Research Report

The road to becoming a data-driven business

How ready is your organization for insight-enabled digital transformation?

Data growth and diversification - from problem to opportunity

We've all heard the sensationalist language used to describe exponential growth in electronic data, with frequent references to explosions, deluges, tsunamis and so on. This kind of terminology has clearly been used to highlight the significant and ongoing challenges in areas such as data storage and information management.

Related to this discussion has been the emergence of a common frustration. In the face of not just relentless growth, but also a proliferation of data sources and types, traditional processes and tools used to turn raw data into business insights and value have frequently become overwhelmed. Monthly, weekly and daily business intelligence output has not just been more difficult to produce, reports and analyses have increasingly ended up presenting views of the world that are out of date even before they are visible to decision-makers.

Over the past few years, though, advances in infrastructure, software and best practices, together with access to almost limitless compute and storage capacity in the cloud, have created the potential to totally change the game. Now it's both cheaper and easier to manage even huge, diverse and fast-moving data sets. What's really making a difference, however, is the ability to create rich and deep insights from such data that are continually refreshed and available to drive the business on a real-time, forward-looking basis.

With this in mind, the 'data explosion', while still challenging in many respects, now looks more like a significant opportunity, especially against the backdrop of digital transformation. The time has therefore come to switch from a problem to an opportunity mindset and aspire to become what many refer to as a 'data-driven business.'

What is a data-driven business?

A data-driven business is a business that exploits data and analytics at every level to achieve both strategic and real-time operational advantage. In a data-driven business, data is treated as a key corporate asset and is managed and protected accordingly. Advanced tools and technology are employed to make data and analytics an intrinsic and/or embedded part of activities, from strategy and planning in the boardroom, through decision-making on the front line, to powering digital engagement with customers, partners and suppliers.

In the remainder of this report, we'll explore how far a sample of 400 mainstream organizations taking part in a recent research study had progressed towards becoming genuinely data-driven. We'll also examine the substantial benefits reported by a small group that had already achieved 'data-driven' status.

Focus on key imperatives

Central to our research design was a set of imperatives in four key areas critical to becoming data-driven:

Culture & mindset — Create an environment in which people understand the value of technology and data, and are motivated to make the most of these to drive business advantage.

User experience — Ensure that as much as possible, the data used within the business is current, accurate and complete, and made available in an easy and natural-to-use manner.

Data management — Clearly define ownership and responsibilities and put the policies, processes and systems in place necessary to assure the integrity, quality and security of data.

Systems & infrastructure — Exploit modern tools, technologies and delivery models to optimize data storage, processing, analysis and access, automating at every opportunity.

Let's begin our discussion by looking at how we assessed study participants in relation to these.
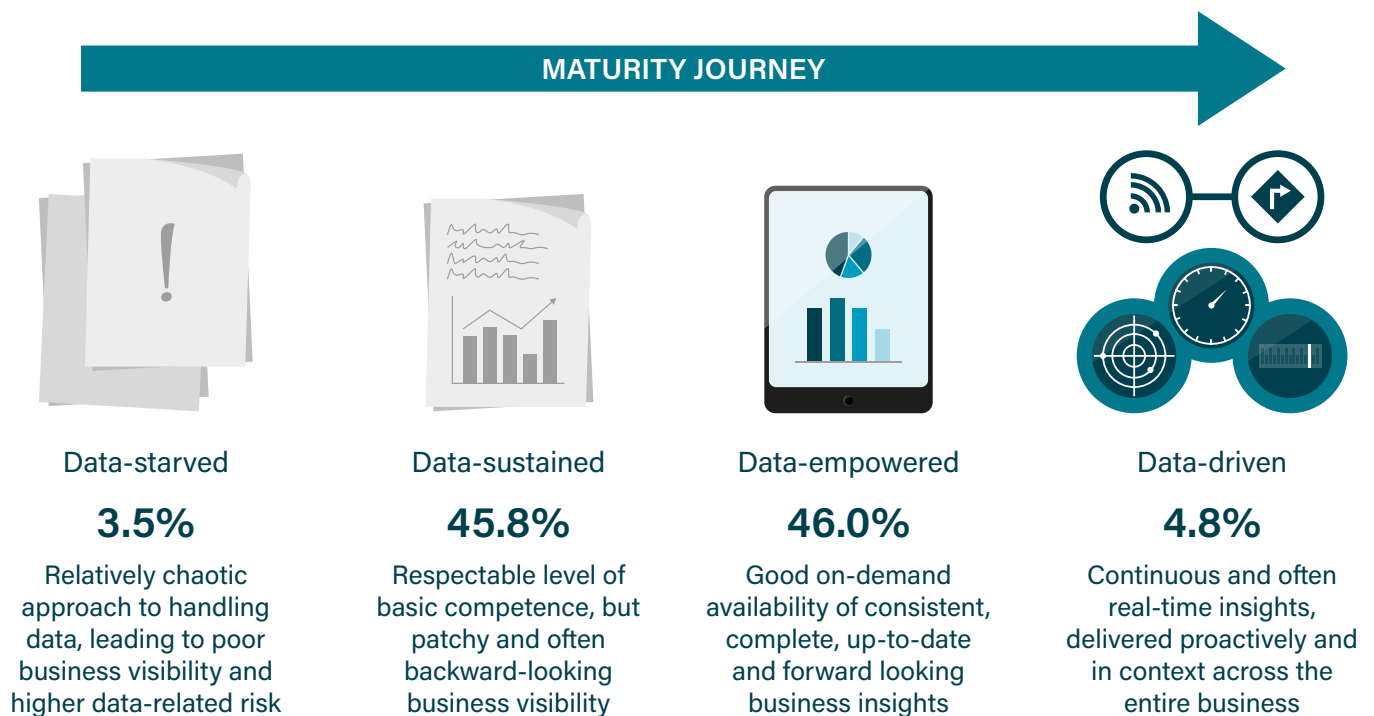
A maturity-based assessment

