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The State Of Data Literacy 2023

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Organizations Today Need to Embrace the Era of Data Literacy

JONATHAN CORNELISSEN,
CEO OF DATACAMP

"Our mission is to democratize data skills for everyone"

At DataCamp, we are on a mission to democratize data skills for everyone and enable organizations to thrive in the era of data literacy. As we continue our march in this decade of data, we examine the transformational impacts of data literacy and the future of data skills.

We live in a new era of data. As digitalization continues, every industry and organization is generating more data than ever. Pioneering companies across industries like Airbnb, Moderna, Amazon, and Netflix have set the standard for extracting value from data, and the rest of the economy must follow suit. It is essential that organizations today embrace data literacy, as they did with the advent of computers in the 1980s and the internet in the 2000s.

DataCamp was founded ten years ago with the mission of enabling anyone to acquire data science skills. However, we've come a long way from being just a learning platform for technical data skills. Our curriculum now covers the entire spectrum of data skills. Our certification programs allow learners to get credentialed at a fraction of the cost. DataCamp Workspace reduces the friction between learning and doing. Finally, DataCamp Recruit reduces the time for organizations to fill their talent gap. This continuous development is a testament to our commitment to our mission; DataCamp is evolving to meet the needs of learners and organizations. We're striving to be more than a learning platform; we're a hub for data transformation.

This report details the trends underpinning these evolving needs. It highlights the crucial role data skills play in addressing major challenges such as building economic resilience, reducing the impact of potential automation, and enabling organizations and individuals to become more competitive in the 21st century.

For DataCamp, these factors are why we must continue championing the importance of high-quality, accessible data education. Whether it is learners picking up data skills on their own, organizations investing in the skills of their workforce, or high schools and universities making basic data skills a standard, the future success of economies rests upon data skills transformation.

Read on to discover how data literacy drives individual, organizational, and societal outcomes. Alongside, uncover the crucial data skills needed today and how to approach upskilling.

Introduction

Organizations are drowning in data but starving for insights. Companies today are collecting an ever-expanding amount of data. Yet, the value of data remains untapped without the necessary data skills, culture, and mindset.

The last three years have caused a massive acceleration in demand for data skills. Pandemic-induced digitalization increased data volumes, and the rise of hybrid skill sets has catapulted us into the era of data literacy.

As a result, individuals are more eager than ever to learn data skills, and organizations and educational institutions are thinking about how to transition the economy to a data-driven one.

The era of data literacy is defined by a spectrum of skills, ranging from a basic understanding of data concepts, data storytelling, and communication to more "technical" data science skills that leverage coding and non-coding tools alike.

More importantly, the era of data literacy is hallmarked by lifelong learning. As emerging tools and technologies challenge us to adopt new ways of working, more efficient approaches to extracting insights from data arise, resulting in broader work flexibility. As this becomes the new norm, we must all continue on learning journeys to stay competitive.

There is much that education providers, organizations, and governments can do to prepare today's labor force for the data-driven economy of the future. In this report, DataCamp analyzes insights from 558 business leaders in the UK and the US. We uncover their most significant challenges in upskilling, what employers consider to be the most sought-after data skills, the transformational impact of data literacy, their attitudes toward data, and more.

To add to their perspectives, we have collected insights from industry thought leaders and DataCamp for Business customers on many of the themes and trends covered in this report and those for the decades to come.

Keep reading and discover

- What data literacy means and what transformational benefits it can bring.
- The essential data skills employers need on their team and how they're addressing the data literacy skill gap.
- Best practices from leaders at the forefront of data upskilling.
- What the future of data literacy and upskilling look like.

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Section

1

The Data Literacy Imperative

In this first section, we explore the concept at the heart of this report — data literacy. We examine what it is, why it matters to individuals and organizations, and how and why a data skills gap has developed.

What is data literacy?

Data literacy is the ability to read, write, analyze, communicate, and reason with data. It's a skill that allows individuals and organizations to make better, data-driven decisions.

Although the term suggests a binary, organizations should think of data literacy more in terms of a scale of fluency. An organization with high degrees of data literacy encompasses a wide range of data skills within its workforce. It's a spectrum that ranges from the ability to make data-driven decisions and tell data stories to more advanced data science, data engineering, and machine learning skills.

