

DATA BLACK HOLES

ARE DATA SILOS UNDERMINING DIGITAL TRANSFORMATION?

RESEARCH STUDY



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INTRODUCTION

The existence of data silos is nothing new. Data-producing applications were once isolated systems. They were built to at least partially automate a specific subtask of a business process. The transactional data was stored in isolated data sets and initially served only one purpose, namely, to document the transaction that had taken place.

Over time, enterprises realized that data is worth more. Utilization of operational data for enterprise management helps to gain insights into the current state of the business and supports fact-based decision-making. This has been important for decades. However, the operational data stored in data silos was not suitable for this task. Many companies therefore built a data warehouse to consolidate their operational data silos.

In the age of digitalization, more extensive data and analytics requirements have emerged for which the data warehouse was not sufficiently designed. Data-based insights are being used to automate decisions. The goal is to make business processes faster, more efficient and less vulnerable to risk. Analytics-driven insights are also expected to drive business innovation. Thus, alternative data architecture concepts have emerged, such as the data lake and the data lakehouse. Which data architecture is right for the data-driven enterprise remains a subject of ongoing debate.

This study evaluates current thinking around data silos and addresses several questions:

- What are the implications of data silos for the data-driven enterprise?
- What are the main challenges companies are facing due to data silos?
- Which approaches are being adopted to break down the barriers of these data and knowledge silos?

Participants around the world were polled, with most responses coming from Europe. We examined the current approaches of companies of different sizes from various industries. For deeper insight, we also analyzed the answers according to data management maturity. Participants were asked to rate the skills and competencies in the handling of data in their company compared to their main competitors. This allowed us to gain a better understanding of what “best-in-class” companies are doing to overcome their data silos in comparison to “laggards” (see demographics).

We hope this survey contributes to your company's efforts to overcome your existing data black holes. Please do not hesitate to contact us if you have any questions

Jacqueline Bloemen and Timm Grosser, June 2021

MANAGEMENT SUMMARY



RECOMMENDATION

Decentralized data preparation is both an opportunity and a risk. Avoid an uncontrolled proliferation of data silos. Create transparency about decentralized data preparation processes and where they negatively impact business efficiency and effectiveness. Identify how you can optimize central data provisioning processes to increase the usability of the data provided.



RECOMMENDATION

Establish business responsibility for data and its strategic development. Make sharing knowledge about data and its use in the company mandatory and create corresponding processes. In the digital enterprise, distributed data sets are not only a matter of course, but a necessity. Therefore, logical, cross-functional accountability for data is indispensable.

01

DATA BLACK HOLES: THE HIGH COST OF SUPPOSED FLEXIBILITY

Data warehouse, data lake, data lakehouse: the main paradigm for provisioning data for analytics is a centralized approach. However, business users often resort to individual data preparation because centralized data sets do not meet their needs, they trust their own data sets more, or it enables them to get results faster. Consequently, despite all attempts at centralized data provisioning, most companies are unable to reduce the number of data silos they have. On the contrary, their proliferation continues to increase. As the number of silos continuously grows, finding and understanding the right data and preparing it for a specific purpose becomes even more complex and time-consuming.

02

DATA SILOS PREVENT DIGITAL TRANSFORMATION

Having key personas tied up with elementary data problems instead of working on the digital future of the company is the biggest challenge caused by the state of current data landscapes. This is a vicious circle. Their capacity is tied up in maintaining existing data problems instead of solving them. In turn, they do not have the time to work on data-driven evolutions, both for themselves and to support others. This limits business agility and velocity as well as the innovation of the data-driven enterprise.

MANAGEMENT SUMMARY



03

ARCHITECTURE AND TECHNOLOGY HELP BALANCE CENTRALIZED AND DECENTRALIZED DATA REQUIREMENTS

Predominantly centralized data architecture is not the silver bullet of the digital future. Physical data silos will neither be avoided nor completely dissolved. Therefore, an exclusively centralized approach to data integration is doomed to fail. Instead, distributed data must be linkable as needed. Architecture and technology play a significant role here. They help overcome the limitations of physically distributed data sets more efficiently by supporting intuitive and on-demand exploration, preparation and (advanced) analysis of data.



RECOMMENDATION

Plan a logical architecture that ensures combinability of physically distributed data. Populate this architecture with smart technologies such as data cataloging, data virtualization and AI-augmented data preparation that help overcome the boundaries of physical data sets.

04

ORGANIZATIONAL SILOS WEIGH HEAVIER THAN DATA SILOS - OVERCOMING THEM IS A CULTURAL JOURNEY

Unified business terminology, not centralized data management, is the main success factor for the digital enterprise. Sharing data, analyses and data-based insights across business units only delivers value if they are understandable to others. However, this requires a uniform (data) language. But because business units have been managed as silos for many years, these language barriers are primarily organizational. Data silos are often just a consequence of this. Accordingly, a lack of communication is the most encountered cultural challenge when it comes to improving the data landscape.



RECOMMENDATION

When it comes to ending the data silo dilemma, change requires bold actions. Shaping data strategy and goals and transforming the behavior of people in the company will not succeed without executive vision and leadership. Secure the support of your company management for your data strategy and convince them that they must actively lead the digital transformation. Employees need guidance based on clear strategic goals and what becoming a data-driven business means in practice.

01 DATA BLACK HOLES: THE HIGH COST OF SUPPOSED FLEXIBILITY

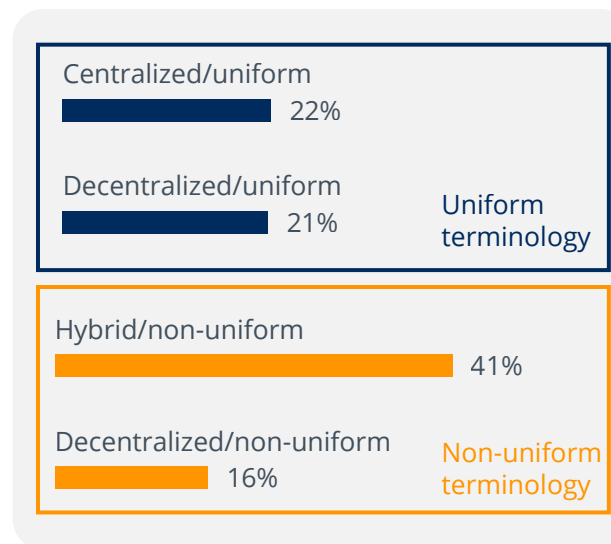


IS CENTRAL DATA PROVISIONING THE KEY TO SUCCESS?

Centralized provisioning of data for analytics is considered best practice by many. In this study, we first wanted to understand which paradigm companies apply to the design of their data landscape.

Unsurprisingly, the majority of companies (63 percent) follow a centralized approach. 22 percent of respondents follow a central data provisioning approach based on uniform business terminology (centralized/uniform). A further 41 percent follow a similar approach for some of their data (hybrid/non-uniform). However, departments and users still work with their own data sets. These are not shared with other departments or users and do not follow uniform business terminology.

21 percent follow a decentralized approach but ensure overarching reusability of data by means of uniform business terminology (decentralized/uniform). The remaining 16 percent do not have any central data provisioning or uniform terminology approach to their data landscape (decentralized/non-uniform).



Which of the following best describes your data landscape? (n=315)

“

Best-in-class companies tend more toward central data landscapes (75 percent) than laggards (58 percent) and appear to be more successful with their implementation (49 percent).