Most discussions around the notion of becoming a data-driven business tend to be long on vision and short on practical detail. This is understandable when you consider how much has to be addressed to turn the 'data-driven' vision into reality. However, to conduct a meaningful assessment of where organizations are, you need to get into some specifics. Our study was therefore designed with a set of key indicators at its core, that while not exhaustive, we know from experience and other research tend to act as proxies for relevant behavior and capability more broadly. When considered collectively, these indicators provide a holistic view of how well a business manages and makes use of the data available to it, which we can think of as its level of 'data maturity'.

DATA MATURITY MODEL		THE DATA MATURITY JOURNEY			
Category	Test	Level 1 Data-starved	Level 2 Data-sustained	Level 3 Data-empowered	Level 4 Data-driven
Culture & mindset	Attitude to IT investment	Unavoidable cost	Enabler of operational efficiency	Enabler of business advantage	A strategic business imperative
	The role of data	Record keeping and compliance	Optimise business operations	Day-to-day business advantage	Strategic business advantage
	Sharing behavior	Guard data jealously	Share when asked	Publish or share proactively	Data as a corporate asset
	Coaching and development	No focus	Process centric	Principles based	Mindset focus
User experience	Currency of information	Generally out of date	Up-to-date but historical	Up-to-date and forward-looking	Real-time intelligent alerting
	Access to mechanisms	Paper or PDF reports	Desktop office/ query tools	Web/mobile portals /dashboards	Seamless embedding in process
	Consistency of data sources	Not possible	At application level	At business unit level	Across organization(s)
	Reliance on IT team	IT team does everything	IT team provides queries/templates	IT team just prepares the data	Users work freely with data
Data management	Strategy and governance	No clear ownership	The IT team	Cross disciplinary group	Board level ownership
	Security and risk responsibility	No clear ownership	The IT team	Business managers	Board level ownership
	Security and risk measures	Addressed after breach	Bold-on approach	Designed into applications	Implemented at data level
	Data quality and integrity	When problems arise	When major changes happen	Regular review/ action	Continuously managed
Systems & infrastructure	Focus for systems investment	Traditional physical infrastructure	Virtualized on premises	Virtualized plus selected cloud use	Integrated hybrid/ multi-cloud
	Storage architecture	Dedicated per application	Shared storage platforms	Scale-out hyper-converged	Integrated and abstracted
	Operations approach	Manual administration	Script-based administration	Policy-driven automation	Automation and optimization
	Access control	Password based	Multi-factor authetication	User and context aware	Behavior/ anomaly based

As you can see, we have defined four levels of maturity in this model, from 'data-starved' through to 'data-driven'. The second column lists a series of 'tests' that were translated into questions asked during the research interviews. There were four possible responses to these (set out horizontally) reflecting what we would expect to see at each maturity level. Reading down any of the last four columns provides a feel for what characterizes organizations at that level of maturity. For analysis purposes, we actually considered an organization to be at a particular maturity level if they passed at least ten of the relevant tests. This allowed for organizations that were, on balance, at a particular maturity level, even if they were still working on a few aspects of relevant capability.
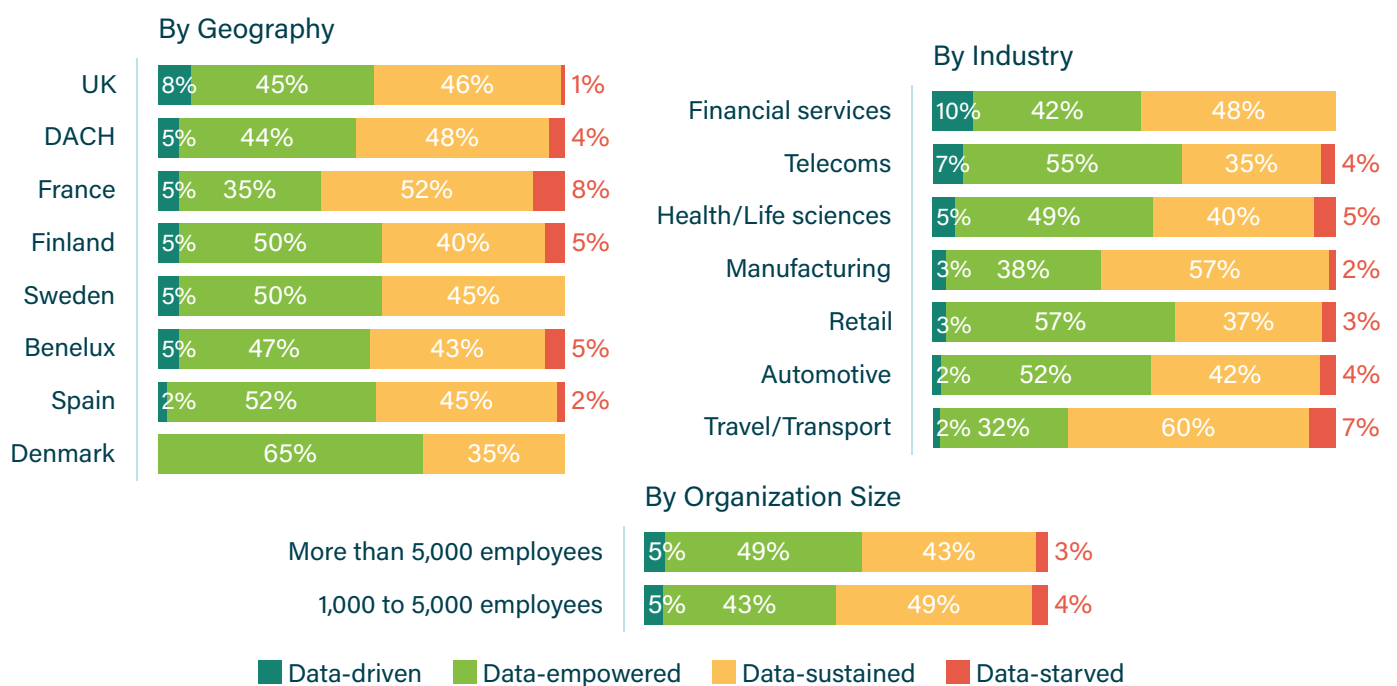
Where are organizations on their data maturity journey?

