

Data Mesh: Game Changer or Just Hot Air?

Is data mesh a sustainable approach to data
responsibility in the business

Topical Survey

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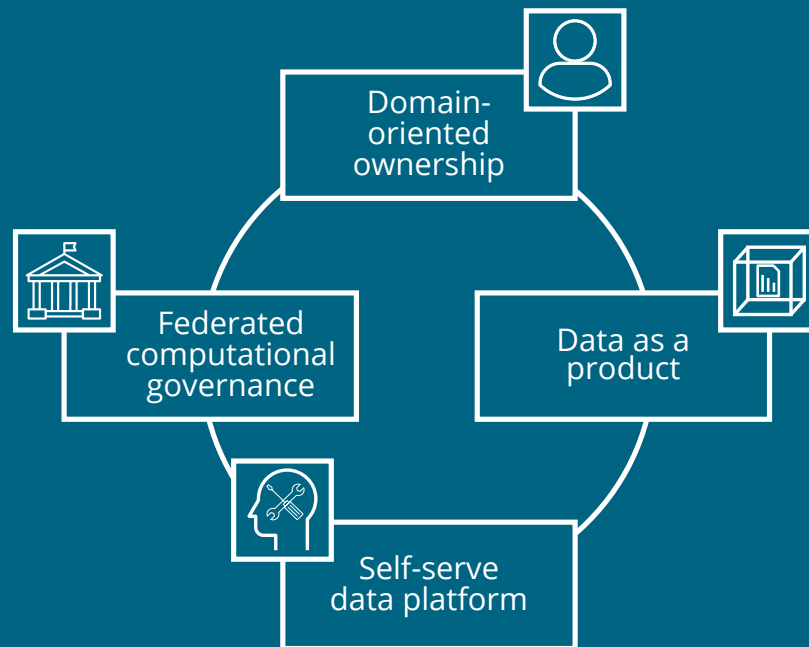


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Preface

Data mesh is a hot buzzword, but what is behind it? Regardless of how one feels about it, the concept addresses some highly relevant areas. It is about a focus on data products and the decentralized creation of and responsibility for data products in the line of business, which are based on a self-service analytics infrastructure and federated data governance with a high degree of automation.



But does data mesh really address the central pains that many companies are struggling with? Are the principles of data mesh suitable for solving these challenges in practice? What functional, technical and organizational measures are companies applying and how far have they come? Are there special demands on the technology?

This study examines how companies view data mesh and how relevant the concept is in terms of their data democratization journey. It explores the organizational and technical directions enterprises are currently choosing and the experience they have gained so far. We examine how consistently data mesh advocates act and how that differs from the actions of those who do not consider data mesh relevant. We also consider data intelligence in the context of data mesh.

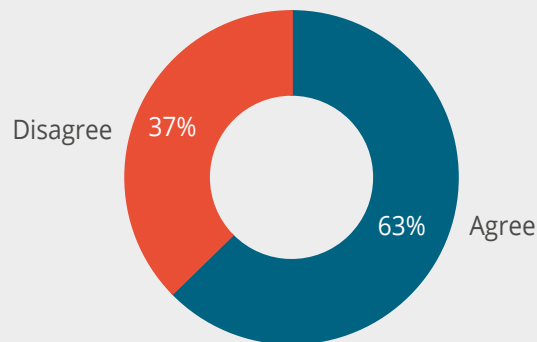
It has clearly been confirmed that all the pillars of data mesh are highly relevant to most organizations and are being implemented by many, regardless of whether they are called data mesh or not. However, there is no one-size-fits-all approach. The data mesh toolbox must be adapted to the reality of the company and supplemented by other measures. Each company must plot its own individual data democratization journey – it won't be found in the data mesh book.

Jacqueline Bloemen
Würzburg, April 2023

Management Summary

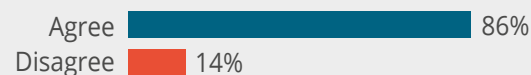


Central D&A-teams lack business domain expertise, which is a risk to data & analytics assets:



To what extent do you agree with these statements?
(n=334)

Data is a revenue driver:



To what extent do you agree with these statements?
(n=334)

Apply product thinking to D&A assets:



Which of these measures are relevant for your company to improve the quality of its D&A assets? (n=322)

1

Should Business Domains Own Data Products?

Executives in particular believe that centralized data teams will not meet future data & analytics requirements. They do not scale sufficiently and lack domain expertise. In practice, the shift towards more data ownership in business domains is well underway. Ownership of reports/ dashboards and ad hoc and visual analytics already lies primarily in the business domain. In terms of data preparation, the responsibility currently lies mainly with technical users - but there is also a notable ownership share in the business, especially for consumer-oriented and ML/AI-oriented data products.

To become a more data-driven enterprise, you need a shift towards more decentralized data ownership in the business domains. A decentralized model ensures scalability and thus flexibility and agility. In addition, domain expertise creates even better data products that meet business requirements. In this scenario, the central data teams take on a new, very important role. They support the business domains as advisors, and ensure the availability and stability of the data & analytics platform.

2

What Sharing Data as a Product Implies

When data is a revenue driver, it needs to be treated as an asset. The most important measure to improve the quality of data & analytics assets in the enterprise is to treat data as a product. This should apply not only to analytical data, but above all to operational source data. Continuous monitoring helps ensure the targeted improvement of data assets. However, these conclusions are not reflected in practice.

Handle your data as you handle your products. Data products, like any product, should be valuable, feasible and desirable. They need to adhere to a set of usability characteristics determined by data product consumers. Finding the right balance requires monitoring and targeted improvement driven by business priorities. Therefore, place the responsibility for the appropriate alignment of data products in the hands of the business units.

Management Summary



3 Does Self-Service Empowerment Require a Central Platform?

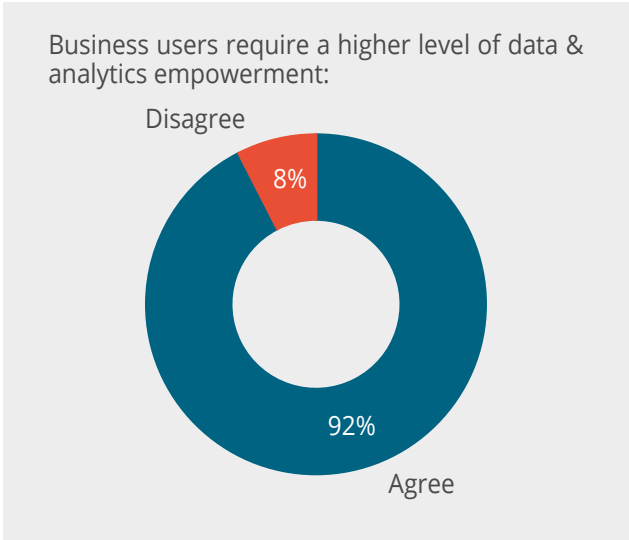
It is undisputed that business users need to be empowered to perform their data & analytics tasks through a self-serve data platform. However, there is no one-size-fits-all self-service offering. For most users, elementary analytical functions such as report/dashboard authoring, data visualization and ad hoc analysis are very important. Data & analytics experts place more value on advanced analytics and their integration into operational systems than the average user. In doing so, they obviously aim to generate more value from analytics than just with passive numbers.

