



The Denodo Data Gap Report, 2023

How organisations
are using data



Index

denodo 

I Introduction	3
I Key Findings	5
I Data Gap Report	7
Data Management Strategy	8
Data Democratisation	13
Cloud	15
Analytics	16
Artificial Intelligence/Machine Learning (AI/ML)	17
I Conclusion	19
I Methodology	22



Introduction



Observing the world is increasingly complex, due to both the level of detail required and the speed with which decisions must be made on the available data. As more data becomes available, it also becomes more heterogeneous, adding to the complexity.

This means that we must rethink the way we manage data, and this is a change that affects companies across all levels: organisational, cultural, and technological.

This change presents IT and business departments with new challenges, as traditional data management methods are starting to suffer from slowness and further complexity, especially as data and information need to be consumed at ever-increasing speeds.

These challenges are compounded by the growing volume and variety of data and the fact that companies store it across numerous different kinds of data sources, including databases, data warehouses, data lakes, cloud applications, Internet of Things (IoT) repositories, and simple spreadsheet files, and often, these sources are geographically dispersed. The use of one source over another is often guided more by spontaneous needs than an overall plan.

For these reasons, we can no longer postpone the establishment of a new approach to data management, one that exhibits agility, clarity, simplicity, and efficiency, and one in which the needs of the data consumer can be made more central to development.

Denodo surveyed IT leaders from 500 European companies to explore the prevailing trends and patterns in how they use data and to identify gaps in their data strategies, ultimately with the aim of offering effective solutions and strategies to bridge those gaps. This report presents the findings of our research and provides an overview of the current state of data management in Europe.



Key Findings



Key Findings



* Almost half of organisations **manage data via a central team**, responsible for all data preparation and delivery; almost 30% use a **distributed data management model**; and 21% use a **distributed model with a centralised team responsible** for data harmonisation and cataloguing.



* 68% of organisations **see room for improvement** in their data and analytics platforms or their teams' ability to use company data efficiently.



* Almost half of companies store data via a **hybrid environment**, 31% use a **private cloud**, 25% use a **multi-cloud** configuration, and 22% use a **public cloud** or store data onsite.



* In 59% of organisations, the chief data officer is responsible for data management. In 17% the CIO is responsible, and in 8% the chief IT architect is responsible.



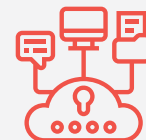
* Just 18% of organisations currently **use artificial intelligence/machine learning (AI/ML) extensively**. However, another 43% are planning **to increase their usage of AI/ML**.



* Half of organisations feel that one of the advantages of having a formal data management policy is being able **to integrate information from multiple sources** in a more agile way, facilitating easier access. 41% feel that a key advantage is complying with current **security regulations** and 38% cite improving **cooperation** across multiple teams.



* 77% of organisations feel they clearly understand **the advantages of moving to a distributed data management architecture**, but at the same time, 75% feel that a centralised approach to data management best serves their needs.



* 69% agree that **traditional architectures are beginning to suffer** in a world that produces data ever faster.