Based on our assessment model, the research revealed that the majority of organizations are currently at levels 2 and 3 when it comes to overall data maturity.

MATURITY JOURNEY

Data-starved	Data-sustained	Data-empowered	Data-driven
3.5%	**45.8%**	**46.0%**	**4.8%**
Relatively chaotic approach to handling data, leading to poor business visibility and higher data-related risk	Respectable level of basic competence, but patchy and often backward-looking business visibility	Good on-demand availability of consistent, complete, up-to-date and forward looking business insights	Continuous and often real-time insights, delivered proactively and in context across the entire business

The picture we see here is not surprising. The harsh reality is that organizations falling into the lowest maturity category will be at a severe competitive disadvantage. In today's fast-moving and increasingly digitally-driven markets, moving from 'data-starved' to 'data-sustained' is arguably a matter of survival. At the other end of the spectrum, some may be surprised that fewer than 5% have achieved 'data-driven' status. It is perhaps a reminder that the mainstream tends to move much more slowly than technology industry narratives often suggest. To become genuinely data-driven, it's necessary to implement a range of technologies and techniques that, by today's standards, are actually very advanced, and this is true regardless of location, size and sector.

DATA MATURITY BY KEY SEGMENTS

By Geography

	Data-driven	Data-empowered	Data-sustained	Data-starved
UK	8%	45%	46%	1%
DACH	5%	44%	48%	4%
France	5%	35%	52%	8%
Finland	5%	50%	40%	5%
Sweden	5%	50%	45%	
Benelux	5%	47%	43%	5%
Spain	2%	52%	45%	2%
Denmark		65%	35%	

By Industry

	Data-driven	Data-empowered	Data-sustained	Data-starved
Financial services	10%	42%	48%	
Telecoms	7%	55%	35%	4%
Health/Life sciences	5%	49%	40%	5%
Manufacturing	3%	38%	57%	2%
Retail	3%	57%	37%	3%
Automotive	2%	52%	42%	4%
Travel/Transport	2%	32%	60%	7%

By Organization Size

	Data-driven	Data-empowered	Data-sustained	Data-starved
More than 5,000 employees	5%	49%	43%	3%
1,000 to 5,000 employees	5%	43%	49%	4%