Shape your self-serve data platform according to the needs of different target groups. Casual users need to be supported differently than data-savvy users. The latter are increasingly demanding to be empowered in the direction of data preparation and advanced analytics. These divergent needs do not necessarily have to be addressed in a single platform. Plan your platform and architecture in such a way that you can make data assets from different platforms available and linkable as needed.

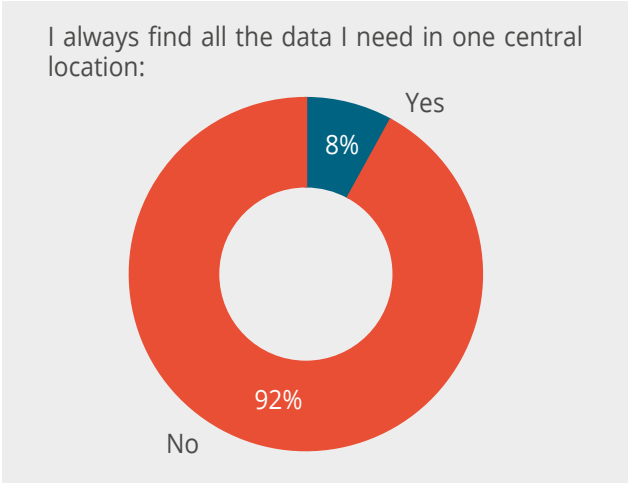
4 Federated Data Governance on the Rise

When data & analytics are used extensively in every business domain, a purely centralized governance concept threatens to reach its limits. While the chosen approaches to data governance are diverse, central and federated approaches are currently much more popular and successful than local ones. Process and data experts from business units as well as managers are more satisfied with the results of their measures than participants from central data & analytics teams or IT in general.

Whether centralized or federated, choose a data governance approach that fits current requirements, governance maturity and corporate culture. Avoid purely local approaches, however, as these are less successful according to our study. Be aware that your data governance approach will need to evolve over time, as 77 percent of participants confirm. With increasingly distributed data & analytics utilization across business units, a more federated approach is advisable.

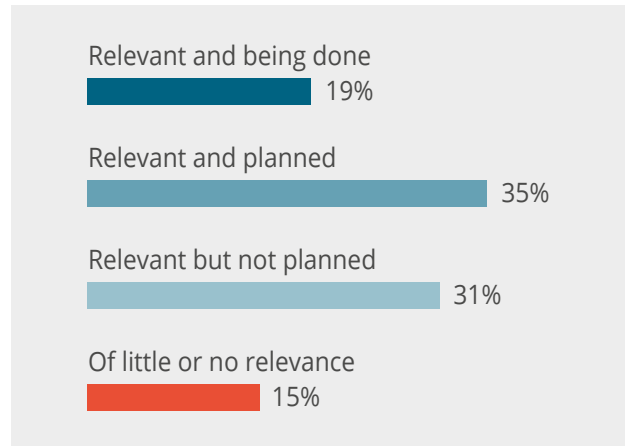


To what extent do you agree with these statements? (n=334)

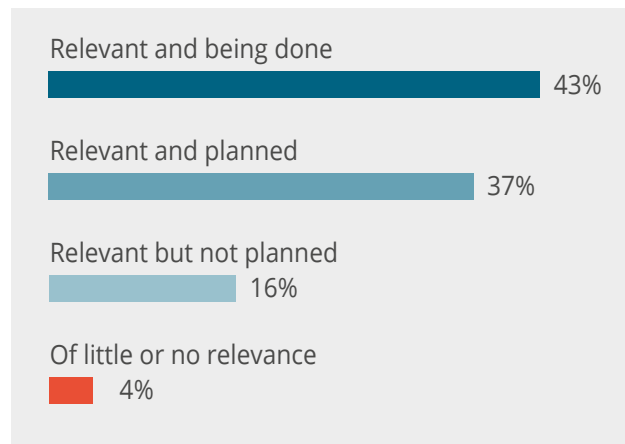


How often do you meet your information needs through the following sources? (n=335)

Management Summary



How relevant is the data mesh concept for your company? (n=293)



How relevant is data intelligence for your company? (n=313)

5 Is Data Mesh Understood and Appreciated?

Despite the relevance of data mesh in general, not all organizations seem to consistently adhere to all four data mesh principles. Only a few of the companies that are already implementing a data mesh also want to shift responsibility for data assets to domain teams in business. On the other hand, most companies clearly see the connection between applying product thinking to data and data mesh. In terms of platform design, no clear preference can be discerned among the data mesh implementers. However, most of our study participants are convinced that data & analytics should be organized in a much more distributed manner in the future.

Independent of the discussion around data mesh, the concept addresses some highly relevant areas. The principles are currently being adopted by many organizations, regardless of whether they are called data mesh or not. Be inspired by this and evaluate their applicability to the current challenges of your data & analytics landscape and organization. Check which measures are currently realistic for you, because not all of them can be implemented equally well and equally quickly. Monitor the selected steps so you can show their benefits. Investments in data & analytics should pay off, and this should be transparent.

6 Data Intelligence: The Key to Success

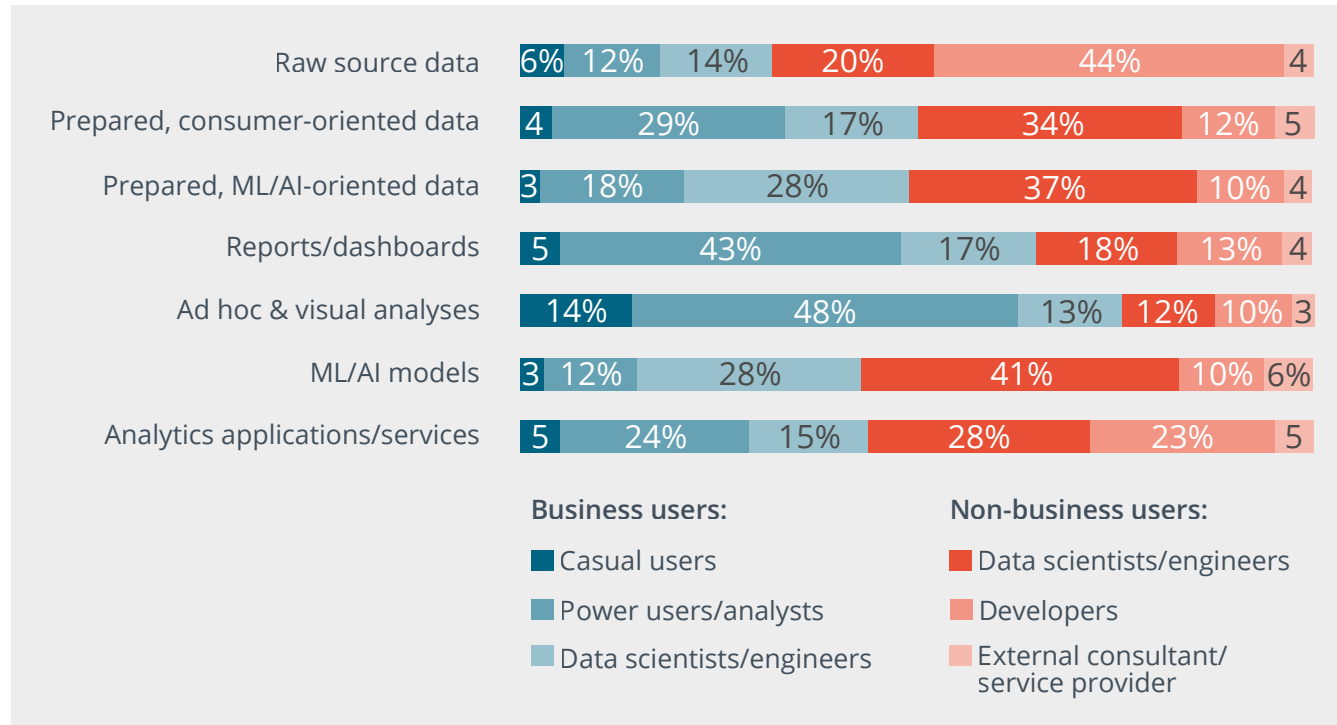
80 percent of study participants are planning a data intelligence initiative or are already implementing one. Data intelligence goes beyond the mere cataloging of data assets. It leverages metadata to ensure efficient and effective collaboration between data product owners and data consumers. Platforms that support data intelligence provide the source for the federated computational governance propagated in the data mesh concept.