Data Gap Report

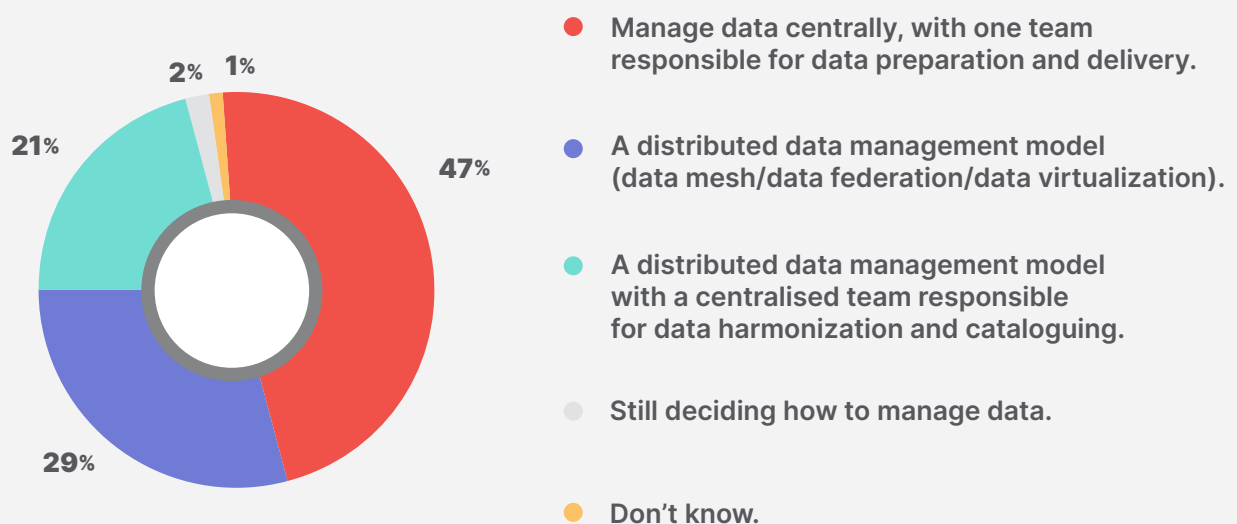


Data Gap Report

Data Management Strategy

With the speed at which the world moves and data is generated, companies need a new way to manage data, one that enables them to simplify what is increasingly becoming more complex. This is because of the enormous quantity and variability of the data, its ubiquity in the network, the different ways in which data can be used, the expanded audience of users typical of a data democratisation scenario, and the increasingly complex rules that define who can use which data.

The research shows that almost half of very large companies manage data via a central team, responsible for all data preparation and delivery, 29% use a distributed data management model, and 21% use a distributed model with a centralised team responsible for data harmonisation and cataloguing. Compared to other markets, those in Italy (62%) and France (54%) are more likely to manage data centrally, with one team responsible for data preparation and delivery. Germany (38%) and Spain (37%) are more likely to use a distributed data management model.



Base: Total Sample (n=500); differences of 7% are generally significant at the 95% confidence level.



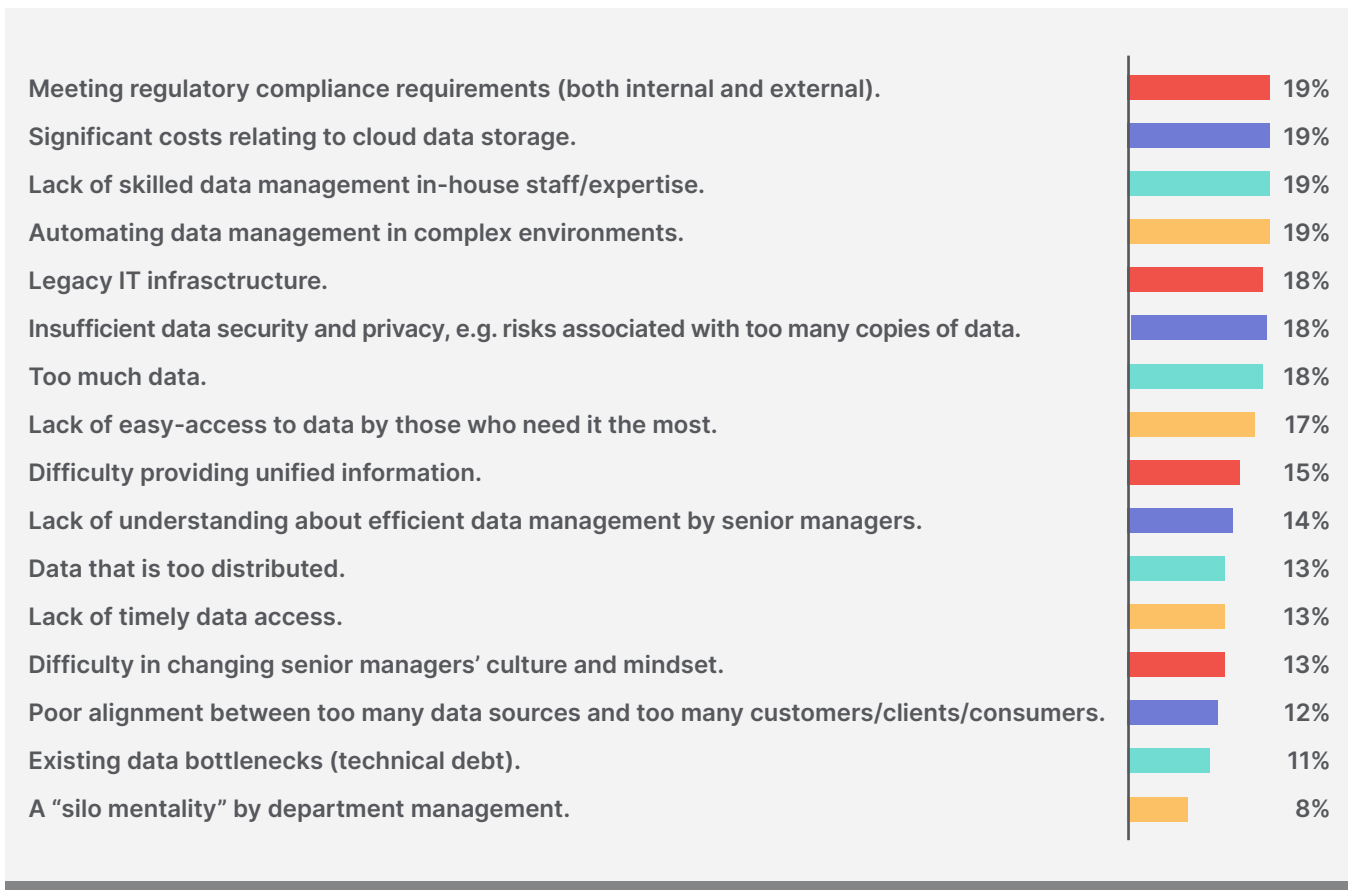
In 59% of organisations, the chief data officer is responsible for data management, either reporting to the chief information officer (CIO) (30%) or directly to the head of the organisation (29%). In 17% the CIO is responsible for IT functions, and in 8% the chief architect is responsible for IT functions. The other 16% is spread across various staff members or teams. Regarding the source of data, 89% of companies only use data that is internal to their organisation (e.g., supplier, customer, marketing, financial), 52% also add third-party data, and 41% also add public data.