”

“

Only 27 percent of laggards have adopted overarching, uniform business terminology. A similar proportion of laggards (25 percent) struggle with decentralized data provisioning and non-uniform terminology.

”

Some interesting conclusions can be drawn from this:

- The majority (57 percent) of companies lack uniform and overarching terminology for their data.
- Centralized approaches to data provisioning, which in principle are also found in hybrid environments, do not ensure the implementation of uniform terminology.
- Centralized data provisioning is not a prerequisite for creating such terminology, despite the widespread belief that it would be.

01 DATA BLACK HOLES: THE HIGH COST OF SUPPOSED FLEXIBILITY

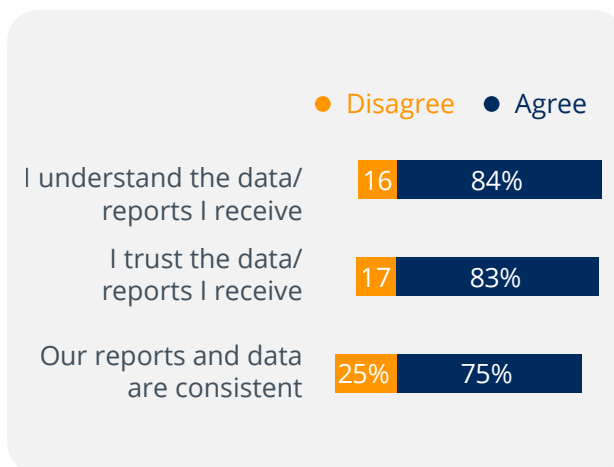


PROVISIONED DATA OFTEN FAILS TO MEET THE NEEDS, REGARDLESS OF DATA ARCHITECTURE

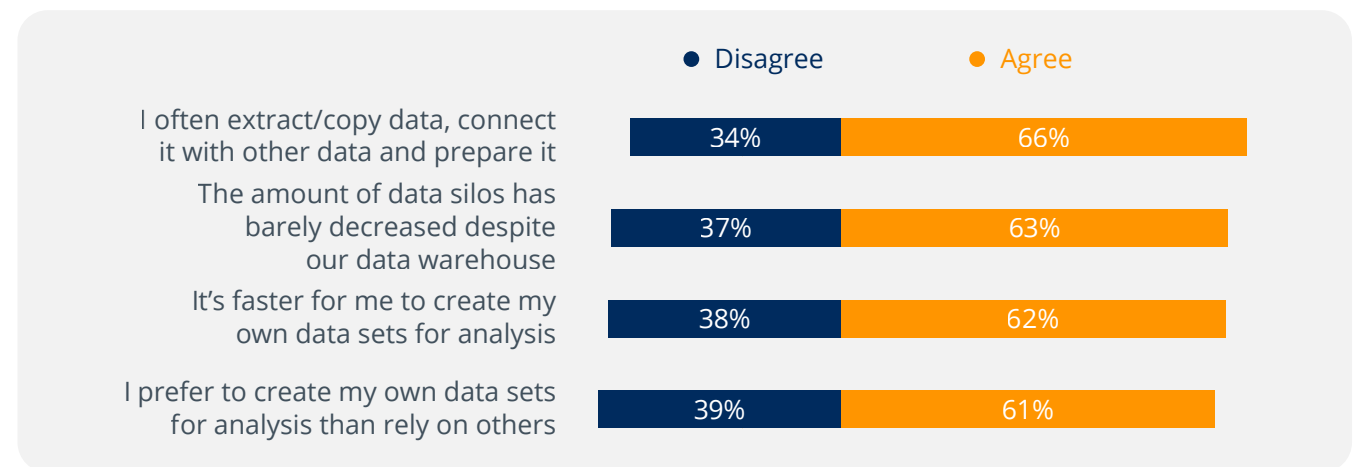
Despite the fact that the majority of companies lack uniform business terminology in their data landscape, many study participants assess the outcomes positively at first glance. Data and reports are widely understood, trusted and consistent. This applies to all varieties of data landscape.

Nevertheless, users often resort to individual data preparation because centralized data sets do not meet their needs, they trust their own data sets more, or it enables them to get results faster. Surprisingly, this too applies to all forms of data landscape, even those with central data provisioning based on uniform terminology.

Consequently, the majority assessment that the number of data silos has not yet been reduced despite the existence of a data warehouse is not at all surprising. Even 46 percent of best-in-class companies agree with this observation.



Do you agree with the following positive statements in relation to the current state of your company's data landscape? (n=314)



Do you face the following challenges in relation to the current state of your company's data landscape? (n=314)

01 DATA BLACK HOLES: THE HIGH COST OF SUPPOSED FLEXIBILITY



THE NEGATIVE IMPACT OF DATA SILOS ON BUSINESS EFFICIENCY AND EFFECTIVENESS IS NOT TRANSPARENT ENOUGH

Even though there is widespread confidence in the correctness and consistency of data and reports provided, respondents note some challenges in the practical use of data.

Finding and understanding the right data and preparing it for a specific purpose is complex and time-consuming. It is noteworthy that the assessment of usability of data for new questions is particularly negative for decentralized data landscapes without uniform terminology (69 percent agree).

The negative consequences of lacking unified terminology are particularly evident concerning business agility. Maintaining data silos is more cumbersome, limiting efficiency and effectiveness. Working with them is exceptionally onerous.

Working with our data silos is particularly time-consuming

42% 24%

Maintenance of existing data silos is inefficient and ineffective

46% 23%

It requires a lot of effort to use existing data sets for new questions

57% 42%

● Non-uniform

● Uniform

“

In the absence of a unified data terminology, working with data silos is extremely cumbersome, which also limits business agility.

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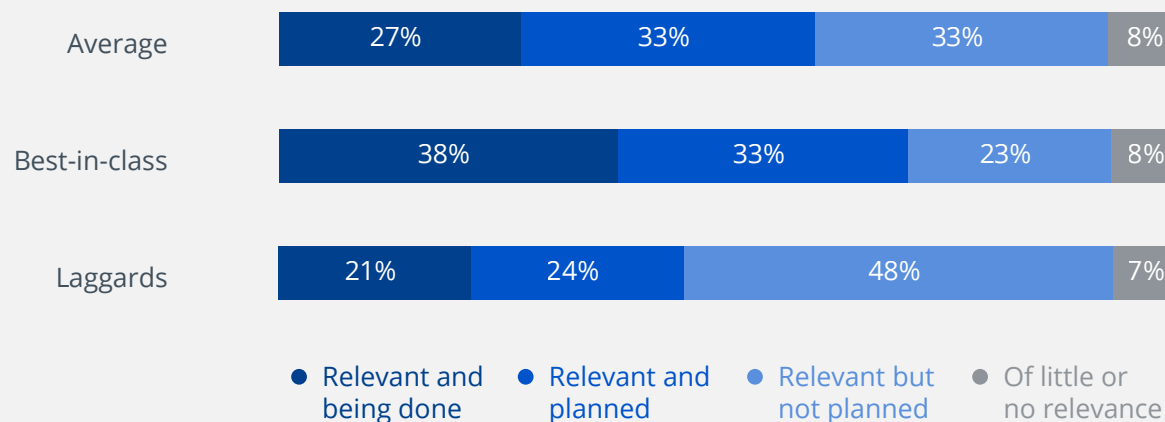
Percentage of companies experiencing challenges in the use of data caused by their current data landscape (n=318)

01 DATA BLACK HOLES: THE HIGH COST OF SUPPOSED FLEXIBILITY



URGENT NEED FOR ACTION ON RAISING AWARENESS REGARDING THE CONSEQUENCES OF DATA SILOS

Raise awareness within the company regarding existing data silos and their consequences



How relevant is it to raise awareness within the company of existing data silos and their consequences? (n=318)

Executives have a much more positive impression concerning the adoption of data standards than other roles. 74 percent claim to have data stand-

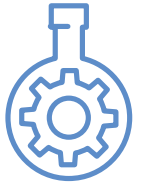
ards and uniform data terminology that spans all data sources. Most business and data experts do not agree.