The democratization of data will only succeed if access to and understanding of data assets is simplified. Data citizens need to be able to search for assets and find information about their origin and nature. Enable them to share experiences with other data workers. A rating system will help to make the benefits of data measurable. Consider implementing a data intelligence platform that supports data provisioning and use, and enables streamlined monitoring and governance.

01. Should Business Domains Own Data Products?



The need for data agility and freedom - a contradiction to centralized data management?



Who is mostly responsible for the following data products in your company? (n=326)

Since the emergence of the data warehouse idea, companies have designed their teams for the development and support of data & analytics solutions fundamentally differently than for other business applications. The latter are typically implemented by domain-oriented teams that cooperate closely with the domain experts in the

lines of business. For data & analytics applications, on the other hand, functional teams develop applications across many domains.

However, a centralized approach to data & analytics poses major risks, as participants in our survey confirm. 55 percent of respondents see the

insufficient scalability of central data & analytics teams as a problem. Among executives, this opinion is even more widespread (65 percent). A lack of domain expertise in these functional teams is seen as a problem by as many as 63 percent of participants. Here, too, the level of agreement on the business side is even higher (business departments: 72 percent; executives: 79 percent).

The current trend toward more self-service analytics is already addressing this dilemma to some extent. According to our study, this is particularly evident in the responsibility for reports and dashboards as well as ad hoc and visual analyses. The majority of these are already in the hands of business users (65 and 75 percent respectively), primarily power users and business analysts. However, it is interesting to note that responsibility for data preparation (raw source data: 32 percent; consumer-oriented data: 50 percent; ML/AI-oriented data: 49 percent) and the creation of ML-based solutions (43 percent and 44 percent respectively) is also already quite frequently in the hands of business users. But the responsibility for managing data assets is most often still in IT. 44 percent of study participants indicated that raw data is provided by developers in IT. Consumer and ML/AI-oriented data, as well as ML/AI models and applications, are most commonly created by data scientists/engineers in IT.

02. What Sharing Data as a Product Implies



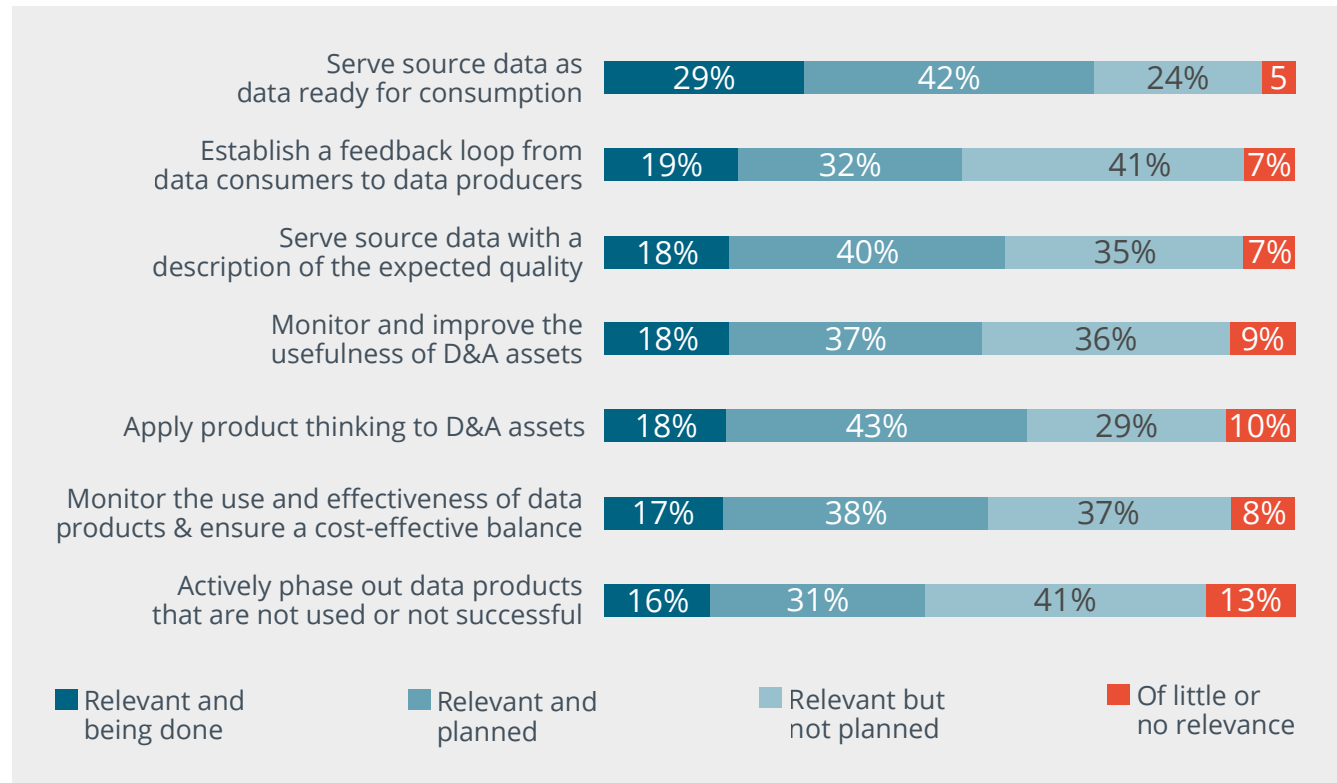
If data is to become an asset, we must handle it accordingly

The importance of data is reflected in the measures that companies take to improve the quality of these assets. 90 percent of study participants believe that applying a product mindset to data should be one of these measures. 71 percent are already implementing this or plan to do so shortly.

Participants state that not only analytical data but also raw source data should be treated as a product. Only 7 percent consider this measure to be of little or no relevance. Despite this, 41 percent have no plans for corresponding action as of today.

Monitoring and targeted improvement of the usability of data assets has also been treated rather indifferently so far. 36 percent are not yet planning any action despite its relevance.