A modern data management strategy must therefore satisfy all the functional needs of those who use data daily, hiding all the technical complexity necessary for their integration. Since technology is a fundamental enabling factor of a data strategy, the wrong choices can compromise its execution.

This suggests a different way to manage and integrate data, one that is based on *connecting* to data rather than *collecting* it. In doing so, organisations can avoid replicating data that will never be used, they can reduce the number of resources required to keep replicated copies up-to-date (to better manage all the rules that govern data usage), and they can also reduce the risk of data breach by reducing the number of targets (replicated copies).

With this series of survey questions, no single data management challenge rose to the top. An even distribution of responses among all the proposed themes highlights, once again, the need for a holistic approach to data management, one that provides the flexibility to address a wide range of different requirements. Although these requirements all relate to data, they represent different needs, ranging from governance to compliance, from the ease-of-use of data to the need to represent it in a unified fashion, and from the lack of current infrastructures to the difficulty of providing real-time data.

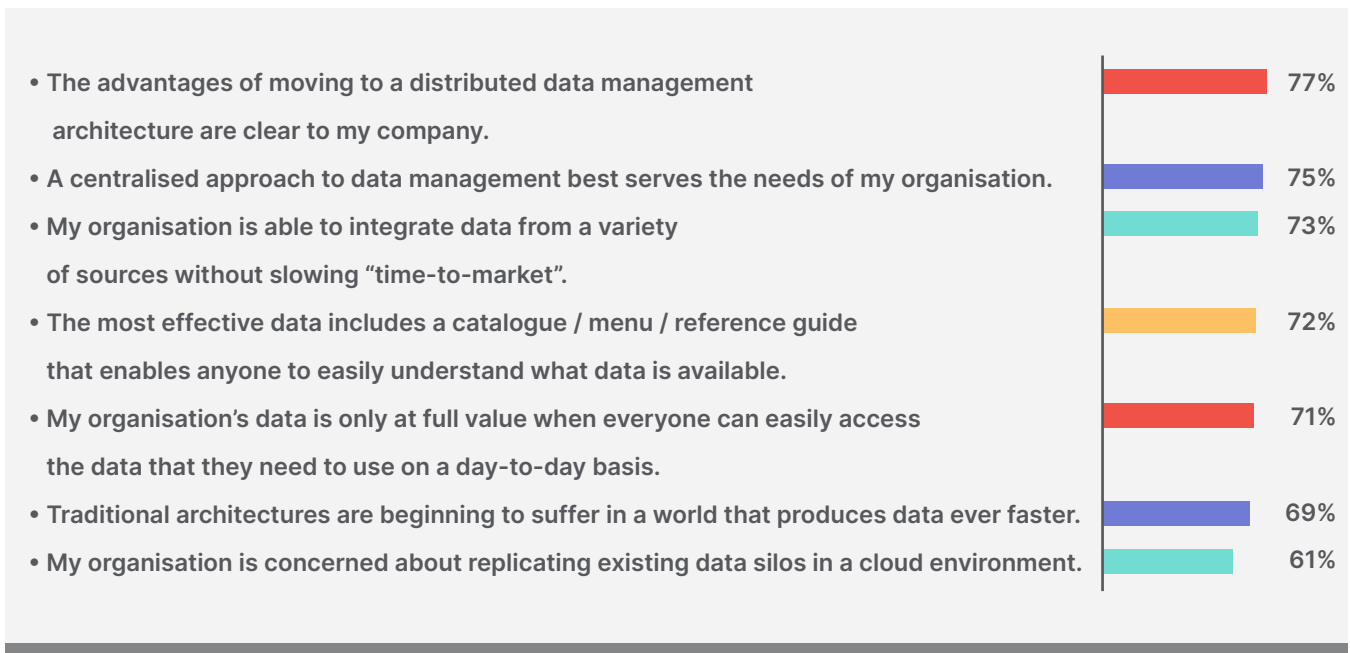
In the U.K., the biggest challenge for organisations is legacy IT infrastructure (25%); in France, meeting regulatory compliance requirements, both internal and external (28%); in Germany and Spain, automating data management in complex environments (24% and 30%, respectively); and in Italy, the lack of timely data access (22%).