Legend: ■ Data-driven ■ Data-empowered ■ Data-sustained ■ Data-starved
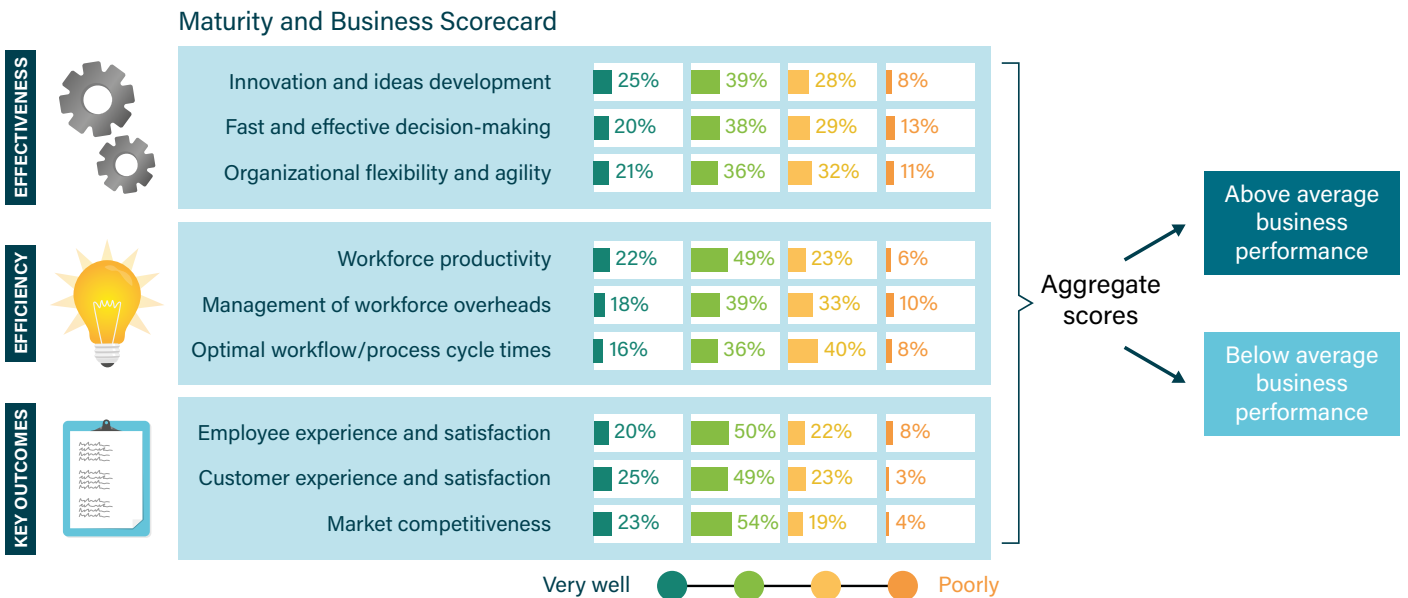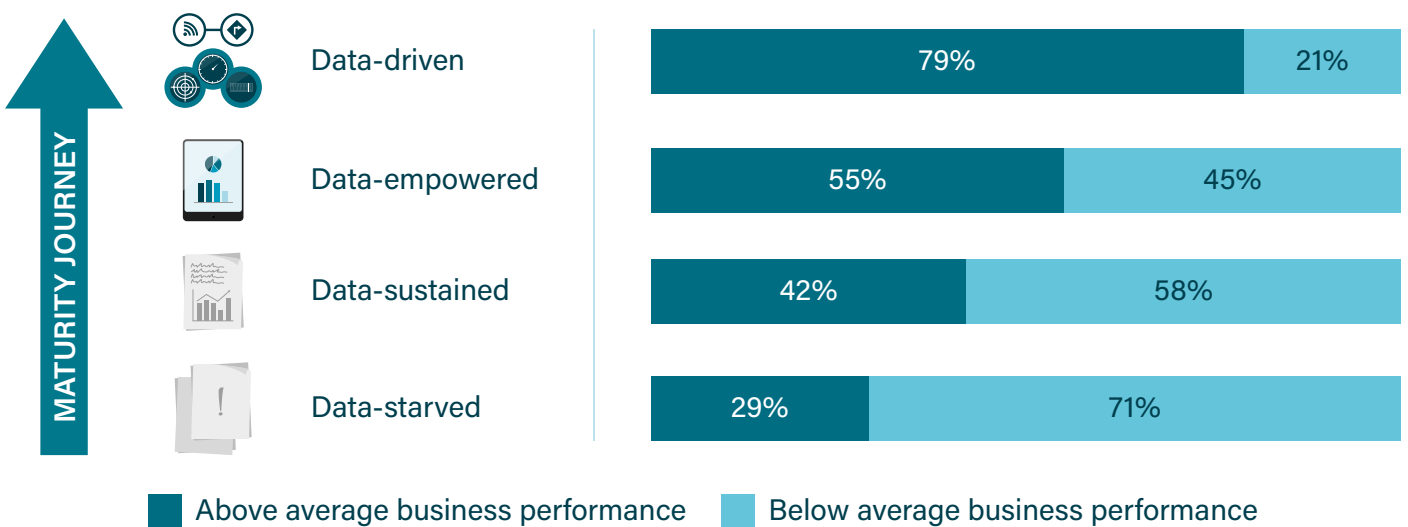
But does data maturity really matter?

If you work in a management or decision-making role, you will appreciate the benefits of access to relevant, up-to-date and forward-looking data, particularly if it's delivered proactively and in context. You will therefore have an intuitive feel for the value of driving for a higher level of data maturity as we have defined it. During the research, however, we wanted to form a more precise view of how data maturity relates to results achieved at an overall business level. In order to do this, we devised a scorecard which allowed us to group organizations according to aggregate performance across a range of common KPIs.

Survey question: How well would you say your organization is performing overall in the following areas?

Maturity and Business Scorecard

	Very well			Poorly
EFFECTIVENESS				
Innovation and ideas development	25%	39%	28%	8%
Fast and effective decision-making	20%	38%	29%	13%
Organizational flexibility and agility	21%	36%	32%	11%
EFFICIENCY				
Workforce productivity	22%	49%	23%	6%
Management of workforce overheads	18%	39%	33%	10%
Optimal workflow/process cycle times	16%	36%	40%	8%
KEY OUTCOMES				
Employee experience and satisfaction	20%	50%	22%	8%
Customer experience and satisfaction	25%	49%	23%	3%
Market competitiveness	23%	54%	19%	4%

Aggregate scores → Above average business performance / Below average business performance

Very well ● ● ● ● Poorly

Bringing business performance and data maturity together then revealed an extremely striking correlation. Put simply, the better organizations manage and exploit the data available to them, the more they tend to be achieving superior business outcomes.