After all, the problem has been known for many years.

Many companies have realized that action is required. 27 percent are working on raising awareness of existing data silos and their consequences. A further 33 percent are planning to raise awareness.

However, 41 percent have not planned any measures yet, even though 33 percent believe the issue to be relevant. It is primarily best-in-class companies that are taking on this task. Despite recognizing the urgency, 48 percent of laggards are not carrying out or planning any such activities.

Only **27%** of companies are working on raising awareness of existing data silos and their consequences.



02 DATA SILOS PREVENT DIGITAL TRANSFORMATION

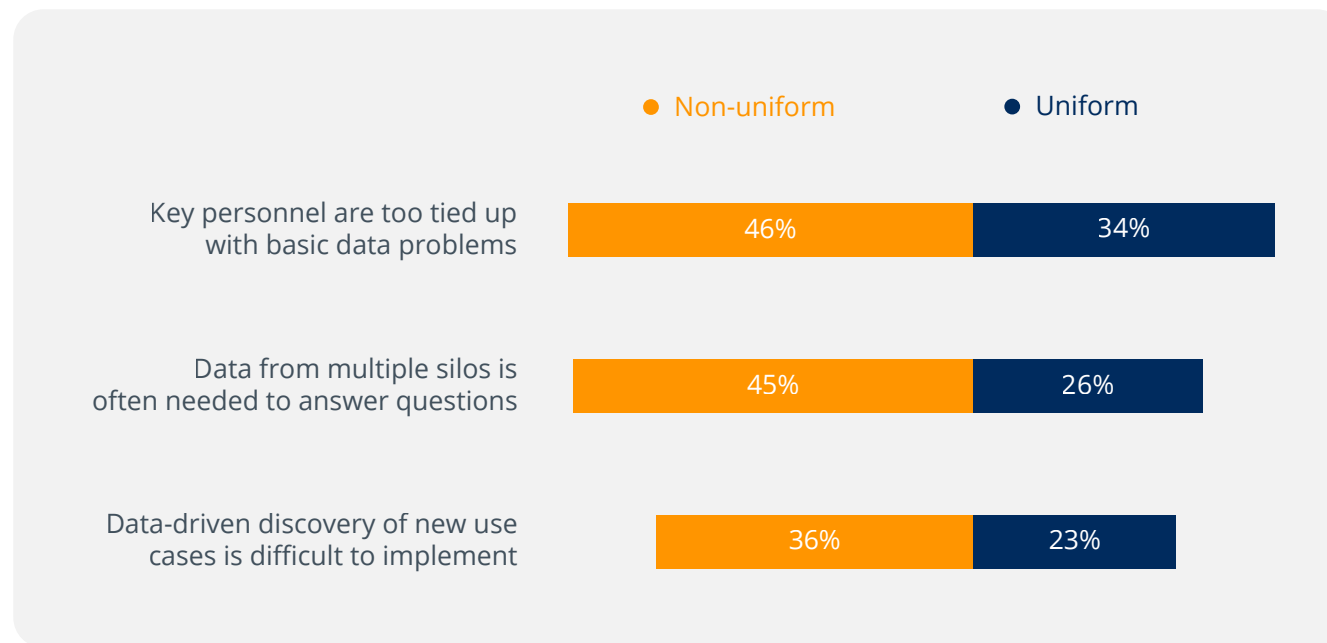
DATA SILOS BIND KEY PERSONAS AND DRIVE WORK EFFORTS

When asked about the biggest challenge in the use of data caused by their current data landscape, there is a clear message from participants. 41 percent agree that having key personas tied up

with elementary data problems instead of working on the digital future of the company is the most pressing issue.

However, the detailed analysis shows that investments in defining uniform business terminology pay off. Companies that have not implemented such terminology have significantly more problems in using their data for new questions. This includes companies that have a central data warehouse that is undermined by individually created data sets.

But even a uniform data language is not the sole remedy. Companies that have implemented uniform terminology in a decentralized data landscape obviously have fewer problems in using their data than those without uniform terminology, but not as few as companies with a centralized data landscape.



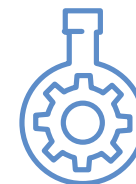
What are the main challenges in the use of data caused by the current data landscape? (n=318)

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A central data warehouse is of little help if it is undermined by individually created data sets.

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02 DATA SILOS PREVENT DIGITAL TRANSFORMATION



INSUFFICIENT DATA TRANSPARENCY AND LIMITED AVAILABILITY OF DATA EXPERTS ARE MAJOR OBSTACLES

Regardless of whether you use a uniform data language, distributed data is difficult to keep track of. 46 percent of respondents consider a lack of documentation on existing data and analysis processes to be a major obstacle in improving their data landscape. It is the second highest rated organizational challenge when it comes to implementing chosen approaches. In companies where there is a lack of uniform terminology for data, an

even higher proportion of companies have faced this challenge (55 percent).

This lack of transparency drives the creation of even more silos. 45 percent agree that existing data sets are not reused because they are not documented. Respondents from companies with a decentralized, non-uniform data landscape see an even higher risk (52 percent).

This is clearly why the highest rated approach to dealing with the challenges caused by data silos is to create transparency about existing knowledge of data and foster collaboration (49 percent). Participants from companies across all data landscapes agree here. Best-in-class companies in particular are taking this measure (60 percent).

Not enough personnel resources available



Existing data and analysis processes are not documented



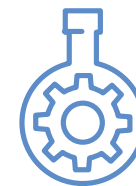
What organizational and technical challenges have you experienced in implementing approaches to improve the current data landscape? (n=312)

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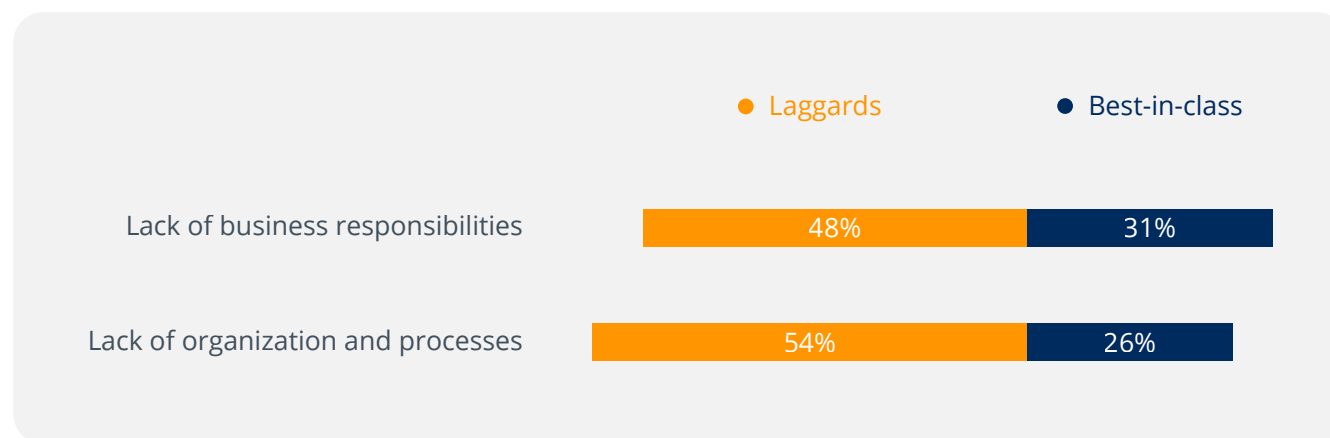
46 percent of respondents consider a lack of documentation on existing data and analysis processes to be a major obstacle in improving their data landscape.