Base: Total Sample (n=500); differences of 7% are generally significant at the 95% confidence level.

To address these diverse objectives, the Denodo Platform leveraged and expanded on the principles of data fabric, in accordance with the company's vision of logical data management, so that the Denodo Platform embodies the principles of *logical* data fabric. In a logical data fabric, the different data sources are logically connected so they do not need to be collected in a single repository in advance. Logical data fabric decouples the representation of the data from where it is physically stored.

77% of organisations feel that they clearly understand the advantages of moving to a distributed data management architecture, or that a centralised approach to data management best serves their needs (75%). 73% agree that they are able to integrate data from a variety of sources without slowing their time-to-market, 72% say that the most effective data management platform includes a catalogue/menu/reference guide that enables anyone to easily understand what data is available, 71% say that their organisation's data is only at full value when everyone can easily access the data that they need to use on a day-to-day basis, and 69% say that traditional architectures are beginning to suffer in a world that produces data ever faster. 61% are concerned about replicating existing data silos in a cloud environment.



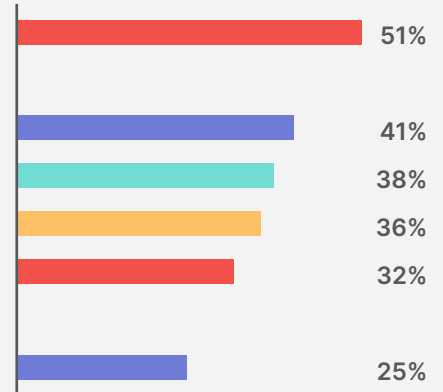
Base: Total Sample (n=500); differences of 7% are generally significant at the 95% confidence level.

Half of organisations feel that one of the advantages of having a formal data management policy is integrating information from multiple sources in a more agile way, facilitating access for every employee who needs it. 41% feel that an advantage is the ability to comply with current security/privacy regulations, e.g., GDPR, and 38% feel that an advantage is improving consistency/cooperation across multiple teams. 36% feel the advantages include improved profits, and 32% feel that they include enabling anyone to use the data they need, according to the principles of data-driven transformation. Only 25% feel that improved time-to-market is an advantage of having a formal data management policy.

U.K. organisations consider the greatest advantage is to comply with the current security and privacy regulations , e.g. GDPR (54%). France, Italy, Germany, and Spain share the same opinion, that the biggest advantage is being able to integrate information from multiple sources in a more agile way, facilitating access for every employee who needs it.



- Integrate information from multiple sources in a more agile way, facilitating access for every employee who needs it.
- Comply with the current security and privacy regulations (e.g. GDPR).
- Improve consistency and cooperation across multiple teams.
- Improve profits by using the information in the most effective way.
- Enable anyone to use the data they need, according to the principles of data-driven transformation.
- Improve time-to-market.



Base: Total Sample (n=500); differences of 7% are generally significant at the 95% confidence level.





Data Democratisation

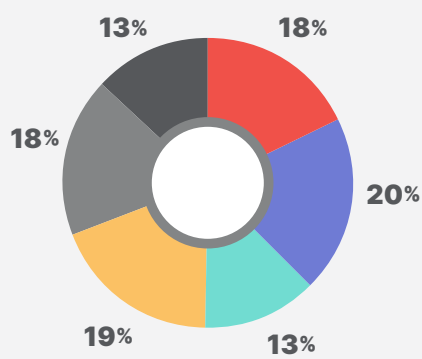
In this era of data-driven transformation, data democratisation is the *sine qua non* of making business decisions accurate, timely, and based on the available data.

Enabling data democratisation is, however, a complex journey that involves all company dimensions (organisational, cultural, and technological). It is one that must therefore be planned in a harmonious and balanced way, combining organisational interventions with cultural and communication paths and, finally, the right technology, which enables the implementation of what would otherwise be a purely theoretical exercise.

It is precisely these elements that pushed Denodo to propose its new approach to data management, one that leverages such concepts as agility, clarity, simplicity, and efficiency, and one that places the data consumer at the very centre. In a democratic context, rights must be easily exercisable; otherwise, they become privileges, which would create a data divide that would run counter to the goals of the initiative.

The report reflects that companies leverage no single, predominant method for accessing company data, and that companies are evenly split between those that feel that data should only be accessible to senior staff members or the IT department and those that feel that any staff member should be able to access data.