Current responsibilities may be an obstacle here. To improve quality and usefulness, for six of the seven data product types surveyed, participants would like to see a shift of responsibility towards business units. These include not only reports/dashboards (58 percent) and ad hoc analytics (61 percent), but also data preparation for consumers (54 percent) and ML/AI (50 percent). It is noteworthy that many important data assets appear to be created by casual users, power users and data science specialists alike. In the future, these tasks are more likely to be performed by focused domain or data teams. There are tendencies both in the direction of business departments and in the direction of IT.



86%

agree that data is a revenue driver.

Which of these measures are relevant for your company to improve the quality of its data & analytics assets? (n=322)

03. Does Self-Service Empowerment Require a Central Platform?



Finding the right balance between flexibility and standards

92%

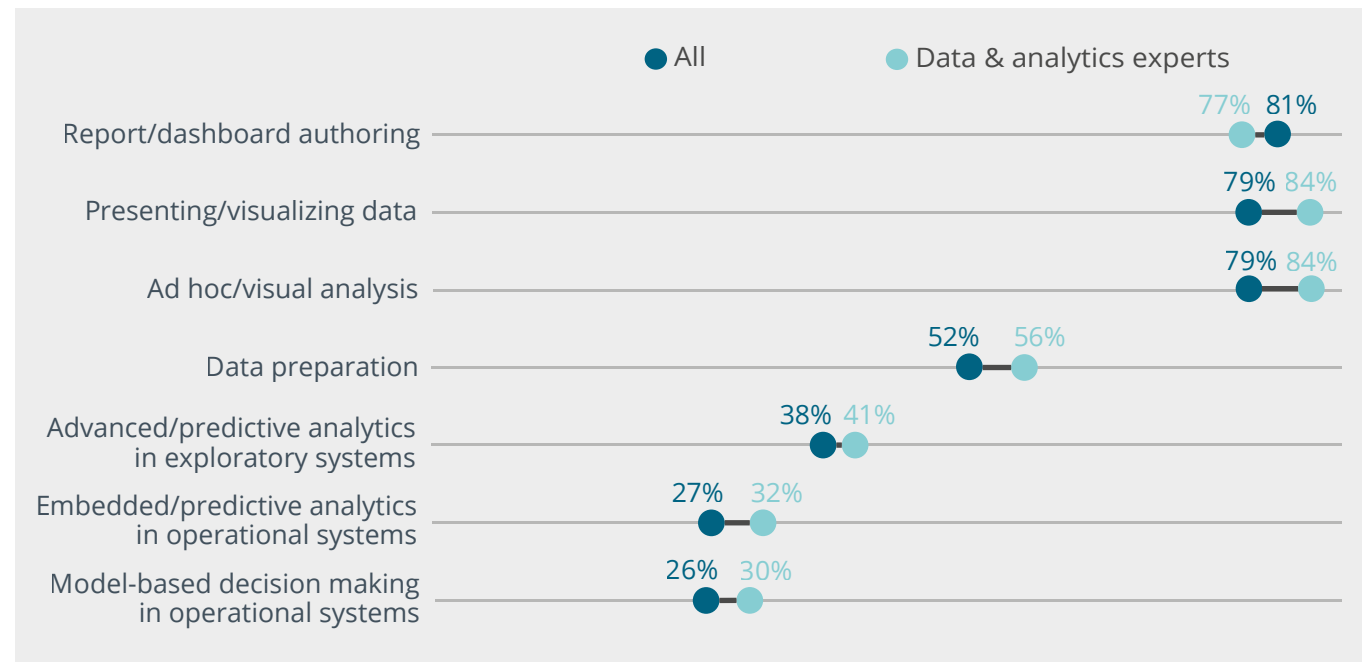
of our study participants agree that business users require a higher level of data & analytics empowerment.

But what is the best way to design the technology landscape to meet the requirements of heterogeneous user groups and enable the sharing of data products? The key is to ensure lean and cost-efficient operation, compliance with governance requirements and provide data tools that departments and data domains can deal with. But it must also be possible to share self-service

data assets with other users. A large majority (89 percent) of our participants agree. 41 percent are convinced that this should be done on a single central platform. Another 48 percent, on the other hand, see it as justified to offer additional platforms if the need arises. Such an approach would be very much supported by data & analytics experts (54 percent).

Data & analytics self-service is a rather imprecise term. The primary focus is currently on reporting/dashboarding (81 percent) as well as visual and ad hoc analysis (79 percent each).

Interestingly, data & analytics experts consider reporting/dashboarding to be less important than visual and ad hoc analysis. Data preparation and advanced analytics, on the other hand, are considered more important than on average. There is also above-average support for predictive analytics and model-based decision automation in operational systems (32 and 30 percent respectively). Enterprises obviously recognize that this is where analytics really generates tangible benefits.

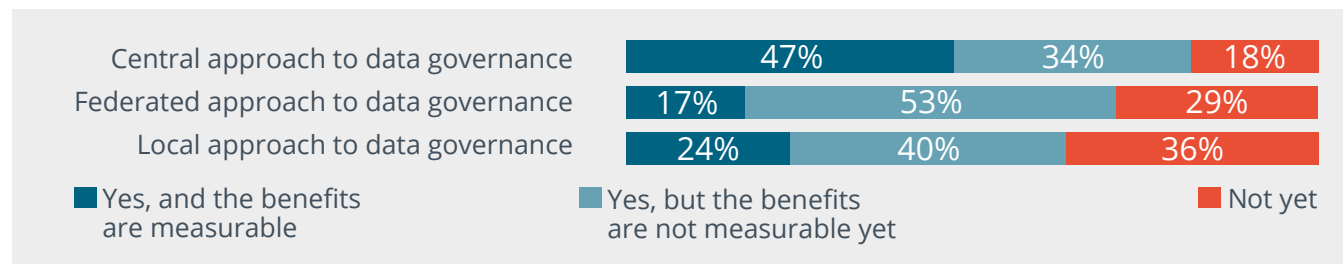


Which core functional areas should a self-service D&A platform for business users cover? by role (all n=334, role n=333)

04. Federated Data Governance on the Rise



How to balance agility, complexity and governance at scale



Which organizational data governance approach does your company follow today? by Has your organizational data governance approach generated measurable benefits? (n=266)

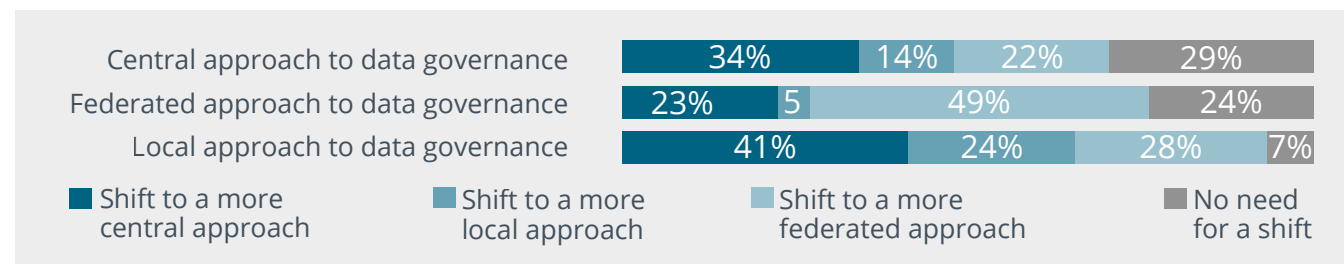
There is a widespread belief that only centralized approaches to data ownership and architecture can ensure that the desired governance principles are implemented. But this is not proven in practice. 90 percent of the study participants stated that they repeatedly have to pull data from various sources and prepare it individually. Only a few said they always find all the analyses (6 percent) or data (8 percent) they need in one central location. The increasing democratization of data & analytics will further push the trend to process data where and when it is needed. When data & analytics are used extensively in every business domain, a purely centralized governance concept threatens to reach its limits.