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02 DATA SILOS PREVENT DIGITAL TRANSFORMATION



LACK OF BUSINESS ACCOUNTABILITY FOR DATA IMPEDE DIGITALIZATION



What organizational and technical challenges have you experienced in implementing approaches to improve the current data landscape? Excerpt, by best-in-class (n=87)

However, documentation cannot be made by magic. It requires the contribution of data experts. But data experts are in short supply. The majority of all respondents (55 percent) sees personnel bottlenecks as the most serious hurdle in the implementation of measures to improve their data landscape.

Yet there is also a lack of organization and processes as well as business accountability for data. While best-in-class companies appear to have achieved advances here (31 and 26 percent respectively), laggards struggle at an above-average rate (48 and 54 percent respectively).

Companies with a centralized, uniform data landscape perform significantly better in comparison

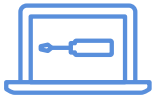
to others. Only 29 percent see a lack of business responsibilities as a problem. Organization and processes are also significantly less likely to be lacking (only 27 percent agree). These measures therefore appear to promote the implementation of an orderly data landscape.

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Companies with a centralized, uniform data landscape perform significantly better in comparison to others.

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03 ARCHITECTURE AND TECHNOLOGY HELP BALANCE CENTRALIZED AND DECENTRALIZED DATA REQUIREMENTS

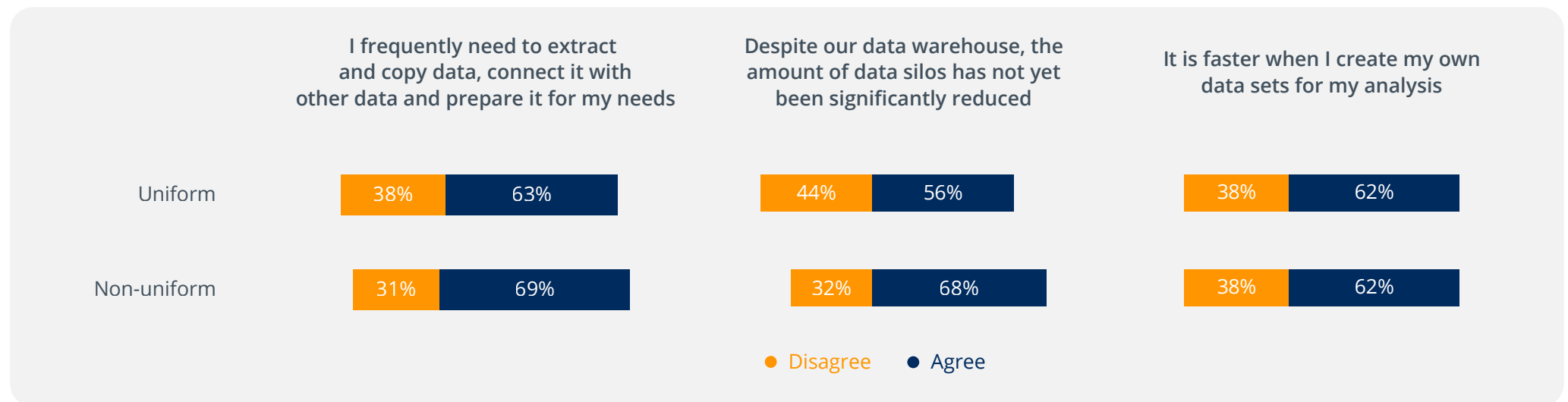


CENTRALIZED DATA ARCHITECTURE IS NOT THE SILVER BULLET OF THE DIGITAL FUTURE

Data warehouse, data lake, data lakehouse: which data architecture is right for the data-driven enterprise is the subject of ongoing debate. In principle, the approaches follow a similar rationale: they physically move data to one place to collect and compile it there. However, optimal data preparation is ultimately determined by the analytical problem to be solved. It is not possible to prepare

data in advance for every conceivable application. This is demonstrated by the answers of our survey participants, and is independent of the type of data landscape. In all data landscapes, the majority of users tend to create their own data sets for analysis. Data is also often extracted and copied for analysis to prepare it individually. This tends to happen more often in companies with

decentralized data landscapes, which shows that centralized data provisioning is helpful. Nevertheless, it will not be possible to avoid preparing data individually for new analytical questions. It is therefore not surprising that 63 percent agree that the data warehouse does not necessarily help to replace data silos.

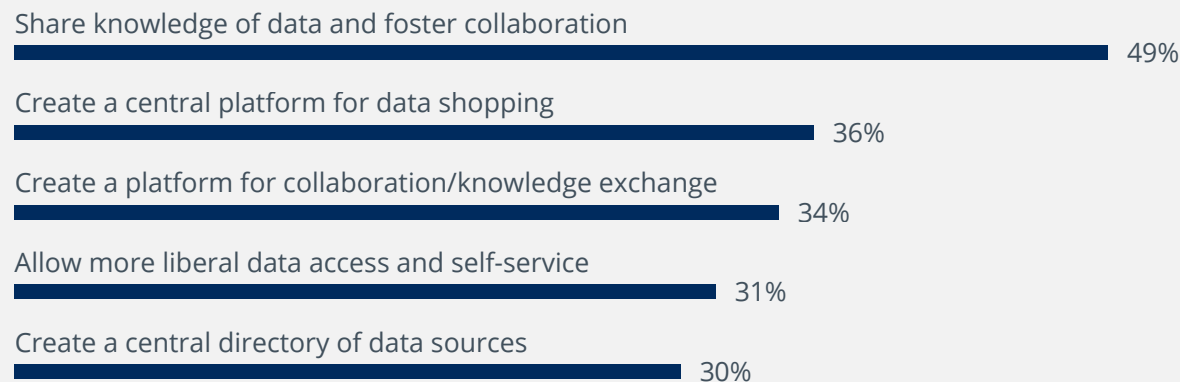


To what extent do you agree with the following statements in relation to the current state of your company's data landscape? By maturity (n=311)

03 ARCHITECTURE AND TECHNOLOGY HELP BALANCE CENTRALIZED AND DECENTRALIZED DATA REQUIREMENTS



MODERN TECHNOLOGY TRANSFORMS CENTRALIZED DATA SILOS INTO VIRTUALLY CONNECTED DATA LANDSCAPE



Which of these approaches is your company taking to deal with the challenges caused by data silos (top 5)? (n=318)

In the future, it will become even more difficult to manage data in a centralized manner. The data landscape of the digital enterprise is highly distributed. In other words, we must live with data silos. Solution concepts must integrate data silos instead of fighting them.

This is reflected very well in the approaches that companies are taking to deal with the challenges

caused by data silos. Not the data itself, but knowledge about the data should be provided centrally.