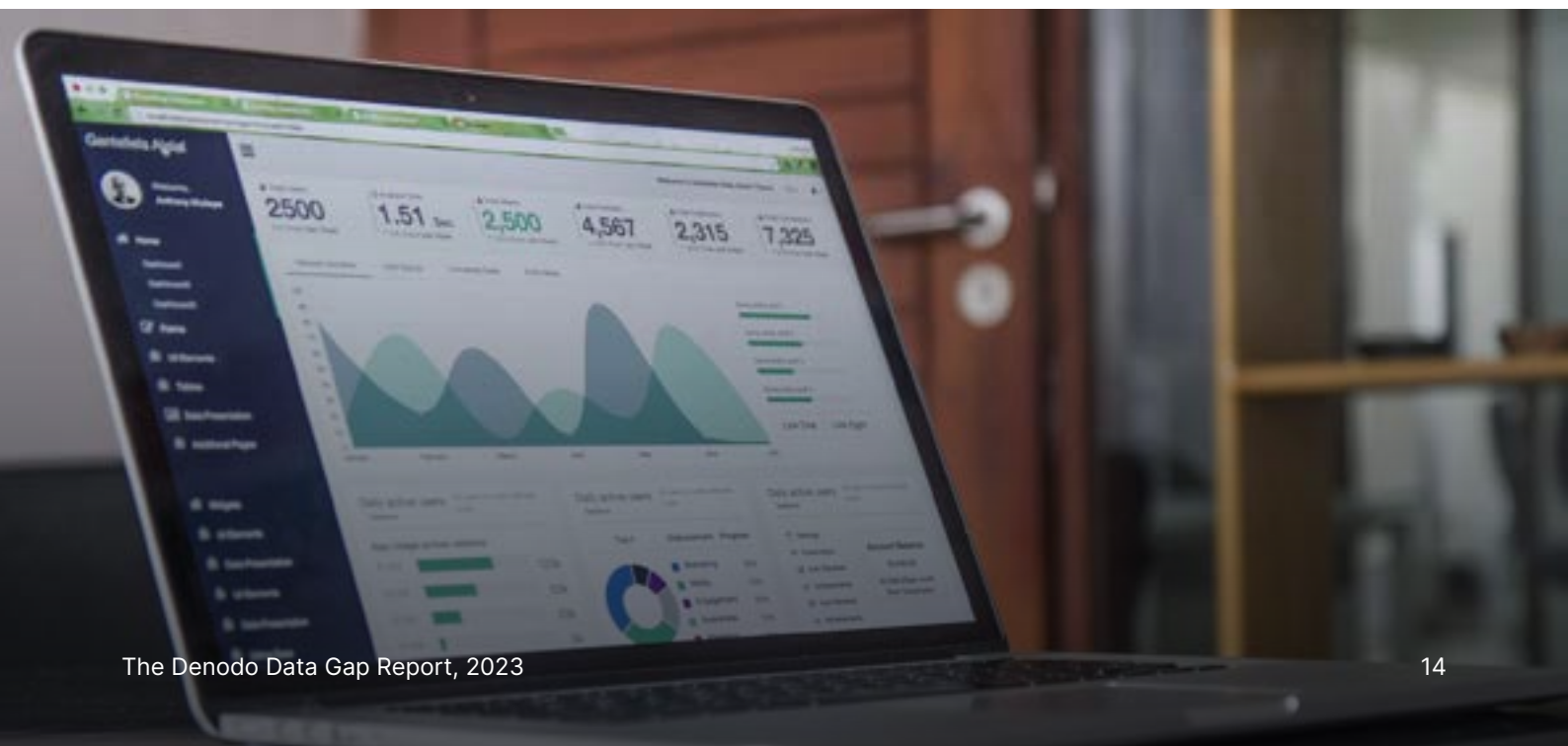




- Only C-level managers and above (and anyone in the IT Department).
- Only senior managers and above (and anyone in the IT Department).
- Only anyone in the IT Department, who can access it at any time.
- Anyone, but they must make an explicit request to a dedicated team, which will provide them with a copy of the data, according to agreed-upon methods.
- Anyone is able to use company data independently, but only by contacting a specific team/person first, in order to get access.
- Anyone is able to use company data independently, without having to contact a specific team or person.

Base: Total Sample (n=500); differences of 7% are generally significant at the 95% confidence level.

When access is restricted, 18% of organisations confirmed that only C-suite managers and above can access the data, 20% by senior managers and above, and 13% by the IT department. When access is open to anyone, 19% must make an explicit request to a dedicated team that provides them with company data according to an agreed-upon method, 18% only by contacting a specific team/person first, with the remaining 13% of organisations having staff that are able to access company data without having to contact a specific team or person.