Strong correlation: More mature organizations achieve superior business outcomes

MATURITY JOURNEY

	Above average business performance	Below average business performance
Data-driven	79%	21%
Data-empowered	55%	45%
Data-sustained	42%	58%
Data-starved	29%	71%

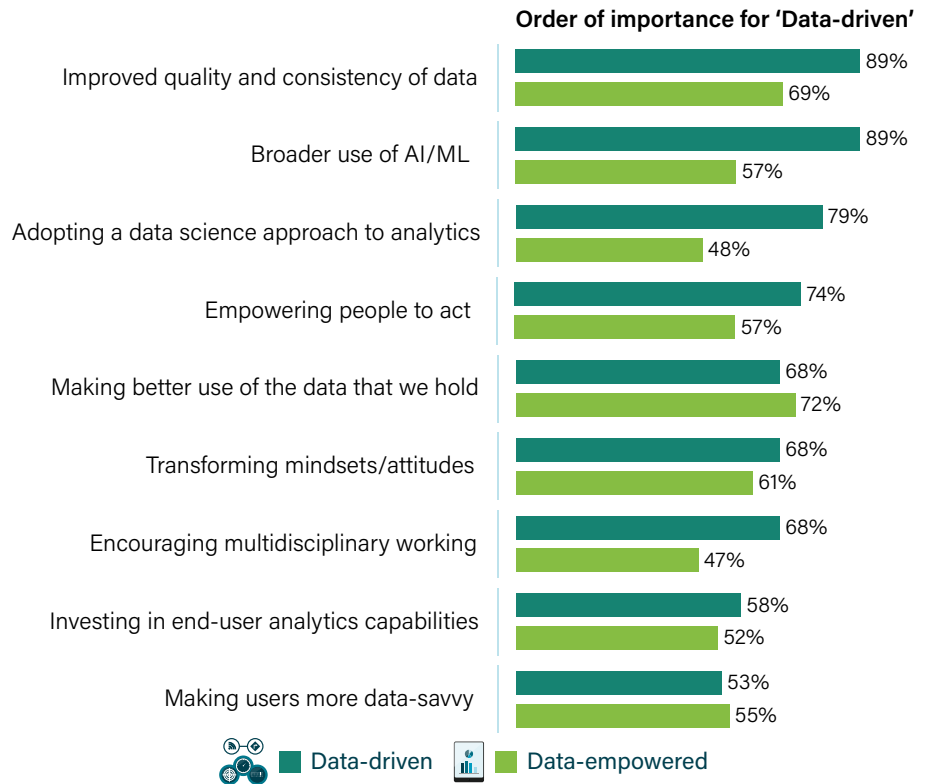■ Above average business performance   ■ Below average business performance

While we always need to be careful about inferring causality from correlation, the link between data maturity and business performance is unlikely to be a coincidence. It's easy to understand how faster access to more and better data enables innovation, flexibility and responsiveness, as well as efficiency and increased satisfaction among both employees and customers.

Learning from those that have made it

While those falling into the data-driven category based on our maturity assessments were small in number, they were remarkably consistent in how they went about gaining and keeping the advantage. In terms of high priority objectives, for example, they were much more likely than even the relatively advanced 'data-empowered' group to be driving for better data quality and consistency, implementing approaches based on AI and data science, and empowering employees both individually and as part of multidisciplinary teams. Data-driven organizations also stood out in their more established use of the advanced technologies listed below.

'High priority' objectives for improvement by maturity group

Order of importance for 'Data-driven'

Objective	Data-driven	Data-empowered
Improved quality and consistency of data	89%	69%
Broader use of AI/ML	89%	57%
Adopting a data science approach to analytics	79%	48%
Empowering people to act	74%	57%
Making better use of the data that we hold	68%	72%
Transforming mindsets/attitudes	68%	61%
Encouraging multidisciplinary working	68%	47%
Investing in end-user analytics capabilities	58%	52%
Making users more data-savvy	53%	55%

■ Data-driven   ■ Data-empowered

USE OF ADVANCED TECHNOLOGIES

Implementation of core data management techniques

- Master data management ☑
- Metadata management ☑
- Automated data classification ☑
- Data quality management ☑

Implementation of risk management measures

- Data-level security policies ☑
- Data discovery ☑
- Data auditing and tracking ☑
- Comprehensive data protection ☑
- Business continuity ☑
- Testing of DR systems ☑

Use of database technologies

- NoSQL database technology ☑
- In-memory database technology ☑
- Structured data warehouse approach ☑
- Unstructured data lakes, based on big data technology ☑