The most frequently chosen approach for this is creating transparency about existing knowledge of data and fostering collaboration (49 percent) This goes hand in hand with establishing a platform for collaboration and knowledge exchange, which 34 percent have chosen to do. Another 30

percent state that they are creating a central directory for finding and understanding data sources. These approaches are mostly implemented with the help of data catalog technologies.

31 percent of companies are working to liberalize access to data and improve self-service support. This goes hand in hand with other measures to facilitate ad hoc access to data. For example, 36 percent plan to create a central platform for data shopping. Among best-in-class companies, this approach is even more common (45 percent). One building block for this is to make physically distributed data accessible without having to copy it. This plays a greater role especially for companies with distributed data provisioning (27 percent compared to 23 percent on average).

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Solution concepts must integrate data silos instead of fighting them.

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03 ARCHITECTURE AND TECHNOLOGY HELP BALANCE CENTRALIZED AND DECENTRALIZED DATA REQUIREMENTS



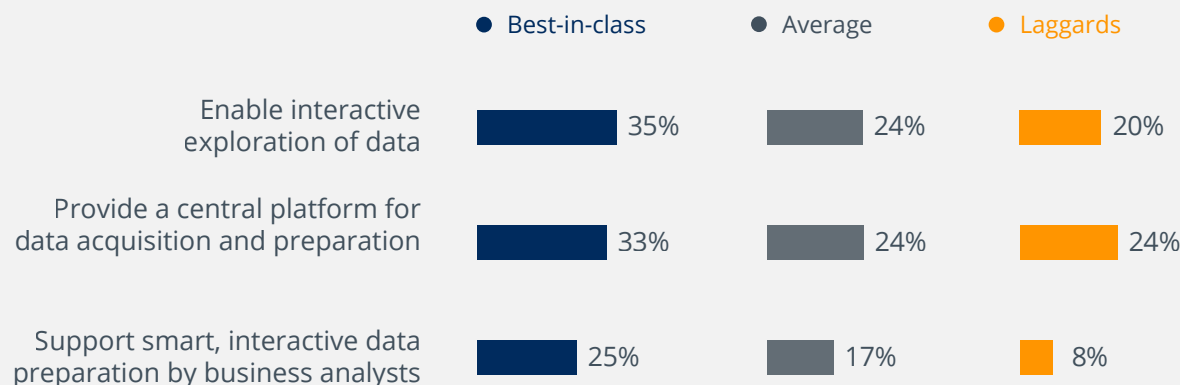
TECHNOLOGY HELPS ESTABLISH A BUSINESS BRIDGE ACROSS DATA SILOS TO MAKE THEM MORE USABLE

Most companies are still very much focused solely on providing a central data directory. For best-in-class companies, good support for non-technical data users is a high priority. They have recognized that modern technologies play an important role

in overcoming data silos efficiently and effectively.

Enabling interactive exploration of data (e.g., through data discovery) is one of the most popular approaches. 35 percent choose this approach,

compared to 24 percent on average and 20 percent for laggards. Better support for data preparation is also an important goal for best-in-class companies. 33 percent (compared to 24 percent on average and 24 percent for laggards) would like to provide a central platform for ad hoc and automatable data acquisition and preparation from various sources (e.g., based on data fabric). 25 percent (compared to 17 percent on average and 8 percent for laggards) are planning to support smart, interactive data preparation by business analysts (e.g., with AI-augmented data preparation).



Which of these approaches is your company taking to deal with the challenges caused by data silos? By best-in-class (n=89)

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Best-in-class companies have recognized that modern technologies play an important role in overcoming data silos efficiently and effectively.

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04 ORGANIZATIONAL SILOS WEIGH HEAVIER THAN DATA SILOS - OVERCOMING THEM IS A CULTURAL JOURNEY



EFFECTIVE SHARING OF DATA AND INSIGHTS REQUIRES UNIFORM BUSINESS TERMINOLOGY

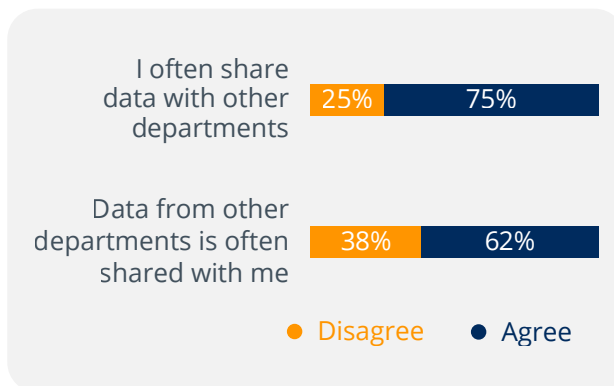
Cross-functional sharing of data and data-based insights appears to be widespread in corporate practice. At least, that's what a large proportion of respondents to our survey reported. 75 percent strongly or mostly agree with the statement "I frequently share my data and insights with users in other departments". Among best-in-class companies, the level of agreement is as high as 92 percent. The level of agreement with the statement "Data and insights from users in other

departments are frequently shared with me" is not quite as high, but still clear at 62 percent (90 percent among best-in-class).

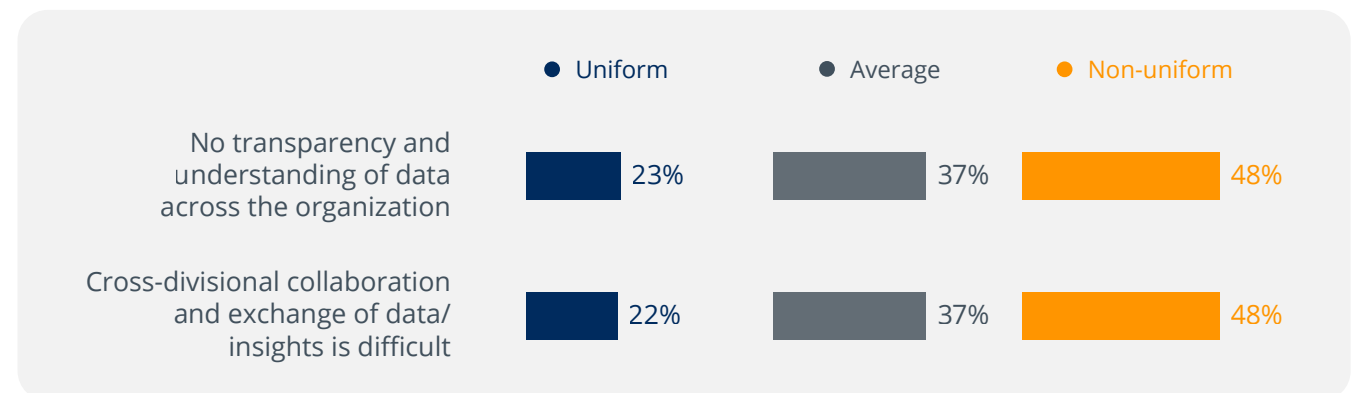
In contrast, 37 percent of respondents chose lack of transparency and understanding of data across the organization as the second most common challenge in the use of data caused by their current data landscape. Not unexpectedly, this challenge is related to the lack of uniform business terminology. For companies lacking uniform

business terminology, agreement rates are much higher (48 percent).