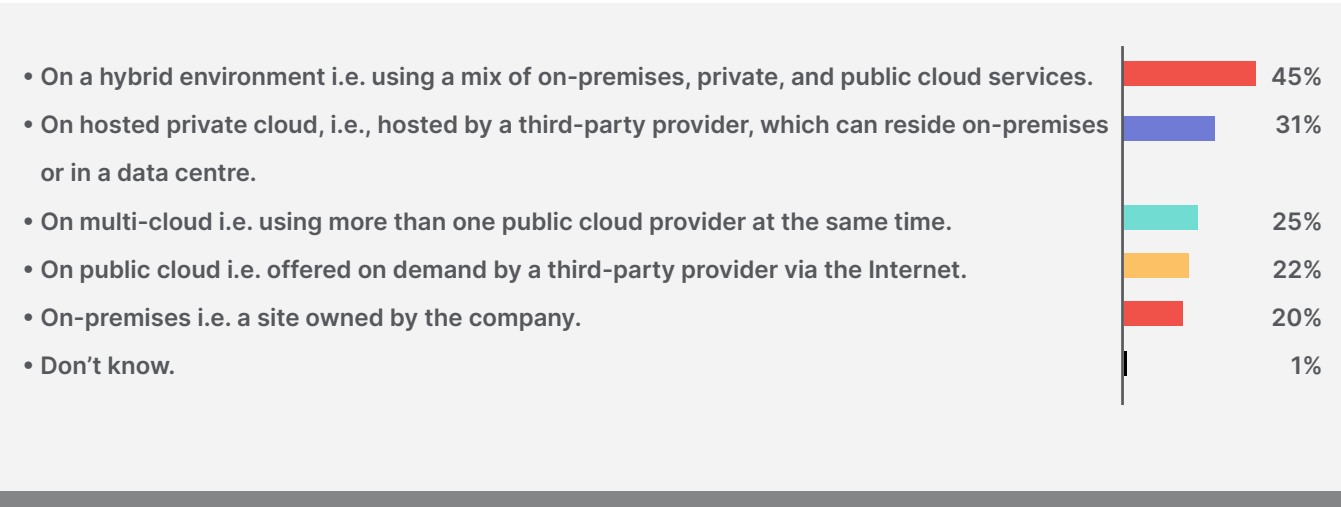




Cloud

The success of hybrid and multi-cloud architectures, while enabling greater efficiency and flexibility, also pose the problem of how best to migrate data and applications onto different platforms. This not only involves the migration from on-premises systems to the cloud, but also from on-premises data warehouses that run obsolete platforms to a more modern one. It is important to minimize the impact of these migrations, especially on users of applications and data, so that the underlying changes are not even noticed.

The research shows that during migrations, almost half of the companies use a hybrid environment (a mix of on-premises, private cloud, and public cloud services) to store the data, 31% use a private cloud (hosted by a third-party provider, on-premises, or in a data centre), 25% use a multi-cloud environment (more than one public cloud provider at the same time), 22% use public cloud environments, and 20% store data on their own premises.



Base: Total Sample (n=500); differences of 7% are generally significant at the 95% confidence level.

From this point of view, a logical data management platform, which provides a decoupling semantic layer between the meaning (logical component) of the data and their specific instances (physical component), represents an ideal solution. Users consume the data through the logical level, and the logical data management platform manages the connection between this level and the physical one so that, if the migration affects one or more of the managed data sources, this can be automatically managed by the platform without data consumers being aware of it.