Use of advanced data processing and analytics solutions

- Solutions to automate and manage the batch movement of data (e.g. ETL tools) ☑
- Edge computing to aggregate, filter and transform data at or close to the source (e.g. for IoT) ☑
- Complex event processing solutions (aka CEP) that continuously act on live data streams ☑
- Embedded analytics to fully and intelligently automate business processes and functions ☑
- Analytics embedded in business processes to provide users with assistance or recommendations in context (e.g. 'next best action') ☑
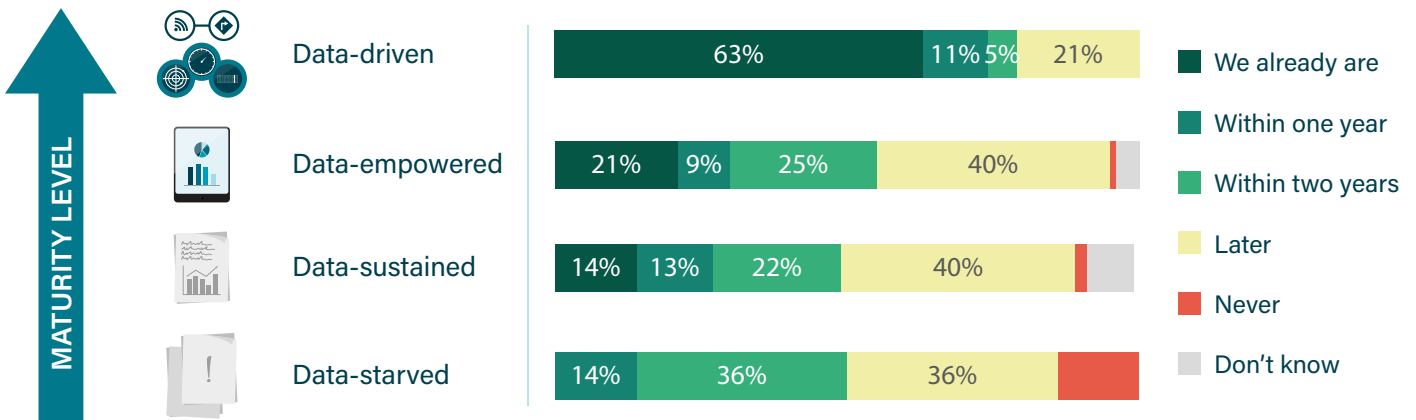
Use of modern storage technology

- Scale out storage architectures ☑
- Flash storage technology ☑
- Cloud-based storage ☑
- Hybrid storage abstraction solutions ☑
- Self-service storage provisioning ☑
- Data bus/Data hub/Data broker ☑
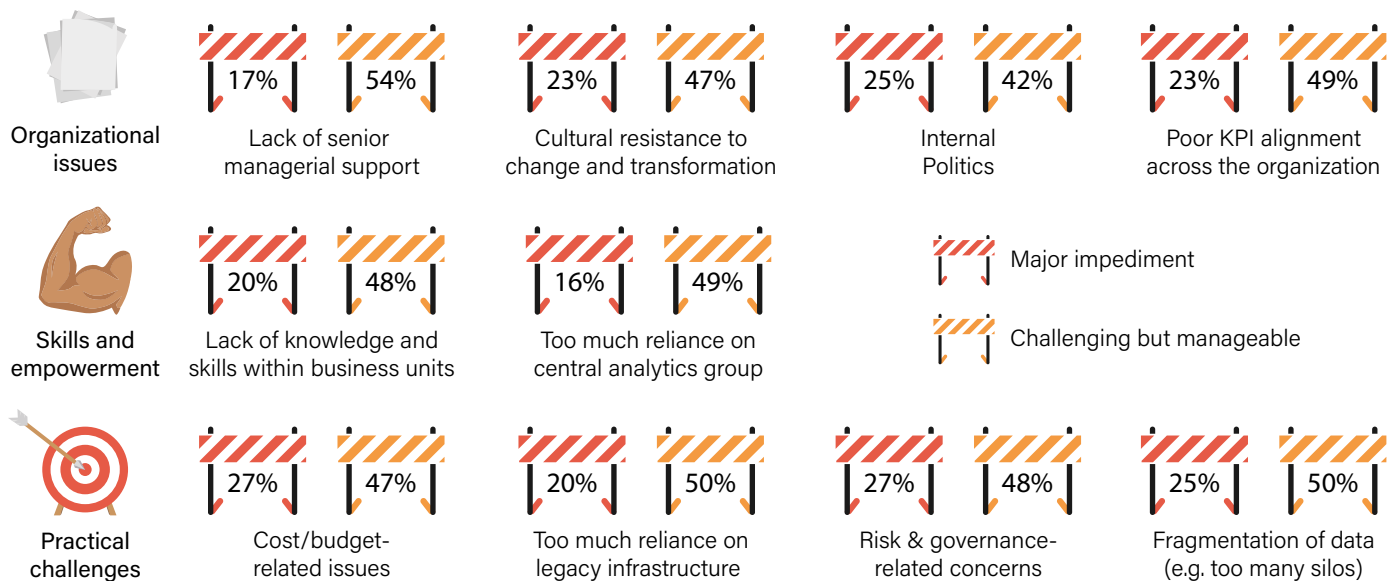
Becoming a data-driven business

A clear prerequisite for setting out on any journey is not just a view of your desired destination, but also an acknowledgment of your current location, i.e. the point from which you are starting. With this mind, it's interesting to look at subjective high level perceptions of how far organizations think they are from their data-driven goal, and compare this with the kind of objective assessment we have captured in our maturity model. The good news is that most organizations seem to have a reasonable appreciation of their current situation, though some would appear to be fooling themselves or at least significantly overestimating their current capability.

Survey question: How long will it be before your organization can genuinely claim to be data-driven?

MATURITY LEVEL		We already are	Within one year	Within two years	Later	Never	Don't know
Data-driven		63%	11%	5%	21%		
Data-empowered		21%	9%	25%	40%		
Data-sustained		14%	13%	22%	40%		
Data-starved			14%	36%	36%		

When predicting the speed of progress, it's easy to underestimate how quickly some of the changes needed to become a data-driven business can take to implement, particularly with regard to mindset and cultural transformations. Indeed when we asked about what stands in the way of progress, hurdles such as a lack of senior air cover, cultural resistance and internal politics were frequently highlighted, together with a number of other people-related and organizational issues.

Survey question: How much do the following stand in your way of progress when it comes to making your business more data-driven?