But then what benefit does sharing data and insights deliver at all? Do colleagues in neighboring departments even understand the insights I share? Are they at all relevant to their work? In practice, there are obviously justified doubts. An equal 37 percent confirm that cross-divisional collaboration and exchange of data and data-driven insights is difficult. Among business users, the rate is even slightly higher (39 percent). Here again, the rates are much higher for non-uniform (48 percent) data landscapes respectively.



To what extent do you agree with the following statements in relation to the current state of your company's data landscape? (n=314)

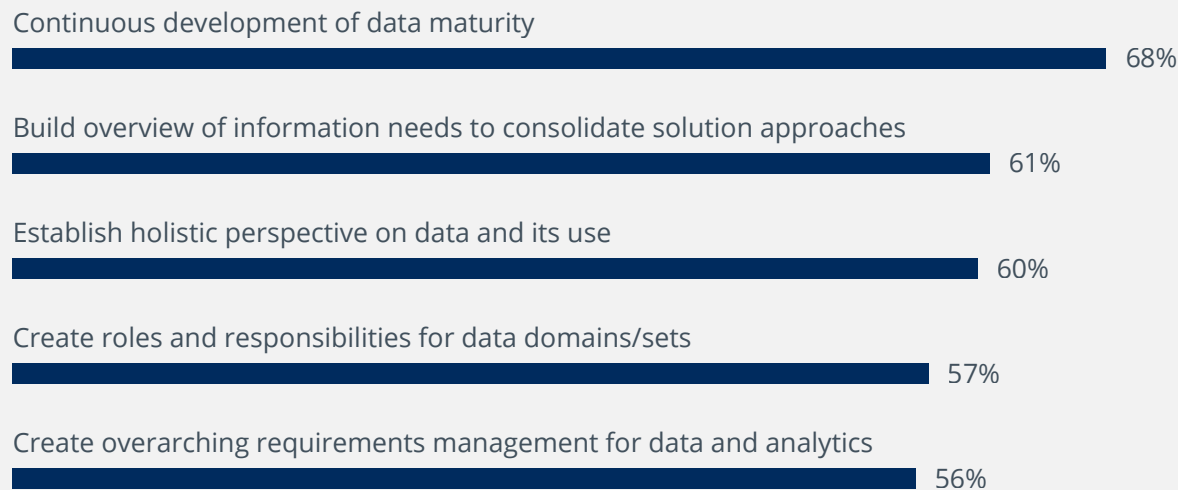


What are the main challenges in the use of data caused by the current data landscape? Excerpt, by maturity (n=318)

04 ORGANIZATIONAL SILOS WEIGH HEAVIER THAN DATA SILOS - OVERCOMING THEM IS A CULTURAL JOURNEY



THE DATA-DRIVEN ENTERPRISE DOESN'T JUST HAPPEN - IT MUST BE DELIBERATELY SHAPED



Top 5 approaches to dealing with the challenges caused by data silos currently being implemented or planned (n=166)

There is still a lot to do to become a data-driven company. The participants in this study are clearly aware of this. Which strategic measures do they consider relevant for this change? We already elaborated on raising awareness within the

company regarding existing data silos and their consequences, which is the most popular strategic approach being taken. The following top 5 strategic approaches being taken or planned are listed on the left.

All companies face their own particular challenges over time with their data landscapes. For example, it may not be possible or desired to replace data silos for valid reasons. It may be cumbersome to make them easier to combine or to improve data quality. On the other hand, the list of data requirements is probably very long. Accordingly, the evolution of the enterprise data landscape becomes an ongoing process. Over time, new requirements will be added, and new use cases will be requested. Mechanisms are needed to help prioritize these tasks. This should be done across the entire enterprise and not from the isolated perspective of a single department. This is especially important for data domains that are relevant to many different business units. A good example of such a data domain is customer data, for which different departments have their own set of requirements. Therefore, it is also important to determine clear responsibilities for data and analytics and to define appropriate contact persons in the business for each data domain.

04 ORGANIZATIONAL SILOS WEIGH HEAVIER THAN DATA SILOS - OVERCOMING THEM IS A CULTURAL JOURNEY



THE DATA-DRIVEN ENTERPRISE DOESN'T JUST HAPPEN - IT MUST BE DELIBERATELY SHAPED

Analyze and address effort drivers for inefficient work with data



Establish mechanisms to determine the value of data



Creative collection and evaluation of use cases and data requirements



Top 3 approaches identified as relevant but not planned (n=118)

There are also measures that, while considered relevant, are not currently planned by a surprisingly large proportion of companies.

Understanding the value data has for the business is an important key to investing in the right areas. It will not be possible to solve 100 percent of the company's data problems. So, you need to deter-

mine which issues are most relevant to the business. If key personas are tied up with elementary data problems instead of working on the digital future of the company, you will not evolve into a data-driven, digital enterprise. Here, the causes must be identified and made relentlessly transparent. And finally, the creative collection and evaluation of new use cases (e.g., through design

thinking) is an important measure for thinking outside the box. The aim is to develop innovative ideas for the company and to test their feasibility at an early stage using a "fail fast" approach to avoid misplaced investments.

It is interesting to observe that it is mainly the companies with the most data-related challenges due to non-uniform terminology who regard these strategic approaches as relevant but have no plans to implement them. By contrast, most best-in-class companies have implemented these approaches or are planning to do so.

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Best-in-class companies have recognized that understanding the value data has for the business is an important key to investing in the right areas and are taking appropriate action.

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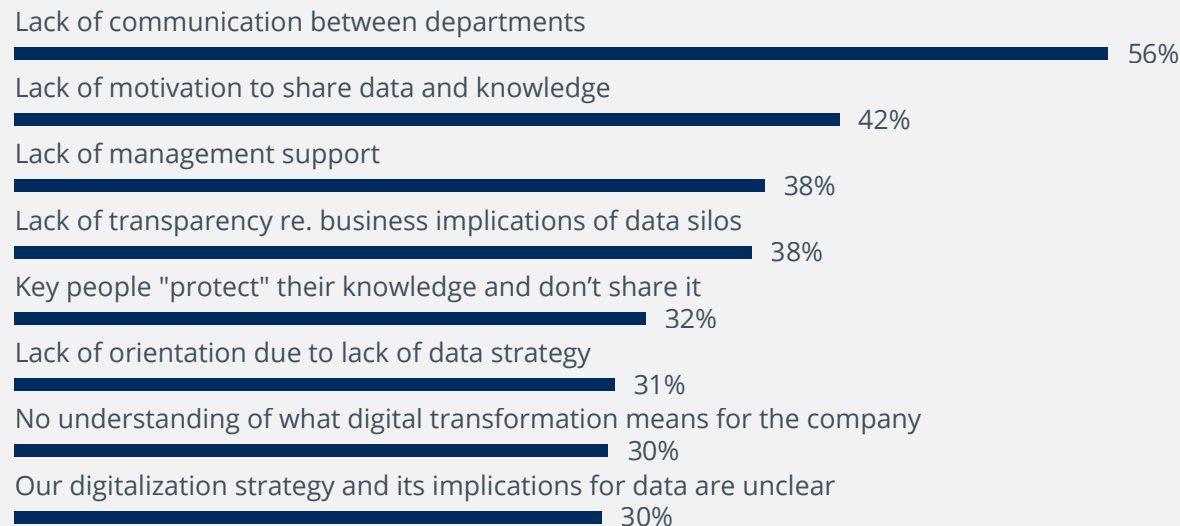
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SHAPING THE DIGITAL FUTURE ENTAILS A CULTURAL CHANGE THAT REQUIRES LEADERSHIP