As you will see throughout this report, both individuals and businesses recognize the importance of building their data capabilities. It's no surprise that business leaders in the UK and the US believe basic data literacy skills are as important as writing and basic computer skills.

In the UK, 89% of surveyed leaders consider basic data literacy skills to be the most critical set of skills for their workforce's day-to-day tasks. This makes it the second most important skill set after basic computer skills. US leaders paint a similar picture, with 78% believing basic data literacy skills is the most important skill set for their employees' daily tasks.

More importantly, our research highlights how data skills across the spectrum have gained steam over the past five years.

When we asked leaders which skills have become most important for their team or department in the past five years, **three of the top five fastest-growing skill sets across the UK and the US were data skills,** spanning business intelligence (41%), data science (37%), and basic data literacy skills (30%).

DataCamp for Business customers confirm these trends. Emily Hayward, Data & Digital Change Manager at CBRE, came on the DataFramed podcast to discuss CBRE's data upskilling initiative and why data skills have grown so important for CBRE. As a global commercial real estate leader, CBRE's mission is to help other businesses maximize their potential with real estate, whether enabling them to maximize value on their current properties or invest in future properties to support their growth.

As customers grow more informed and increasingly seek more sophisticated services and advice, data has become foundational for CBRE's ability to deliver value. Emily explains: "Our work is highly relationship-focused and relies on our people having the best information, the best data, and the best insights at their fingertips—so we can deliver the very best client outcomes. That's why enabling every person at CBRE to realize their data potential and take their data skills to the next level has never been so important. It's really crucial to our future as an organization."

89%

of UK leaders believe data literacy is important for their teams' daily tasks

78%

of **US** leaders believe data literacy is important for their teams' daily tasks

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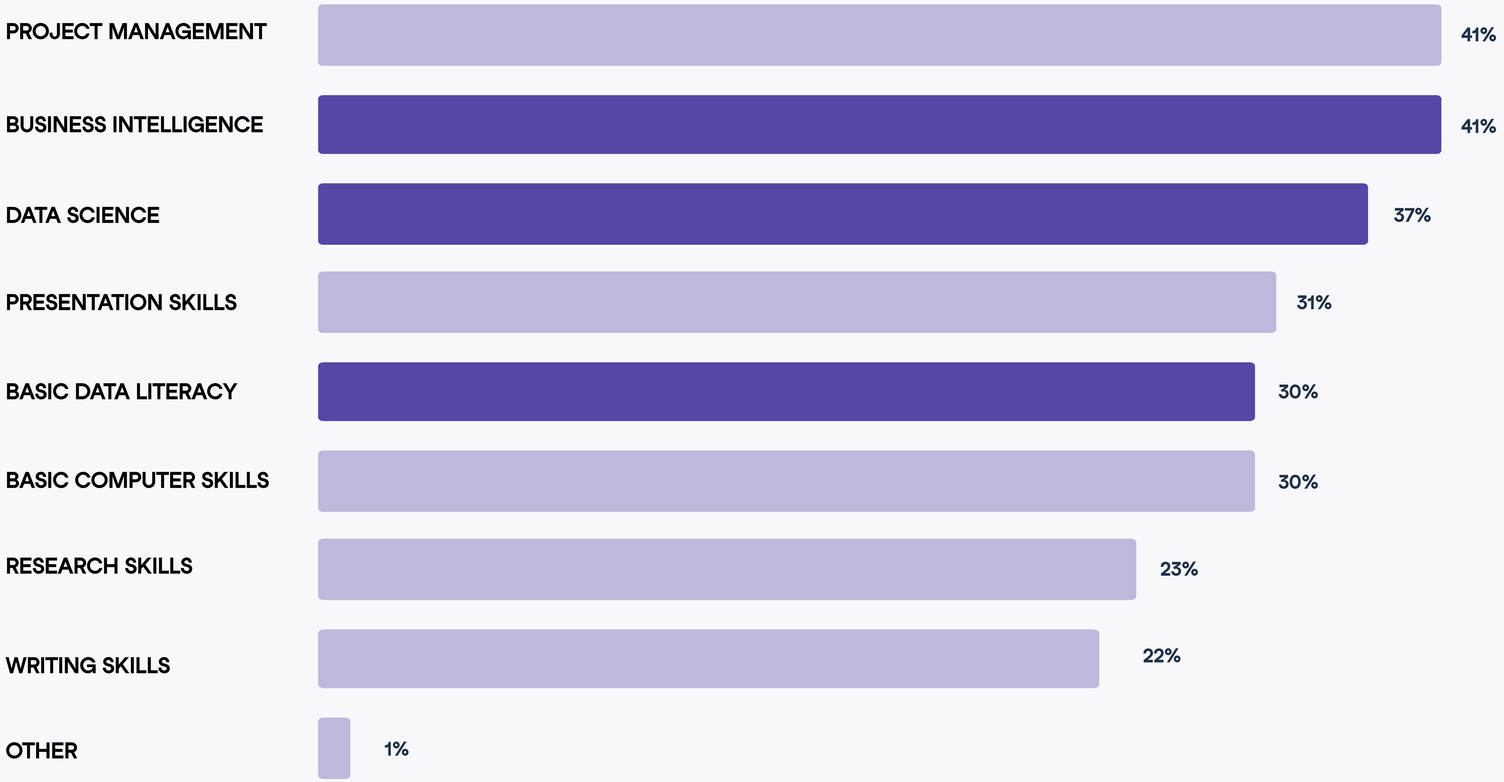
“Our work is highly relationship-focused and relies on our people having the best information, the best data, and the best insights at their fingertips—so we can deliver the very best client outcomes. That’s why enabling every person at CBRE to realize their data potential and take their data skills to the next level has never been so important. It’s really crucial to our future as an organization.”