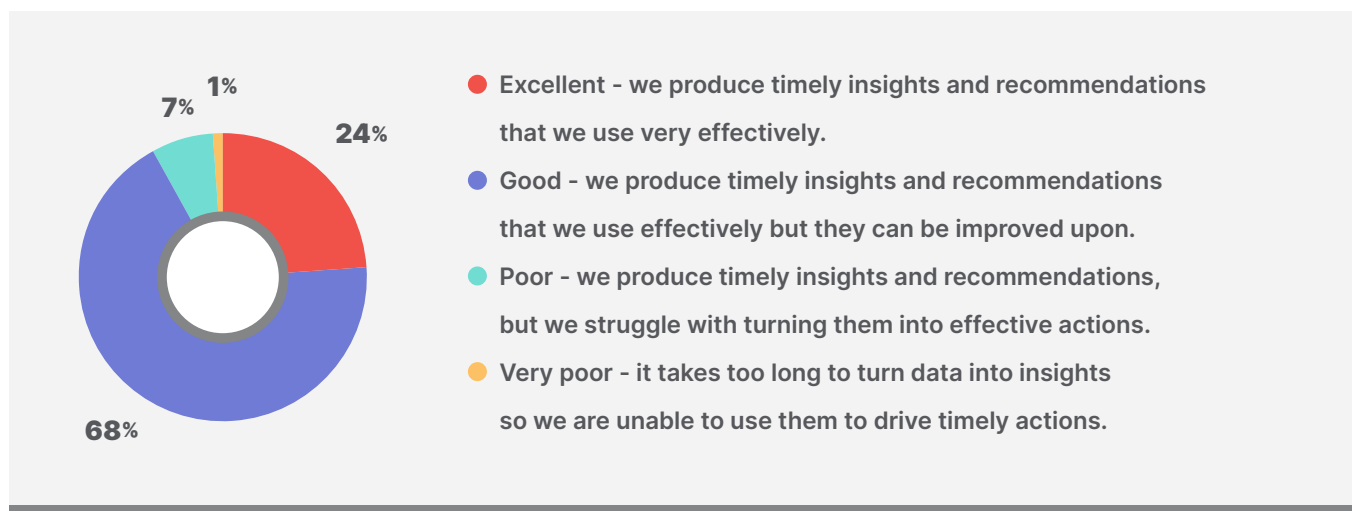
Analytics

In the spirit of data democratisation, everyone should have simple access to data so they can operate as autonomously as possible and reach their objectives as quickly as possible. Business analysts and data scientists, who deal with data analysis, are an important group of data consumers. For these stakeholders, the need to analyse a phenomenon starts from the search for the data to explain it.

This activity, the preliminary exploration of the available information assets, is made up of various sub-activities, such as consulting the available data, understanding the meaning of the data, and knowing the data's origin and mutual relationships. When we talk about autonomy, therefore, we must imagine a data management solution that can simplify all of these tasks, because before we can even *use* data and evaluate its quality, we need to be able to *understand* it.

The majority (92%) of organisations are optimistic about their data and analytics platforms/teams' ability to efficiently use company data, but 68% still see room for improvement. Only 8% felt it was poor.

France is the most optimistic country (96%) about their data and analytics platforms/teams' ability to efficiently use company data, while Spain is the country that sees the most room for improvement (72%). It is followed by the United Kingdom (69%), Germany (68%) and Italy (65%).

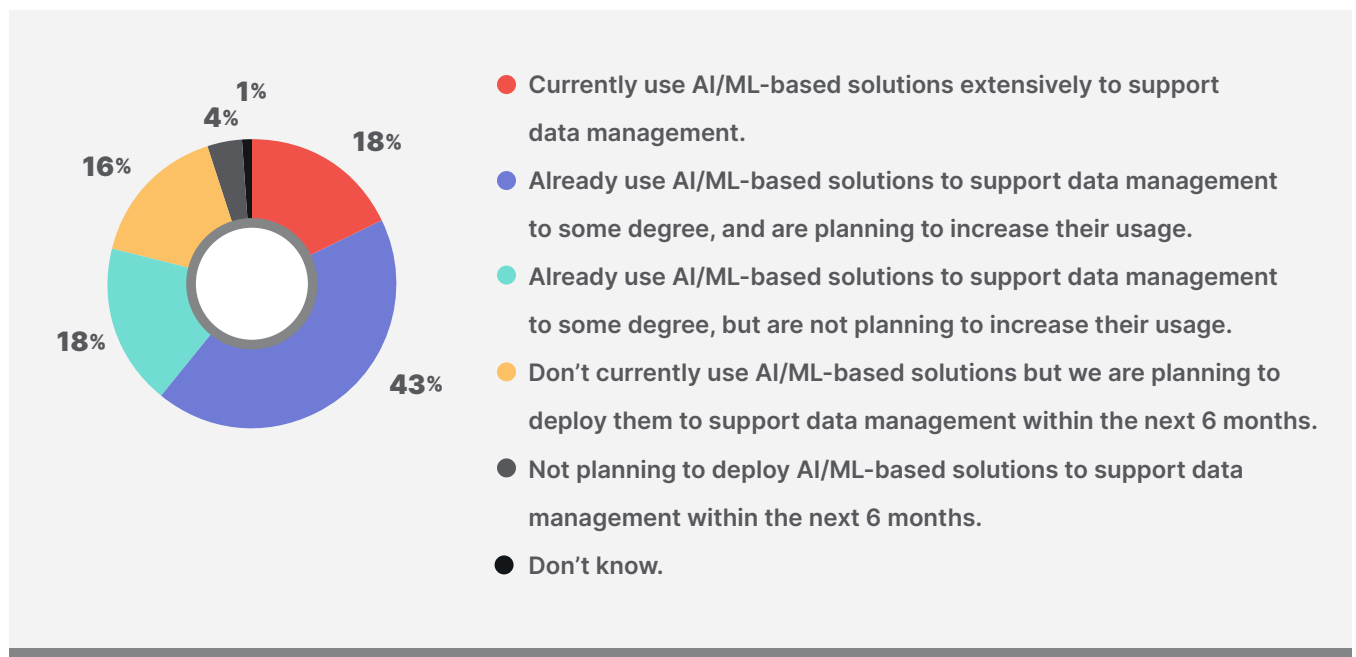


Base: Total Sample (n=500); differences of 7% are generally significant at the 95% confidence level.