Among our survey participants, the chosen approaches to data governance are rather diverse. 48 percent are currently implementing centralized data governance approaches (70 percent for best-

in-class). Federated approaches are taken by 32 percent, while local approaches are followed by only 20 percent. At present, it is primarily the centralized approaches that generate tangible benefits (81 percent), 47 percent of which are measurable. Federated approaches are also successful (71 percent), but the benefits are not yet measurable in most cases (53 percent). Local approaches lag behind, both in terms of success (64 percent) and measurability (24 percent).

In practice, it is often said that business users in particular do not consider data governance measures to be effective and doubt the benefits. Our study does not confirm this at all. Managers and process and data experts from business units are more satisfied with the results of their measures than participants from central data & analytics teams or IT in general.

Despite all the successes, 77 percent of participants see a need to adjust their data governance approach. Particularly in the case of central governance concepts, it is considered necessary to focus on a more federated or local approach (23 and 41 percent respectively). Almost half of the companies (49 percent) with a currently federated approach want to expand it. Most local concepts are set to become more centralized (41 percent). Some have plans to become more federated (28 percent) or even more local (24 percent).

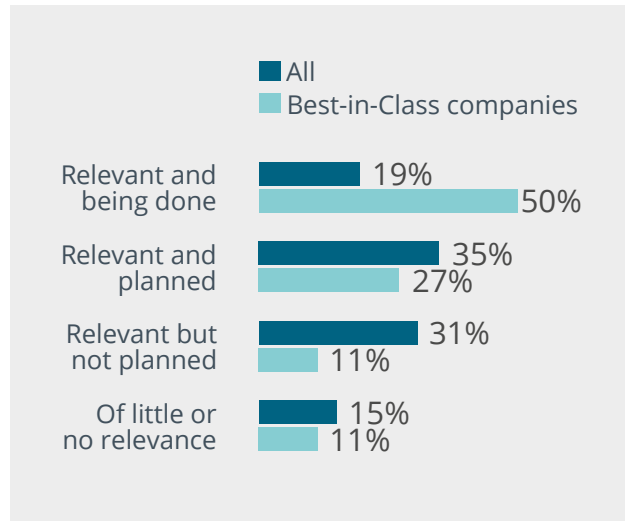


Which organizational data governance approach does your company follow today? by Do you see the need for a shift in your company's organizational data governance approach in the future? (n=271)

05. Is Data Mesh Understood and Appreciated ?

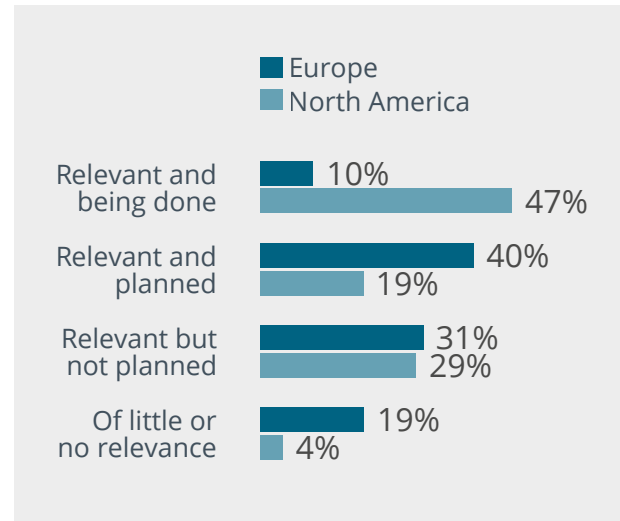


Data ownership in business – fact or fiction?



How relevant is the data mesh concept for your company? by Best-in-Class (all n=293, BiC n=110)

Data mesh is seen as relevant by 85 percent of our study participants, but only 19 percent are implementing it. Among the best-in-class companies surveyed, 50 percent are already active. The situation is similar in North America (47 percent). In Europe, only 10 percent of companies are active, while a further 40 percent have concrete plans. An analysis by company size shows that smaller organizations in particular are adopting data mesh (37 percent). Most large companies are in the planning phase (50 percent), while medium-



How relevant is the data mesh concept for your company? by region (n=293)

sized companies are less active (relevant but not planned: 38 percent).

Despite the high relevance of data mesh in general, not all organizations seem to consistently decentralize data ownership to the business domains. Only a few of the companies that are already implementing a data mesh also want to shift responsibility for data assets to domain teams in business (7 percent). Central data & analytics teams in business are more likely to be seen here

(24 percent). Those with data mesh plans, on the other hand, are more likely to rely on the business domains (47 percent). Interestingly, there are also respondents who want to implement the shift towards business domains but have no concrete data mesh plans (33 percent).

Applying product thinking to data is the most popular measure for improving the quality of data assets. Most companies clearly see the connection with data mesh here. 85 percent of respondents who already apply product thinking to data have also implemented a data mesh or plan to do so soon. In turn, data mesh is not relevant for companies that do not plan to implement data products (70 percent) or do not consider it relevant at all (72 percent).

Only **7%**

of the companies that are already implementing a data mesh also want to shift responsibility for data assets to domain teams in business.

05. Is Data Mesh Understood and Appreciated ?



Measurable benefits regardless of platform approach

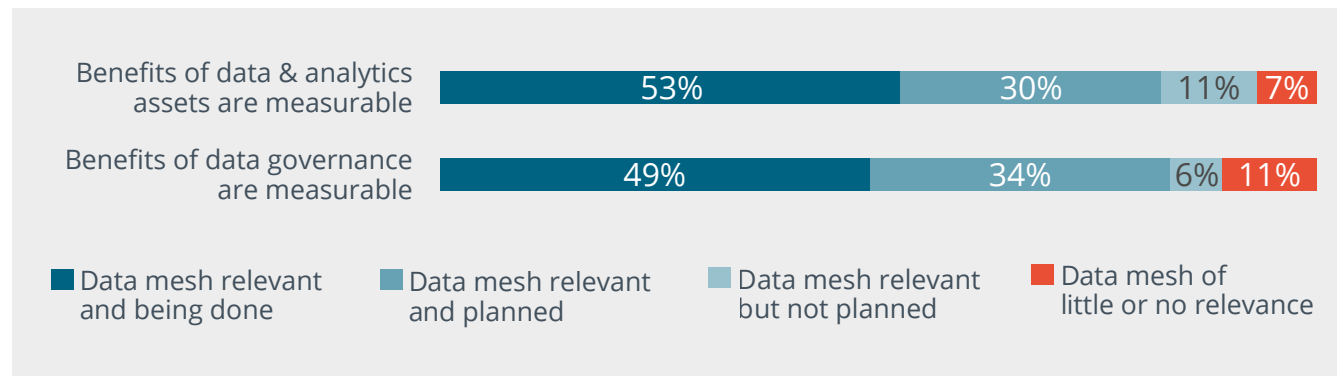
There is much discussion about whether a data mesh also requires each domain to have its own data & analytics platform. Among the supporters of domain-specific platforms, 50 percent are planning for data mesh and another 18 percent are already doing it. And yet, a centralized platform does not seem to be a limitation for data mesh either. In fact, 33 percent of single-platform supporters are already implementing a mesh, and another 32 percent are planning to. This appears to feed our observation that many companies combine the adoption of a data mesh with the move to a data lakehouse in the cloud.