Emily Hayward
Data & Digital Change Manager at CBRE

Learn more from Emily

THREE OF THE TOP FIVE FASTEST-GROWING SKILL SETS FOR TEAMS AND DEPARTMENTS IN THE PAST FIVE YEARS WERE DATA SKILLS.

Question asked: *“In the past five years, which skills have grown most important for your team (or department)? Rank by order of importance”*



The transformational impact of data literacy

In the last section, we saw first-hand how essential data skills are for organizations like CBRE. It doesn't come as a surprise to see this sentiment shared by surveyed data and business leaders. Organizations across industries are already seeing the impact of a data-savvy workforce. Those companies with employees possessing the necessary skills to use data are exhibiting gains in their ability to innovate, make faster and more informed decisions, create better customer experiences, and more. Critically, leaders are looking at data skills as a potential safeguard from their biggest challenges in the upcoming decade, including economic uncertainty, misinformation, and increased disruption of their industries. Let's see how these dynamics play out in more detail.

Data skills are essential for modern organizations to thrive

Leaders recognize the importance of having a data-literate workforce. However, they also understand the risk associated with having a team lacking adequate data skills. When asked about "What risks is your department or team facing if your people do not have adequate data skills?" **41% of respondents across the US and the UK identified inaccurate decision-making as the number one risk of inadequate data skills.**

Slow decision-making (36%), decreased productivity (30%), and a lack of innovation (29%) were also major concerns for respondents. These figures show how crucial data skills are to modern organizations and the risks that are posed by inadequacies in data knowledge.

The value data-literate employees bring is evident

Those with existing data skills are highly valued by employers. Overall, **nearly three-quarters (74%) of respondents agreed or strongly agreed that those with data literacy skills outperformed those with inadequate data skills.**

When asked how data-literate employees provide value over those with insufficient data skills, leaders pointed to more accurate decision-making (63%), stronger ability to innovate (48%), and ability to create better customer experiences (41%) as some of the main value they add. This matches with data seen around the salary premiums leaders are willing to pay for employees with better data skills, which we'll explore in more detail in the next section on the data literacy skill gap.