Organizational issues

Lack of senior managerial support	Cultural resistance to change and transformation	Internal Politics	Poor KPI alignment across the organization
17% / 54%	23% / 47%	25% / 42%	23% / 49%

Skills and empowerment

Lack of knowledge and skills within business units	Too much reliance on central analytics group
20% / 48%	16% / 49%

Major impediment

Challenging but manageable

Practical challenges

Cost/budget-related issues	Too much reliance on legacy infrastructure	Risk & governance-related concerns	Fragmentation of data (e.g. too many silos)
27% / 47%	20% / 50%	27% / 48%	25% / 50%

With regard to other practical challenges, some are clearly held back by old systems and infrastructure, and are finding it hard to secure the necessary funding to modernize. The other big takeaway from the above picture is the overarching challenge of fragmentation. In medium to large size organizations such as the ones participating in our study, it is not unusual to find that individual parts of the business have made their own decisions over time based on local objectives, leading to poor KPI alignment and lots of disparate data silos.
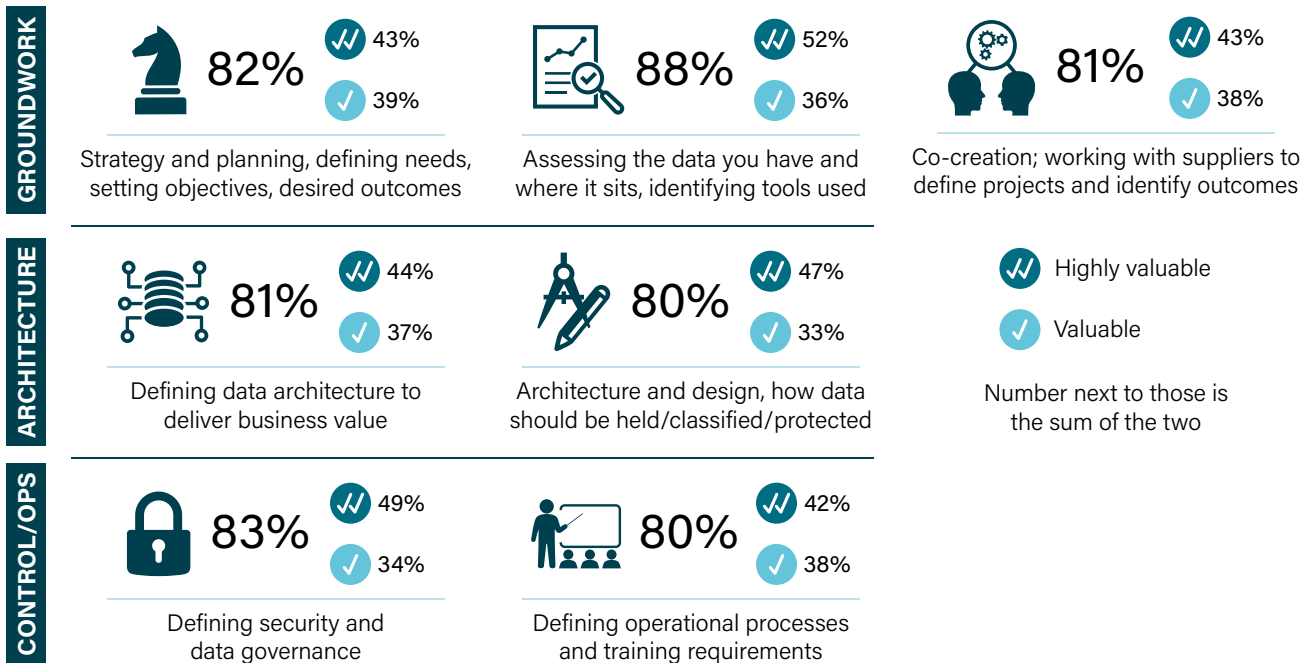
Driving for sustained progress

Taking steps to better manage and exploit data within your business is likely to yield worthwhile results regardless of your starting point. As we saw earlier, moving from any maturity level to the next significantly improves your chances of achieving superior business performance. It's also noteworthy that even those already in the data-driven category continue to prioritize improvements in areas in which they are already very capable - data quality and consistency is a good example here. This highlights that while we have referred to becoming 'data-driven' as a destination, in reality things like evolving customer behavior, ongoing market dynamics and the march of technology continually conspire to ensure that work is never complete in this space. Imperatives to change, transform and modernize in order to keep up will carry on emerging, as will opportunities to get ahead and gain advantage over the competition.

It may not be easy, but you don't have to go it alone

Assessing where you are, formulating a strategy and setting meaningful and achievable objectives can be hard to do against the backdrop of some of the challenges highlighted earlier. Long established lines of demarcation, systems silos and political differences can make fundamental tasks such as identifying the data that exists, where it sits and the tools currently used to process it feel extremely daunting. There's then the problem that you don't know what you don't know when it comes to which modern solutions and techniques are available, and how they allow you to think and/or act differently. Even specialists find it difficult to stay up-to-date on the latest developments in best practices, technology options and service delivery, let alone how to devise an effective data architecture and then select the right mix of infrastructure and cloud services to implement it.

With this mind, it's not surprising to see a broad appreciation of the role suppliers can play by offering relevant services throughout the review, planning, implementation and operations cycle.

Survey question: How valuable would you consider the following types of supplier services?