84 percent of our study participants are convinced that data & analytics should be organized in a much more distributed manner in the future. In addition, practical experience shows that a federated data governance approach, as propagated in data mesh, appears to promote measurable data governance successes.

Among participants who can claim measurable benefits from their quality improvements to data assets, more than half (53 percent) are actively implementing a data mesh.

84%

agree that an increasingly distributed data & application landscape requires a more distributed approach to data & analytics.



How relevant is the data mesh concept for your company? by Have these measures to improve the quality of D&A assets generated benefits? (n=160); by Has your organizational data governance approach generated measurable benefits? (n=241)

In comparison, those who have either had no successes or cannot measure their successes in this area consider data mesh to be relevant (72 and 93 percent respectively) and want to adopt it in the near future (37 and 53 percent respectively).

The picture is very similar for the measurability of data governance successes. 49 percent of the participants who have generated measurable benefits are already implementing data mesh. 52 percent of the companies that have not yet generated any benefits from their data governance measures are convinced that data mesh would help but have no plans to implement.

06. Data Intelligence: The Key to Success



Enabling smart navigation of the data landscape

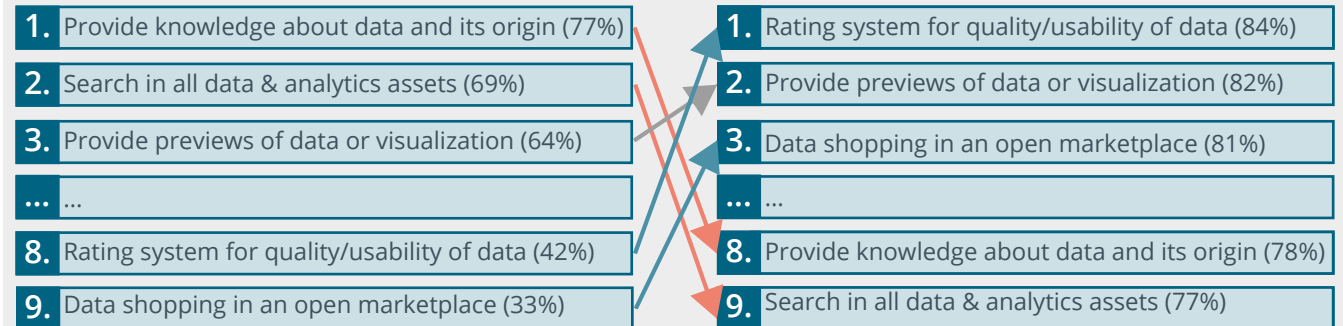
Data intelligence – an approach to leveraging metadata to maximize business value from data, improve data quality, and automate individual steps in the process – is rated as relevant by 96 percent of the survey participants. For best-in-class companies, this rises to 99 percent. This means that data intelligence is rated as even more important than data mesh, and for good reason.

A self-serve data platform, as demanded by data mesh, not only includes core data & analytics functions for analysis and data preparation. Additional supporting features, such as providing knowledge about data and being able to search across all data & analytics assets, are crucial and make a fundamental difference in the data & analytics enablement of business users including executives and other data consumers. In fact, on average, respondents rated these supporting features as more important than the core functions.

91%

agree that they could benefit from more effective means of collecting and documenting expert knowledge about their data.

Supporting features of a self-service D&A platform are important to all, but data intelligence practitioners see other priorities to be successful:



Which supporting features should a self-service D&A platform provide to help business users work more efficiently and effectively with data & analytics assets? (n=331), by “Data intelligence: relevant and being done or planned” (n=308)

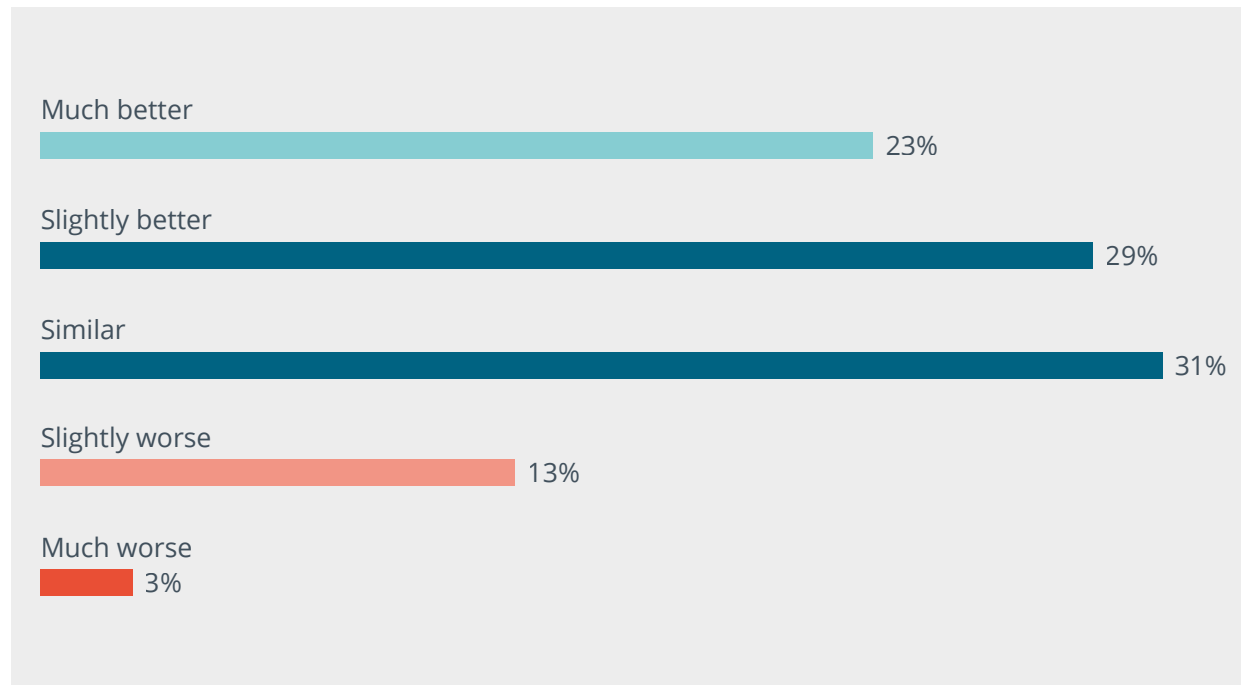
However, the respondents who stated that they have already implemented data intelligence or are planning to do so have a different assessment. For these respondents, the “top 2” functions above rank in seventh and ninth place respectively. Instead, they see functions such as a rating system for the quality and usability of data and data shopping in an open marketplace as a very high priority.