In principle, all companies strive for digital transformation. However, they face several business and cultural challenges in this process. The highest rated concern, lack of communication

(56 percent), is in stark contrast to the earlier statement that data and information is shared extensively between departments. The fact that this apparently does not really work in practice



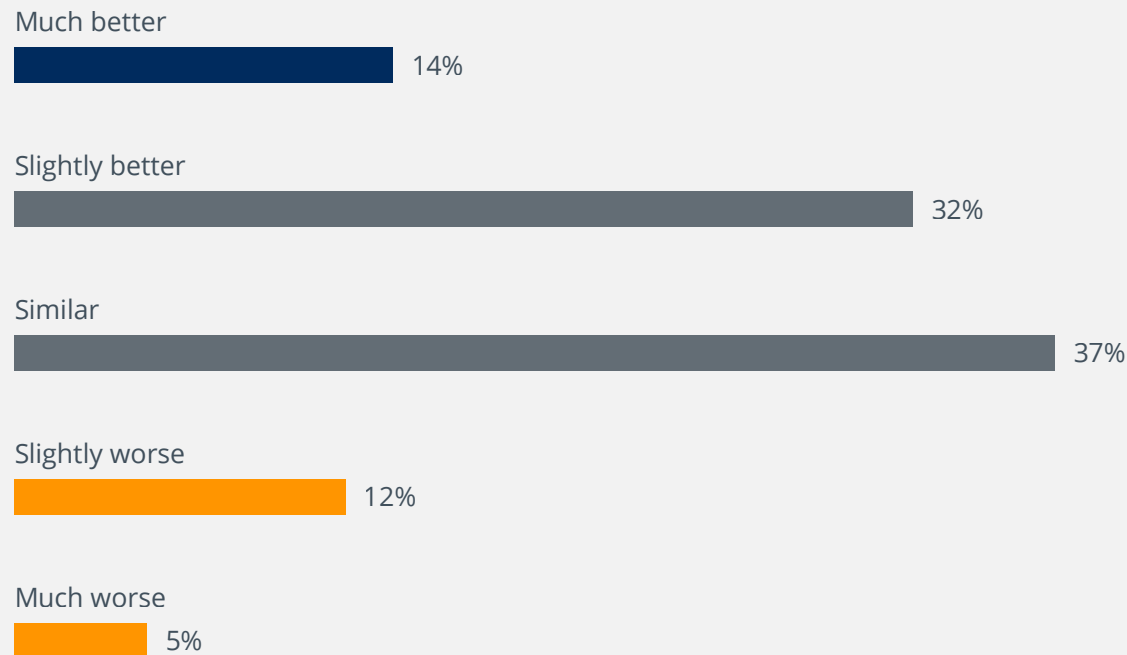
Top 8 selection on "What business and culture-related challenges have you experienced in implementing approaches to deal with the challenges caused by data silos?" (n=312)

is also underpinned by the second-highest rated problem: a lack of motivation to share knowledge with others (42 percent). Further challenges include a lack of clear strategic goals and a lack of understanding of what these mean in practice.

Some learning processes can be supported bottom-up. However, when it comes to strategy and goals, as well as the behavior of the people in the company, it is clearly the managers who are called upon. Lacking management support was ranked as the third most important challenge in the implementation of strategic measures, at 38 percent. For companies with decentralized (41 and 44 percent) and hybrid (43 percent) data landscapes, as well as for laggards (58 percent), this applies even more frequently.

But even best-in-class companies struggle with similar challenges, although a lack of management support applies slightly less to them (31 percent) than on average. Evidently, the executives of best-in-class companies have understood that they must actively lead the digital transformation. This is certainly one of the reasons why best-in-class companies are ahead of others in their handling of data.

BEST-IN-CLASS AND LAGGARDS



How do you rate the skills and competencies in the handling of data in your company compared to your main competitors? (n=294)

We divided the sample into *best-in-class* and *laggard companies* in order to analyze differences in dealing with advanced analytics. 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 handling data than their competitors are referred to as *best-in-class* (14 percent), while those that stated that they were slightly or much worse than their competitors are classified as *laggards* (17 percent).

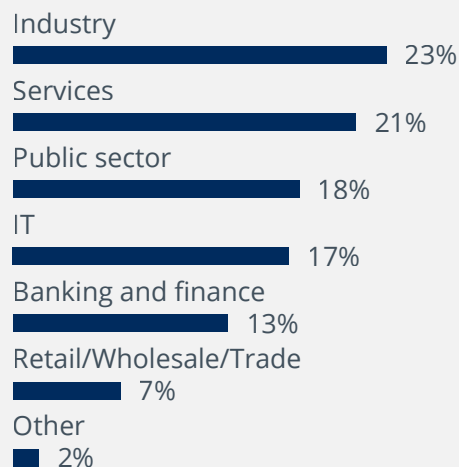
DEMOGRAPHICS



BROAD SPECTRUM OF INDUSTRIES AND COMPANY SIZES

This study was conducted as a worldwide online survey from March to April 2021. The survey was promoted within the BARC panel and also via websites and newsletter distribution lists. A total of 318 people took part, representing a variety of different roles, industries and company sizes. Due to rounding, totals may not add up precisely.

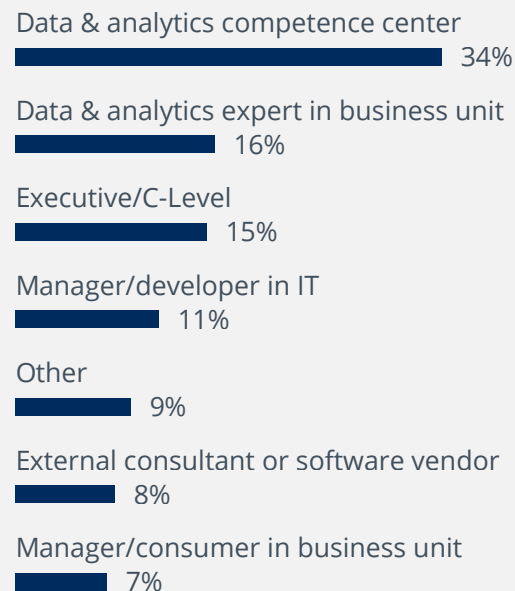
INDUSTRY SECTOR



Which of the following best describes your organization's industry sector? (n=318)

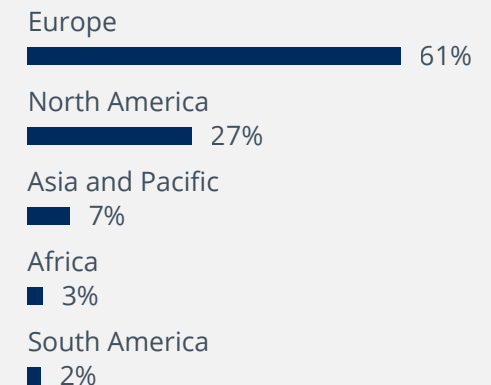
The selection of the answer option "Don't know" is not taken into account in the sample size stated below each chart and is also hidden in the charts.