GROUNDWORK		
82% — 43% / 39% Strategy and planning, defining needs, setting objectives, desired outcomes	**88%** — 52% / 36% Assessing the data you have and where it sits, identifying tools used	**81%** — 43% / 38% Co-creation; working with suppliers to define projects and identify outcomes

ARCHITECTURE		
81% — 44% / 37% Defining data architecture to deliver business value	**80%** — 47% / 33% Architecture and design, how data should be held/classified/protected	Highly valuable Valuable Number next to those is the sum of the two

CONTROL/OPS		
83% — 49% / 34% Defining security and data governance	**80%** — 42% / 38% Defining operational processes and training requirements	

Final thought

The last thought we'll leave you with is to consider the cost of doing nothing or simply the minimum to remain operational and compliant. As of now, the percentage of players that are genuinely data-driven is small in pretty much every industry sector as we have seen. With technology advances and the emergence of service offerings across the entire lifecycle, however, the chances are this number will grow quickly. It therefore won't be long before what's considered advanced today will become normal. So, whether data-driven competitors are disrupting your industry yet or not, our advice is to act sooner rather than later to avoid being caught out.

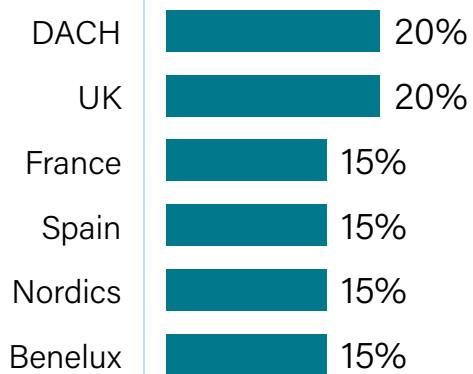# Appendix: Research sample demographics

The study discussed in this report was completed in June 2020. The majority (75%) of the input was collected via telephone interviews, with the remainder gathered via an online survey (to work around the difficuties calling respondents while working from home during the Covid-19 pandemic).
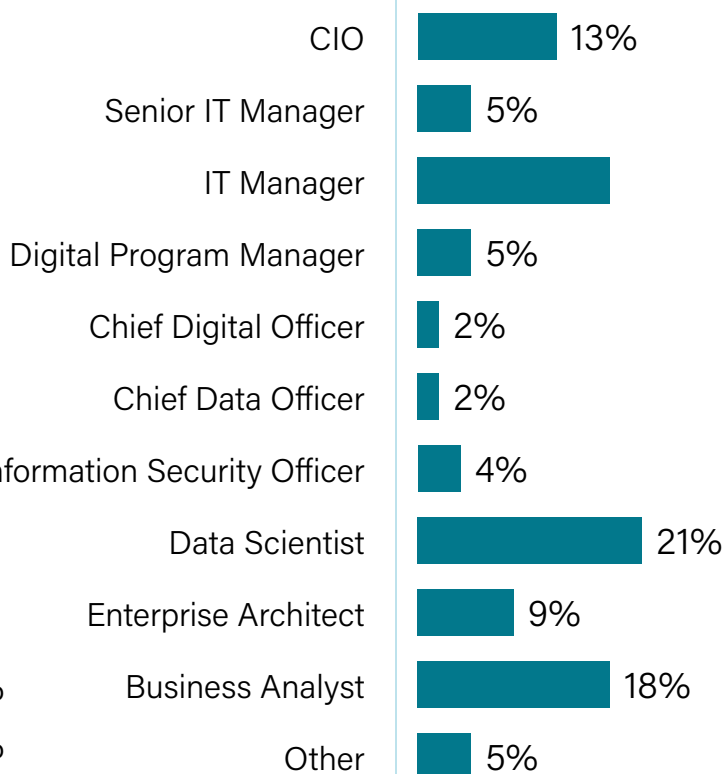
The final sample distribution was as follows:

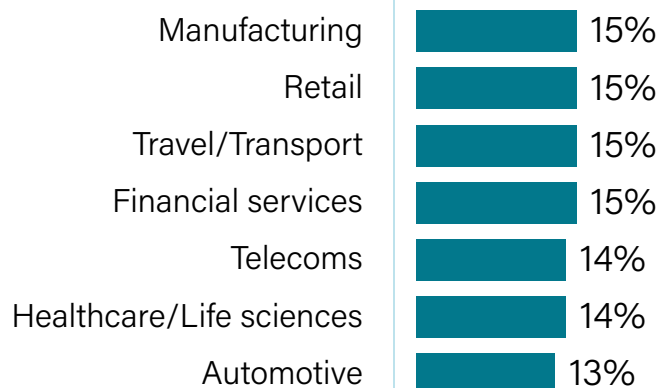### How many employees work in your organisation?

More than 5,000 employees	50%
1,000 to 5,000 employees	50%

Where are you located geographically?

DACH	20%
UK	20%
France	15%
Spain	15%
Nordics	15%
Benelux	15%

Which of the following best describes your role?

CIO	13%
Senior IT Manager	5%
IT Manager	
Digital Program Manager	5%
Chief Digital Officer	2%
Chief Data Officer	2%
Chief Information Security Officer	4%
Data Scientist	21%
Enterprise Architect	9%
Business Analyst	18%
Other	5%

Which of the following best describes your company's core business?

Manufacturing	15%
Retail	15%
Travel/Transport	15%
Financial services	15%
Telecoms	14%
Healthcare/Life sciences	14%
Automotive	13%

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