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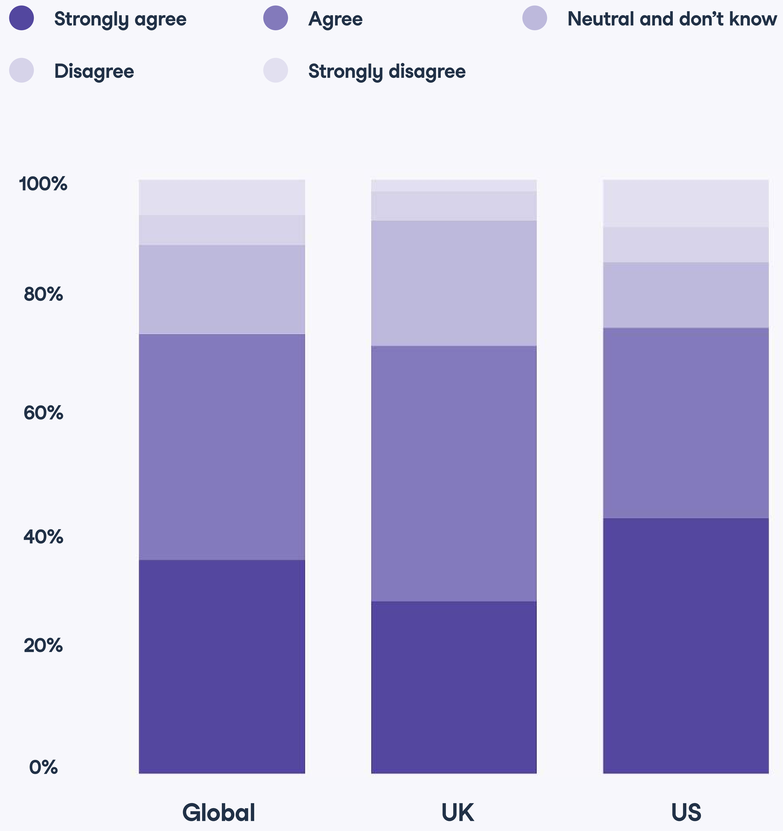
NEARLY THREE QUARTERS OF LEADERS BELIEVE THOSE WITH SUFFICIENT DATA LITERACY SKILLS OUTPERFORM THOSE WITH INADEQUATE DATA SKILLS

Question asked: *"Do you agree or disagree with the following statement: The people in my organization with sufficient data literacy skills outperform those with inadequate data literacy skills"*

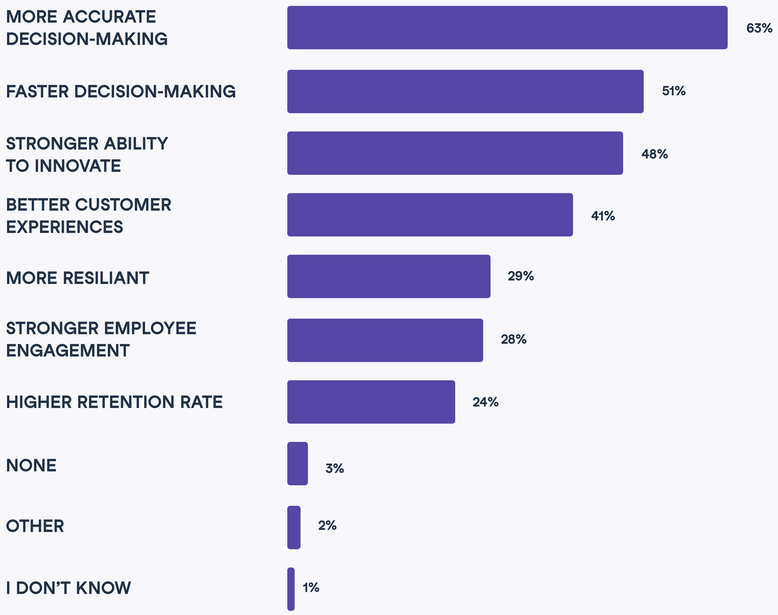


LEADERS POINT TO INACCURATE, AND SLOW DECISION-MAKING, AS THE BIGGEST RISKS FOR INADEQUATE DATA SKILLS ON THEIR TEAMS

Question asked: *"What risks is your department or team facing if your people do not have adequate data skills?"*

EMPLOYEES WITH ADEQUATE DATA SKILLS OUTPERFORM THOSE WITH INSUFFICIENT DATA SKILLS ON A VARIETY OF DIMENSIONS

Question asked: *"What value do data literate employees provide over those with insufficient data skills? (Rank them by importance)"*