Artificial Intelligence/Machine Learning (AI/ML)

Just 18% of organisations currently use artificial intelligence/machine learning (AI/ML) extensively. Although another 18% uses it to some degree but are not currently planning to increase their usage, 43% are planning to increase their usage. 16% do not currently use AI/ML but are planning to do so within the next 6 months, and very few (4%) have no plans for it.



Base: Total Sample (n=500); differences of 7% are generally significant at the 95% confidence level.



A further step forward towards enabling the autonomy of data consumers is to provide them with functions that suggest potential data to explore based on data they have consumed in the past or have consumed frequently. This type of help becomes fundamental as the volume of available data grows and as it becomes increasingly difficult for consumers to find the data they need or even to notice recently added data that may be of interest.

Similar support can also be offered to data stewards or data engineers, suggesting specific actions when they need to model complex data, so that these tasks can be performed with maximum efficiency.

In the spirit of logical data fabric, the Denodo Platform already offers solutions of this type, for both types of users, to make data management even more agile and simple.





Conclusion





With a new vision of data management that places the data consumer at the centre, Denodo developed the Denodo Platform. The Denodo Platform aligns with the principles of data fabric, which enables data consumers to meet all of their needs with a minimum of difficulty.

But the speed with which the world moves, a speed that always seems to accelerate, suggests that even data fabric can — and perhaps must — be further improved upon by evolving into *logical* data fabric. This view is supported by leading analysts, who in recent years have observed that a transition from physical architectures to logical architectures is necessary. With such a transition, a plurality of systems fit for specialised purposes would be logically connected, without the need to collect data beforehand, providing that necessary decoupling between what the data logically represents and where it is physically stored. Facilitating this transition from a physical to a logical data fabric is core to the mission of Denodo, which developed its own platform based on the belief that it is no longer tolerable to spend time trying to discover where the data is located, what it represents, and how it can be accessed, when all that data consumers need, be they users or applications, is to be able to easily and immediately access all the data they need, regardless of its location, format, and other technological, syntactic, and semantic complexities.



This new way of integrating data with ease and agility, made possible by the logical-physical separation enabled by data virtualization (the underlying technology that enables a logical data management approach), not only fully addresses the needs of data consumers but brings other advantages to data architects and developers. Because logical data management solutions enable organisations to address and resolve many of the problems that arise from the data's distribution and heterogeneity, such solutions facilitate the work of the IT team, who no longer have to be burdened by the need to copy and duplicate data for the sole purpose of making it available and integrable.

If data fabric looks promising to those who have to use the data rather than those who have to manage it, logical data fabric should represent a significant step forward. Logical data fabric combines a modern, efficient data consumption model with the agility of a virtualized approach that is based on connecting rather than collecting. We must not forget that in a data democracy, it is not enough to define rights and duties; we also have to do what we can to ensure that these rights and duties can be exercised with ease, so they do not become privileges, which runs counter to the project.



Methodology

The results summarized in this report are based on an independent online survey conducted by 3Gem on behalf of Hotwire/Denodo. 500 mid/senior managers (100 each in the U.K., France, Germany, Italy, and Spain) who use company data at least quarterly, were surveyed from August 9 to August 29, 2023.

n=500 mid/senior managers who use company data at least quarterly, in very large (1000+ employees) organisations, in 5 markets:

- **n=100 each in the U.K., France, Germany, Italy, and Spain.**
- **Working in very large (1,000+ employee) organisations.**
- **Employed full-time, part-time, or self-employed (virtually all were full-time employees)**
- **At least mid/senior managers, including C-Suite and owners/MDs.**
- **Using company data at least quarterly (although 95% use it at least every 2-3 days).**

This report is accompanied by a full set of tables, including sub-group analysis. Figures in this report have been rounded to the nearest single percent. When combined scores are shown in this report, they have been calculated based on raw data counts and so they may appear to have a difference of +/- 1% from summing the percentages. When percentages do not sum to exactly 100%, this is due to computer rounding or to the relevant question having a multi-answer format.



Denodo is a leader in data management. The award-winning Denodo Platform is the leading data integration, management, and delivery platform using a logical approach to enable self-service BI, data science, hybrid/ multi-cloud data integration, and enterprise data services. Realizing more than 400% ROI and millions of dollars in benefits, Denodo's customers across large enterprises and mid-market companies in 30+ industries have received payback in less than 6 months.

Visit www.denodo.com | Email info@denodo.com | Discover community.denodo.com