoption rates for data fabric technology speak to the growing need to gain a more unified control plane for data sources. But, as with the challenges to becoming more data-driven, there are demographic differences in business behavior.



**Figure 2: Organizational adoption rates for data fabric technology**



Q. Does your organization currently have any of the following? - Data fabric.  
Base: All respondents (n=430).  
Source: 451 Research's Voice of the Enterprise: Data & Analytics, Data-Driven Practices 2022.

Nearly half (49%) of all respondents report that their organization has a data fabric technology in use. However, for “data driver” organizations where most strategic decisions are based on data, adoption rates hit 60%. In “data drifter” organizations, where fewer strategic decisions are based on data, that number drops to 27%. There are several plausible reasons for this. The most data-driven organizations tend to have large volumes of data, and they tend to be early adopters of technology — two factors that can spawn higher levels of IT complexity. As IT complexity and heterogeneity increases, so does the potential business value of a data fabric approach.

We often conflate the size of an organization with the complexity of the IT ecosystem, but this doesn't mean that smaller businesses can't also benefit from a data fabric approach. The size of a business is not a perfect proxy for the complexity or intensity of data flow through an organization. In considering supporting technologies such as data fabrics, organizations must first examine their own IT environment and identify bottlenecks limiting the potential business value of data.

Organizations can ask several questions to assess the complexity of their IT environment. For example, do mission-critical workloads depend on a relatively high volume of data? Is the organization using hybrid (cloud and on-premises) IT architecture? Are multiple public clouds in use? Is there rampant data duplication and redundancy, impeding a consistent view of informational assets? Is data being created across multiple formats and types (files, objects, streams, etc.)? Do a diverse set of stakeholders need to leverage data across existing architectures for their everyday tasks? If the answer to several of these questions is “yes,” then a data fabric approach may be highly appropriate, regardless of traditional measures of organization size, such as revenue or headcount.

It is likely that IT architectural complexity will only continue to increase as a byproduct of additional technological options in the market, and this is not inherently a bad thing. Organizations can benefit from strategically placing data and workloads in specific venues to achieve specific business outcomes and desired cost efficiencies. However, in doing so, data gravity can become an issue because it can be difficult and expensive to move large volumes of data before it is processed for insights.

Talent availability also plays a role. A business rarely has the resources to simply throw more people at the problem. For example, 31% of respondents to 451 Research’s Voice of the Enterprise: Digital Pulse, IT Budgets & Drivers 2023 survey indicate that “shortage of IT staff resources” is a significant IT pain point — a top-two response. So, while people and processes are critical in managing and distributing high-integrity data throughout an organization, selection of proper enabling technologies is often what facilitates the scalability and sustainability of these efforts.

# Conclusion

Data fabric technologies have been steadily gaining traction as organizations seek to achieve more unified control, visibility and accessibility of enterprise data assets in a hybrid and multicloud architectural reality. Rather than just being a terminological “spin” on an established technology, data fabrics differentiate from more traditional approaches to data integration in that data fabrics are specifically designed to handle the heterogeneous IT ecosystems associated with hybrid and multicloud utilization. Automation and use of embedded, machine-learning-driven functionality is also a common feature of contemporary data fabrics, helping to manage and deliver data consistently at scale.

The purpose of a data fabric, ultimately, is to accelerate the business value of data rather than simply integrate data for the sake of integration. For the business, this means that adoption of a data fabric should be accompanied by internal alignment of objectives associated with data management.

The visibility and control that a data fabric provides can help achieve goals related not only to the proactive leverage of data associated with insight, but also to more historically “reactive” functions such as data security and regulatory compliance. In this sense, it is important that a data fabric helps enable and support a diverse array of stakeholders and users. Because of this, a consistent user experience is a key aspect of a data fabric.

Data fabrics will be defined by their ability to scale and to span hybrid, multicloud environments, as well as by their ability to handle multiple data formats and proactively enable downstream analytics. Flexibility of the data fabric, ultimately, allows for optimization of the IT ecosystem. Openness, usability, multicloud compatibility and the ability to accommodate hybrid architecture are all desirable traits in a data fabric.



## Hewlett Packard Enterprise

[HPE Ezmeral Data Fabric Software](#) delivers the foundational data layer required for analytics and AI for the modern distributed enterprise. A global data plane unifies different data types and formats into a trusted source then provides direct access to users and applications through the native global namespace. Built-in data management and security leverage automated policies to transparently control governance, security, availability, and access controls. This solution can be deployed across a broad spectrum of environments such as on-premises, edge, multiple clouds, and co-location environments.

# About the author



## Paige Bartley

### Senior Research Analyst, Data Management

Paige is a Senior Research Analyst for the Data, AI & Analytics Channel at S&P Global Market Intelligence, covering core data management topics. Key themes include data privacy, data governance, data integration, metadata management, data quality and master data management. She has experience covering a broad range of technologies spanning the Data, AI & Analytics stack, from databases to self-service analytics.

In her current research, Paige is analyzing the need for information governance to maximize the value of enterprise data amid proliferating global regulatory requirements and rising consumer expectations for data stewardship. With data privacy and compliance as a specialty focus, Paige explores how the enterprise can align technical requirements with business strategy, enabling more profitable and compliant leverage of data.

Early in her career, Paige worked on the vendor side, providing marketing and strategy for ZL Technologies, an information governance provider that specializes in the management of unstructured data for compliance, legal and archiving needs. Prior to working at 451 Research, which was acquired by S&P Global in December 2019, she was a Senior Analyst at Ovum (now Omdia).

Paige received her Bachelor of Science degree in psychology and neuroscience from Duke University, and a Master of Management Studies (MMS) degree from the Duke University Fuqua School of Business.

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S&P Global Market Intelligence's Technology, Media and Telecommunications (TMT) Research provides essential insight into the pace and extent of digital transformation across the global TMT landscape. Through the 451 Research and Kagan products, TMT Research offers differentiated insight and data on adoption, innovation and disruption across the telecom, media and technology markets, backed by a global team of industry experts, and delivered via a range of syndicated research, consulting and go-to-market services, and live events.



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