Data skills can alleviate some of our biggest challenges of the decade

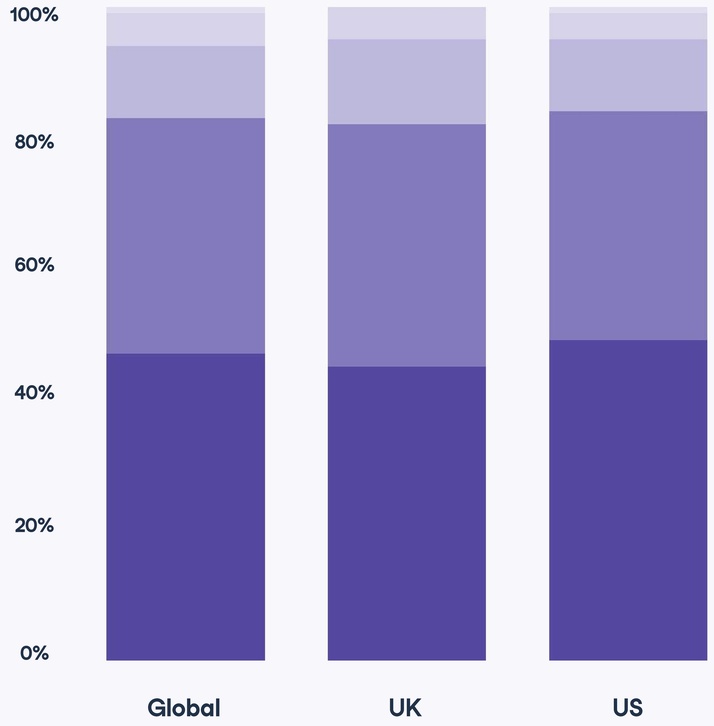
The impact of data skills could have a reach beyond individual organizations. When asked about data skills in relation to this decade's biggest challenges, most respondents saw broader implications for data literacy. For example, **67% of data and business leaders believe that organizations that invest in data upskilling are more likely to be recession-proof.** Similarly, **85% percent felt that countries investing in data literacy skills will outperform those who are not.** These responses signal how the skills economy, particularly the data skills economy, will help determine the winners and losers ahead of the decade.

More broadly, data literacy can help address key societal challenges such as AI-powered misinformation. Over the past two years, we've seen the rise of awe-inspiring AI tools like ChatGPT and DALLE-2 that generate human-like text and images. Unfortunately, while the beneficial use cases for these tools are endless, they can also be used to accelerate and power misinformation. This sentiment is echoed by Anjali Samani, Director of Data Science & Data Intelligence at Salesforce. She believes that, in a time of fake news, deepfakes, and post-truth politics, data literacy is more important than ever: "Everyone should become data literate. Everyone should teach kids how to be data literate and ask important questions about the data and the world around them.

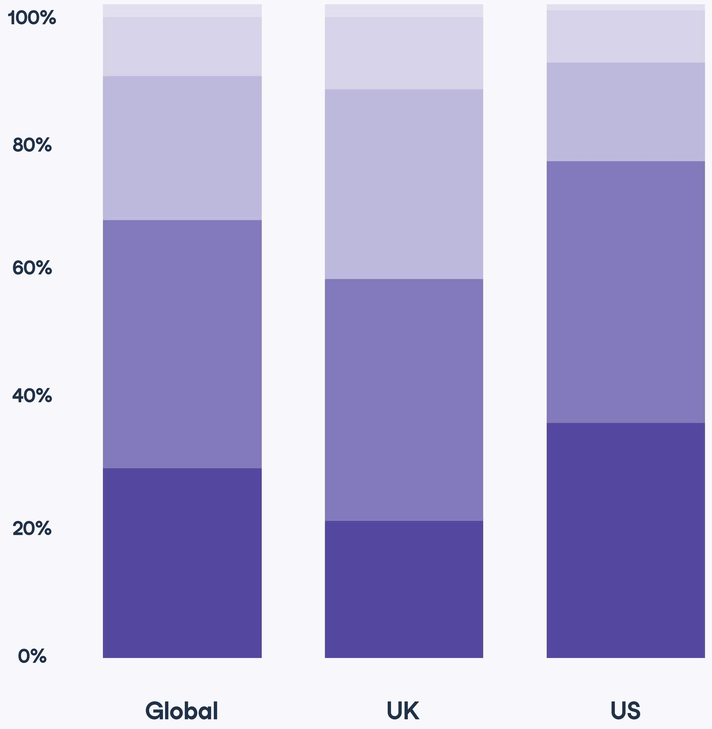
In the past, you could say seeing is believing. But with deepfakes and AI-powered misinformation, we can no longer say that. If you're not asking the right questions about the data and the technologies we see, you could be doing yourself and future generations a disservice."