A rating system in particular helps to make the benefits of data measurable. The desire for “data shopping in an open marketplace” is related to “search across all data & analytics assets” but goes further. Every data citizen should be able to search

for internal and external data assets and request access to them as needed.

Data intelligence thus goes beyond the mere cataloging of data assets. Platforms that support data intelligence provide the source for the federated computational governance propagated in the data mesh concept. The governance of widely distributed data use will only succeed if the corresponding workflows and monitoring processes are partially or fully automated with the help of metadata and corresponding analysis. That is what the “computational” in federated computational governance is all about.

Best-in-Class



How do you rate the skills and competencies in the handling of data in your company compared to your main competitors? (n=309)

Best-in-Class vs. laggards



We have divided the sample into “best-in-class companies” and “laggard companies” in order to analyze differences in dealing with market dynamics. This differentiation was based on the question “How do you rate the skills and competencies in the handling of data in your company compared to your main competitors?”. Companies that stated that they were much better in the handling of data than their competitors are referred to as “best-in-class” (23 percent), while those that stated that they were somewhat or much worse than their competitors are classified as “laggards” (16 percent).

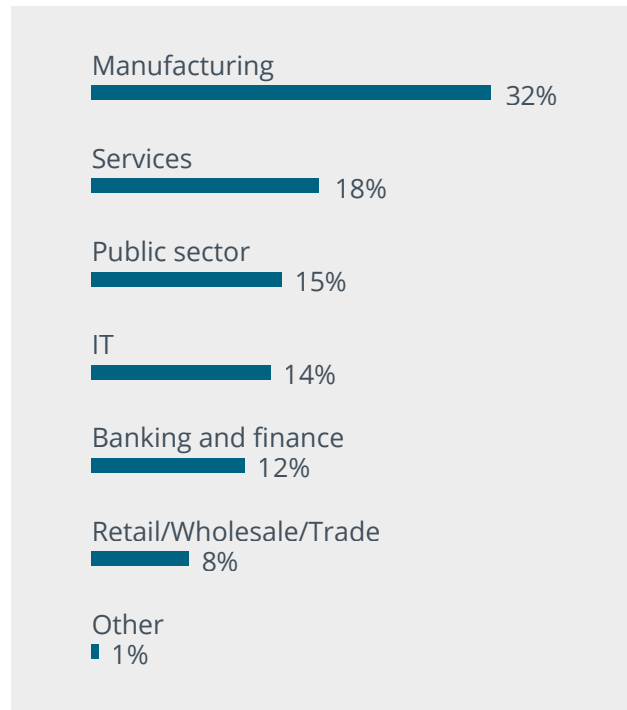
Demographics



Broad spectrum of industries and company sizes

This worldwide online study was conducted from December 2022 to January 2023. It was promoted within the BARC panel, via websites and to newsletter distribution lists.

Industry sector

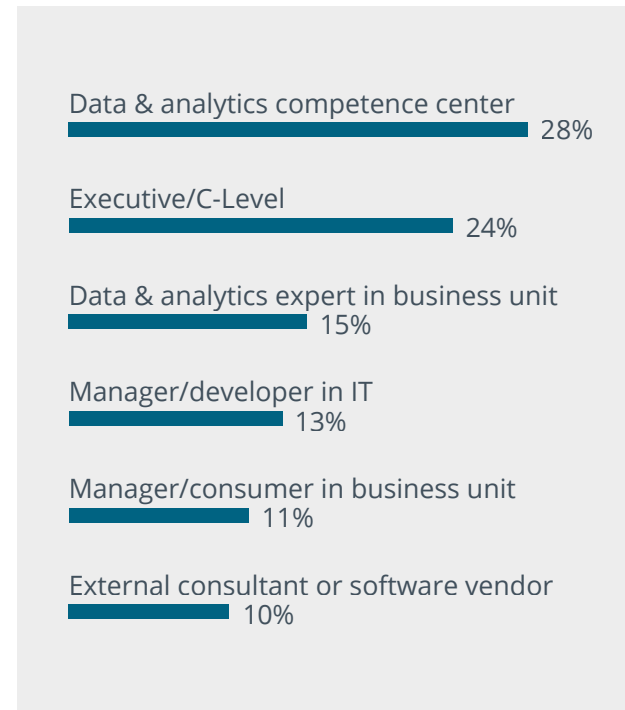


Which of the following best describes your organization's industry sector? (n=336)

A total of 345 people took part, representing a variety of different roles, industries and sizes.

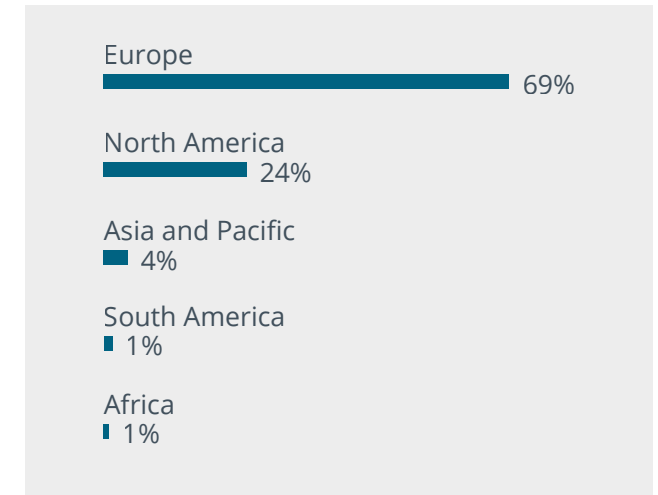
Due to rounding, totals may not add up precisely. The selection of the answer option "Don't know" is not taken into account in the sample size stated below each chart and is also hidden in the charts.

Role



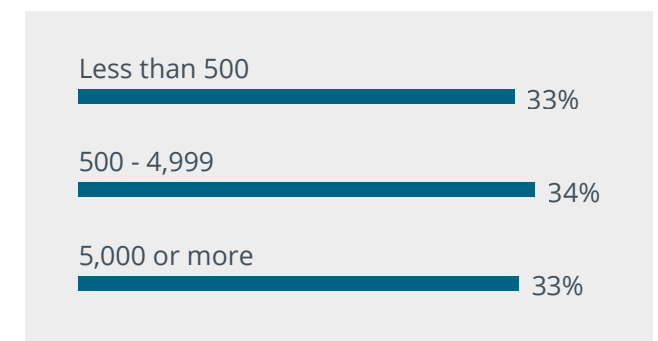
What is your role within the company? (n=335)

Region



In which region are you located? (n=336)

Company size



How many employees does your company have? (n=336)

Data Decisions. Built on BARC.

BARC

BARC

BARC is one of Europe's leading analyst firms for business software, focusing on the areas of data, business intelligence (BI) and analytics. The company was founded in 1999 as a spin-off of the chair of Business Administration and Information Systems at the University of Würzburg, Germany. Today, BARC combines empirical and theoretical research, technical expertise and practical experience, and a constant exchange with all market participants to provide market-leading research publications, events and advisory.

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BARC user surveys, software tests and analyst assessments in blogs and research notes give you

the confidence to make the right decisions. Our independent research gets to the heart of market developments, evaluates software and providers thoroughly and gives you valuable ideas on how to turn data, analytics and AI into added value and successfully transform your business.