ROLE



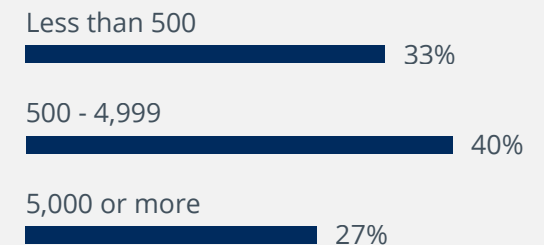
What is your role in the company? (n=318)

REGION



In which region are you located? (n=318)

COMPANY SIZE



How many employees does your company have? (n=318)

BARC – MAKING DIGITAL LEADERS

BARC – BUSINESS APPLICATION RESEARCH CENTER

BARC (Business Application Research Center) is one of Europe's leading analyst firms for business software, focusing on the areas of data, business intelligence (BI) and analytics, enterprise content management (ECM), customer relationship management (CRM) and enterprise resource planning (ERP).

Our passion is to help organizations become digital companies of tomorrow. We do this by using technology to rethink the world, trusting data-based decisions and optimizing and digitalizing processes. It's about finding the right tools and using them in a way that gives your company the best possible advantage.

This unique blend of knowledge, exchange of information and independence distinguishes our services in the areas of research, events and consulting.

Research

Our BARC studies are based on internal market research, software tests and analyst comments, giving you the security to make the right decisions.

Our independent research brings market developments into clear focus, puts software and vendors through their paces and gives users a place to express their opinions.

Events

Decision-makers and IT industry leaders come together at BARC events. BARC seminars in small groups, online webinars and conferences with more than 1,000 participants annually all offer inspiration and interactivity. Through exchange with peers and an overview of current trends and market developments, you will receive new impetus to drive your business forward.

Consulting

In confidential expert workshops, coaching and in-house consultations, we transform the needs of your company into future-proof decisions. We provide you with successful, holistic concepts that enable you to use the right information correctly. Our project support covers all stages of the successful use of software.



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SPONSOR PROFILE: AB INITIO

ABOUT AB INITIO

For over 25 years, Ab Initio has focused on processing and managing corporate data. Many of the largest companies in the world work with Ab Initio to solve the challenges of turning big data into meaningful data. Ab Initio offers a complete solution for reading, writing, processing, and querying data no matter whether it is located in the latest cloud database or in legacy mainframe data stores or anywhere else in the corporate ecosystem.

You can run your operations on the cloud, on premises, or in any combination. Whether you want to run across mainframes, Unix/Linux boxes, or containers with Kubernetes, Ab Initio does it all. You develop your code once and deploy it where you need it.

Ab Initio's innovative visual development paradigm and fully integrated product suite eliminate the most pernicious obstacles to building high-quality software. Ab Initio's visual approach makes it easy to see the flow of logic and data through the system. We eliminate the process of trans-

lating logic diagrams into programs; the diagrams are the programs. Ab Initio's powerful semantic discovery capabilities accelerate data enrichment and automate adding business meaning to physical data sets. Ab Initio data catalog capabilities enable data virtualization, so you can easily find the data you need when you need it.

Ab Initio software plays well with other software packages, including statistical analysis and machine learning modules. Ab Initio's extensive debugging and automated testing capabilities, combined with Ab Initio's unparalleled ability to rapidly make major changes to the software, helps users get systems into production quickly and enables continuous integration and continuous deployment pipelines. It is no surprise that working with Ab Initio reduces software development time by as much as 75% compared with traditional software development approaches.



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SPONSOR PROFILE: COLLIBRA

ABOUT COLLIBRA

Collibra is the Data Intelligence company. We accelerate trusted business outcomes by connecting the right data, insights and algorithms to all data citizens. Our cloud-based platform connects IT and the business to help companies trust their data, democratize access and empower the innovation to transform their business. Global organizations choose Collibra to unlock the value of their data and turn it into a strategic, competitive asset.

Collibra acts as the system of record for data, delivering end-to-end Data Intelligence to accelerate digital business transformation and helping companies to:

- Discover, understand and access trusted data when they need it, so they can generate impactful insights that drive business outcomes
- Establish a shared business language for data assets and maintain it over time so that teams can trust data and drive digital use their data to improve their business transformation
- Map relationships between data to show how

it moves from system to system and how data sets are built, sourced and used, providing complete, end-to-end lineage visualization

- Operationalize and manage data privacy policies across the privacy lifecycle, and scale compliance for multiple regulations from a single system

Collibra has a diverse global footprint, with offices in the U.S., Belgium, Australia, Czech Republic, France, Poland and the U.K. For more information, visit collibra.com.



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SPONSOR PROFILE: DATAIKU

ABOUT DATAIKU

Dataiku is the world's leading AI and machine learning platform, supporting agility in organizations' data efforts via collaborative, elastic, and responsible AI, all at enterprise scale. At its core, Dataiku believes that in order to stay relevant in today's changing world, companies need to harness Enterprise AI as a widespread organizational asset instead of siloing it into a specific team or role.

To make this vision of Enterprise AI a reality, Dataiku is the only platform on the market that provides one simple UI for the entire data pipeline, from data preparation and exploration to machine learning model building, deployment, and monitoring, and everything in between.

Dataiku was built from the ground up to support usability in every step of the data pipeline and across all profiles, from data scientist to cloud architect to analyst. Point-and-click features allow those on the business side and other non-coders to explore data and apply AutoML in a visual interface. At the same time, robust coding features (including interactive Python, R, and SQL note-

books, the ability to create reusable components and environments, and much more) make data scientists and other coders first-class citizens as well.

The commitment to openness and flexibility in Dataiku doesn't stop there. Because each company's path to Enterprise AI looks different, Dataiku supports the creation of a spectrum of applications, whether that means building out a self-serve analytics platform or fully operationalized AI integrated with business processes.

Dataiku was founded in 2013 and has grown exponentially since. In December 2019, Dataiku announced that CapitalG — the late-stage growth venture capital fund financed by Alphabet Inc. — joined Dataiku as an investor and that it had achieved unicorn status, valued at \$1.4 billion. In August 2020, the company announced a \$100 million Series D round led by Stripes with Tiger Global Management joining the round as investors. Dataiku currently employs more than 600 people worldwide between offices in New York, Paris, London, Munich, Sydney, and Singapore.



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SPONSOR PROFILE: DENODO

ABOUT DENODO

Denodo is the leader in data virtualization providing agile, high performance data integration, data abstraction, and real-time data services across the broadest range of enterprise, cloud, big data and unstructured data sources at half the cost of traditional approaches. Denodo's customers across every major industry have gained significant business agility and ROI by enabling faster and easier access to unified business information for agile BI, big data analytics, Web and cloud integration, single-view applications, and enterprise data services.

The Denodo Platform offers the broadest access to structured and unstructured data residing in enterprise, big data, and cloud sources, in both batch and real-time, exceeding the performance needs of data-intensive organizations for both analytical and operational use cases, delivered in a much shorter time frame than traditional data integration tools.

The Denodo Platform drives agility, faster time to market, and increased customer engagement by delivering a single view of the customer and operational efficiency from real-time business intelligence and self-serviceability.



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Jacqueline Bloemen is a senior analyst with a major focus on data & analytics strategy and culture, architecture and technology, governance and organization. She is an author and speaker and has been advising companies of various sizes and industries for over 35 years. Currently, her research and consulting activities focus on the transformation to becoming a data-driven company.



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As a senior analyst, Timm Grosser has been advising domestic and international companies of various sizes and industries in the areas of BI, data management and analytics for more than 10 years. During his time as a consultant, he has designed numerous solutions in BI/big data strategy, organization, architecture and tool selection with customers or in the BARC test lab. He is a frequent speaker at conferences and seminars as well as the author of numerous industry articles and market studies.

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