LEADERS BELIEVE DATA LITERACY SKILLS CAN ALLEVIATE SOME OF OUR BIGGEST CHALLENGES OF THE DECADE

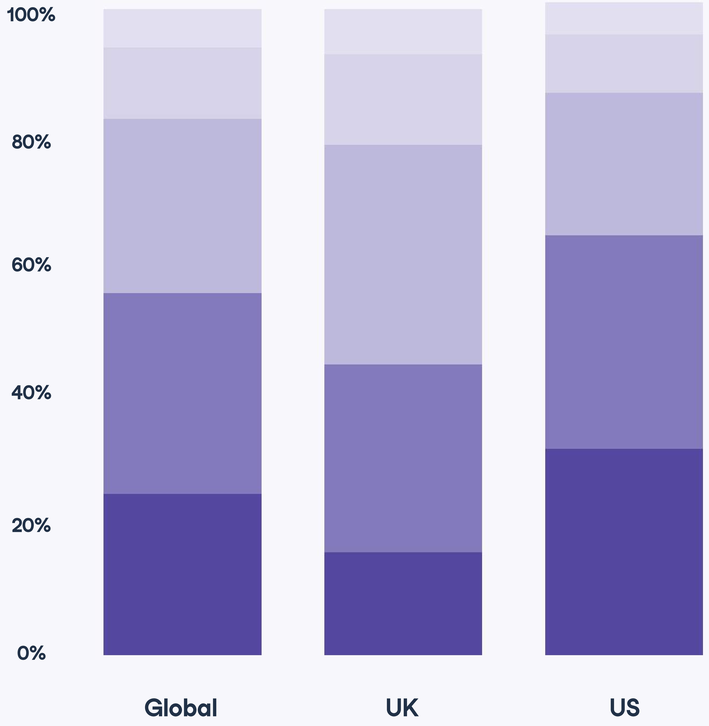
Question asked: *"To what extent do you agree or disagree with the following statement: Countries that are investing in data literacy skills will outperform those who are not?"*



Question asked: *"To what extent do you agree or disagree with the following statement: Organizations that are investing in data literacy skills are more likely to be recession-proof?"*



Question asked: *"To what extent do you agree or disagree with the following statement: Startups trying to disrupt our space have a data literacy advantage over my organization?"*



Strongly agree · Agree · Neutral and don't know · Disagree · Strongly disagree

Everyone should become data literate. Everyone should teach kids how to be data literate and ask important questions about the data and the world around them. In the past, you could say seeing is believing. But with deepfakes and AI-powered misinformation, we can no longer say that. If you're not asking the right questions about the data and the technologies we see, you could be doing yourself and future generations a disservice."

Anjali Samani
Director of Data Science & Decision Intelligence at Salesforce

Learn more from Anjali

The data literacy skill gap

54%

of leaders in the UK and the US believe that "my organization has a data literacy skill gap that needs to be addressed"

While leaders and individuals recognize the transformational impacts of a data-literate workforce, a large data skills gap remains. This skill gap is born from technological, organizational, and cultural factors.

Despite their optimism about the transformational potential of organization-wide data literacy skills, leaders are level-headed about their organization's current skill set. **More than half of the leaders surveyed stated that their organization has a data literacy skill gap that they need to address.** This proportion corroborates DataCamp's own data maturity assessment, which finds that only around 5% of organizations classify themselves as fully data literate.

The catalysts behind this skill gap are many. Jordan Morrow, author of Be Data Literate: The Data Literacy Skills Everyone Needs to Succeed, described on the DataFramed podcast how the speed of data proliferation has historically led organizations down the wrong investment path. In an effort to react quickly to the advent of big data, organizations invested in technology over people, falling into the trap of buying 'shiny toys.' According to Jordan, this has manifested in two ways.

First, organizations direct their efforts to produce buzz-inducing predictive analytics use cases that leverage machine learning and AI applications. While machine learning and AI projects have a place on the roadmap, they typically require specialized talents such as data scientists and machine learning engineers to execute them. Prioritizing AI and machine learning projects first does not necessarily translate into a data-driven workforce, as the wider organization should focus on descriptive and diagnostic analytics.