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The BARC Advisory practice is entirely focused on translating your company's requirements into future-proof decisions. The holistic advice we provide will help you successfully implement your data & analytics strategy and culture as well as your architecture and technology. Our goal is not to stay for the long haul. BARC's research and experience-

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Leading minds and companies come together at our events. BARC conferences, seminars, roundtable meetups and online webinars provide more than 10,000 participants each year with information, inspiration and interactivity. By exchanging ideas with peers and learning about trends and market developments, you gain new impetus for your business.

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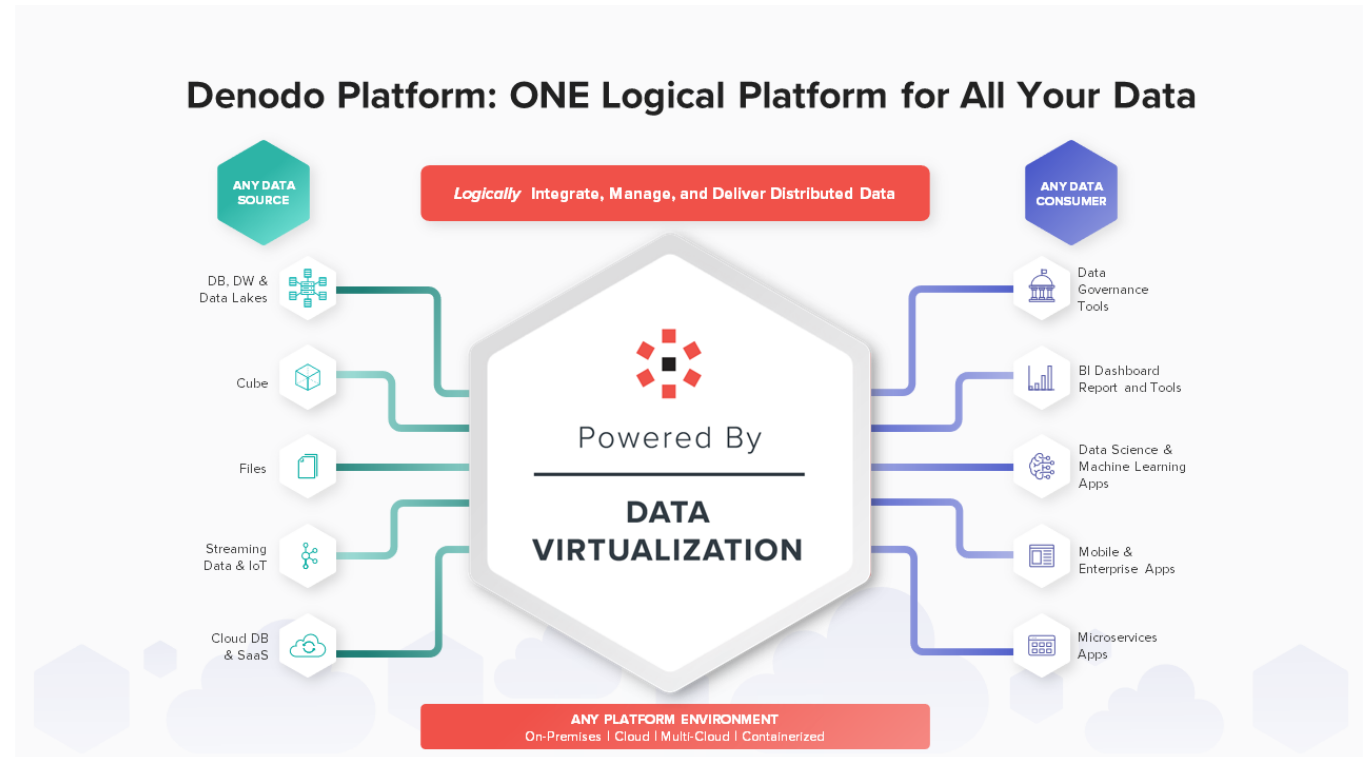
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Sponsor profile

One Data

One Data, a German software company, provides an AI-powered Data Product Builder that simplifies and accelerates the delivery of reliable, reusable, and easy-to-manage data products. It helps collaborative data teams scale their innovation to match business demands.

The Data Product Builder empowers data experts to easily connect, discover, prep, quality-check, and deploy data products. An interactive data map enables data experts to see the entire data landscape, assess data assets, and identify connections between them, reducing the time to build data products.

Germany

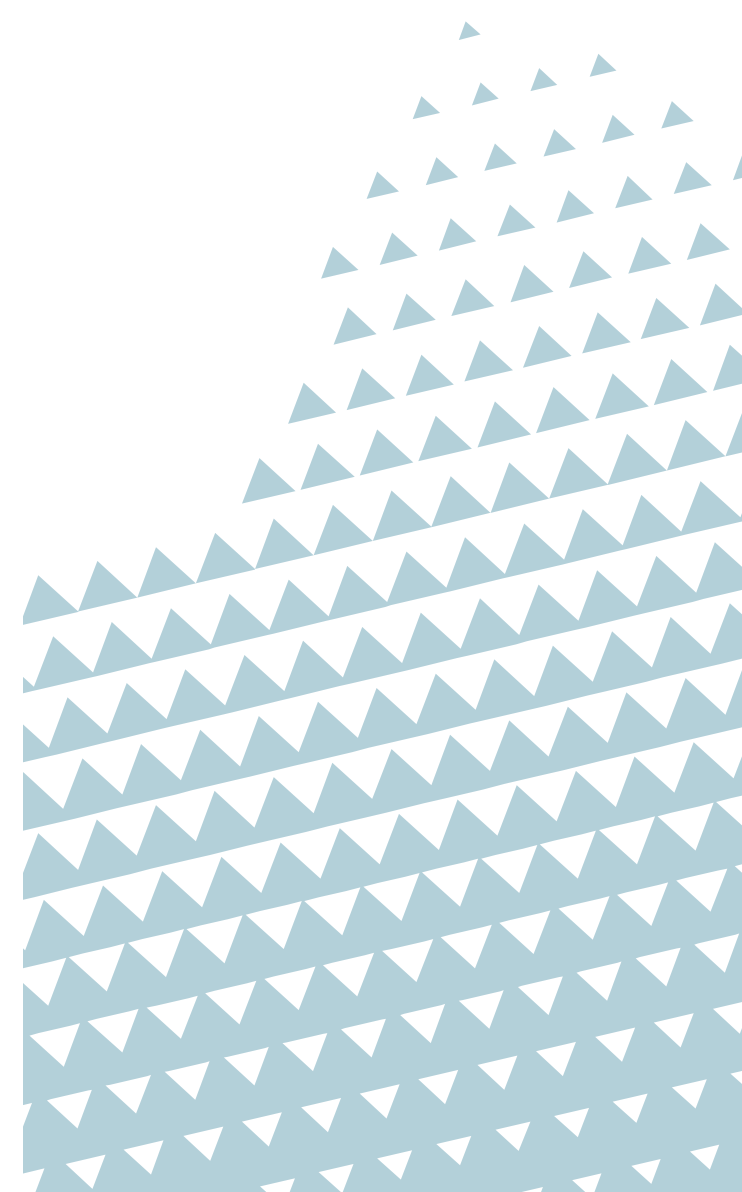
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