The different levels of analytics

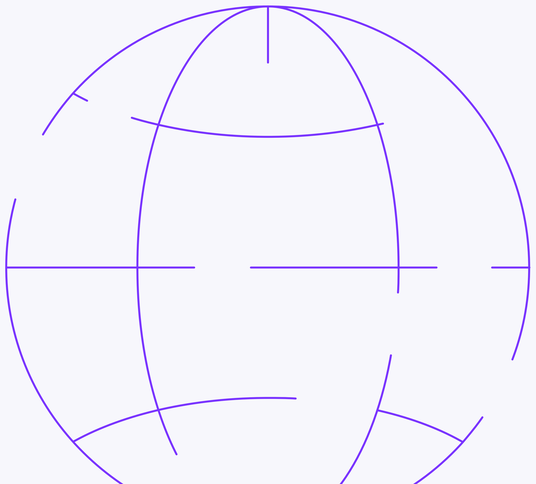
Second, organizations invested in modernizing tooling but not in transforming the workforce's mindset. Data literacy is just as much a way of thinking as it is a skill set. As Jordan highlights, even if you invest in tool-specific training, if your workforce doesn't have the basic data literacy skills and mindset to use data effectively, that will lead to minimal adoption of new tools.

Counter to the speed of data proliferation, the second catalyst behind the data skill gap is the slow-moving nature of change management. Building a data literacy program that gains widespread adoption and truly impacts the organization's skill set is a long-term project that consists of continuous upskilling and reinforcement, culture change, gaining buy-in from participants and executives, and transforming organizational habits.

It is no wonder, then, that leaders would prefer to circumvent this process and hire their way out of their skill gap. About **two-thirds (66%) of leaders stated that they would be willing to pay a higher salary** to a candidate with good data literacy skills over a candidate without them, with 77% of those who said yes claiming they would pay at least 10% to 15% extra.

More resoundingly, roughly a quarter of leaders would offer a 30% salary premium or more for candidates with good data literacy skills.

Sourcing and hiring candidates with data skills can partly solve the data skill gap. However, change management, skills, and culture transformation are paramount in shifting the organization's data culture. Our section on data literacy programs outlines best practices drawn from DataCamp for Business Customers on how to effectively orchestrate change management.



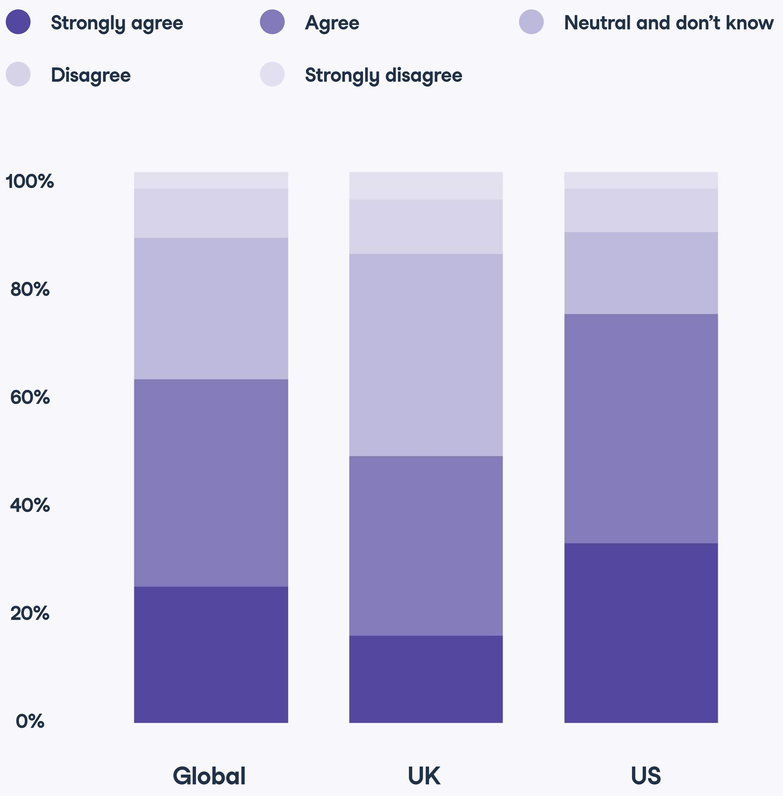
"The shiny AI and machine learning object can be a part of the roadmap, but it should be further down the line. Instead, organizations should be thinking about good data access and infrastructure, putting data into the hands of the masses, and enabling everyone to find simple insights in the data."

Jordan Morrow
Author of Be Data Literate: The Data Literacy Skills Everyone Needs to Succeed

Listen more from Jordan on DataFramed

LEADERS ARE WILLING TO PAY A PREMIUM FOR EMPLOYEES WITH STRONG DATA LITERACY SKILLS

Question asked: *"Do you agree or disagree with the following statement: "When hiring someone new, I'm willing to pay a higher salary to a candidate who has good data literacy skills over a candidate who does not"*



Question asked: *"If you answered yes to the previous question, what salary premium are you willing to pay to a candidate with high data literacy skills?"*

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Section

2

Adapting to the Era of Data Literacy

Most organizations recognize the need for a data-literate workforce. Yet, few have charted a path toward success. What are the essential data skills organizations need from their people? How do you address the data literacy skill gap? Who owns the data literacy agenda? Read on to gain answers and insights from industry thought leaders and DataCamp for Business customers at the forefront of data transformation.

Who should own data literacy?

For the most part, organizations recognize the importance of data skills and the need to develop them within their workforce. However, culture and skills transformation is not a simple, one-off project. Instead, it's a cross-functional effort that requires long periods of sustained investment and iteration. As such, the questions arise; who owns the data literacy agenda? And who executes it?

There are many groups within the organization with a vested interest in the data literacy agenda. Chief Information Officers are concerned with data access for the rest of the organization, Chief Marketing Officers are vested in accelerating customer insights for better decision-making, and Chief Technical Officers would like product and engineering teams to use data when making product decisions. Data touches almost every aspect of the organization. Despite all concerned stakeholders, the Chief Data Officer stands out as the best leader to own the data literacy agenda.

The advent of the Chief Data Officer role is a testament to the growing importance of data for organizations. In the past ten years alone, the number of Chief Data Officers within organizations has increased sevenfold, going from 12% in 2012, to 82.6% in 2023. Chief Data Officers are mandated with ensuring data is treated as an asset within the organization, and that includes enabling everyone with the mindset and skills to take advantage of data within their day-to-day tasks.

The risks associated with low data literacy impact the Chief Data Officer's success the most, as CDOs regularly report a lack of data culture and skills as their **biggest roadblocks to success.**

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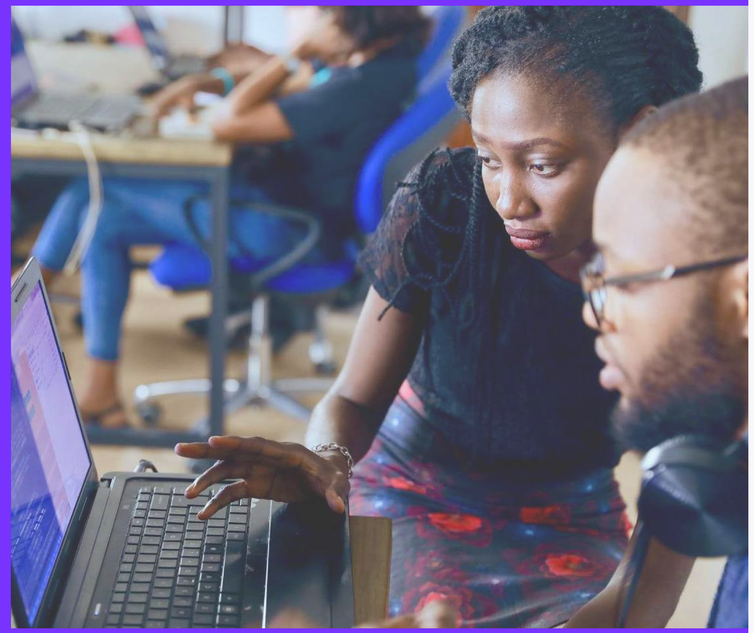
Data culture is not just an option, it is mission critical."

Sudaman Thoppan Mohanchandralal
Founder of NautilusPrinciple, and Former Chief Data Officer at Allianz Benelux

Learn more from Sudaman



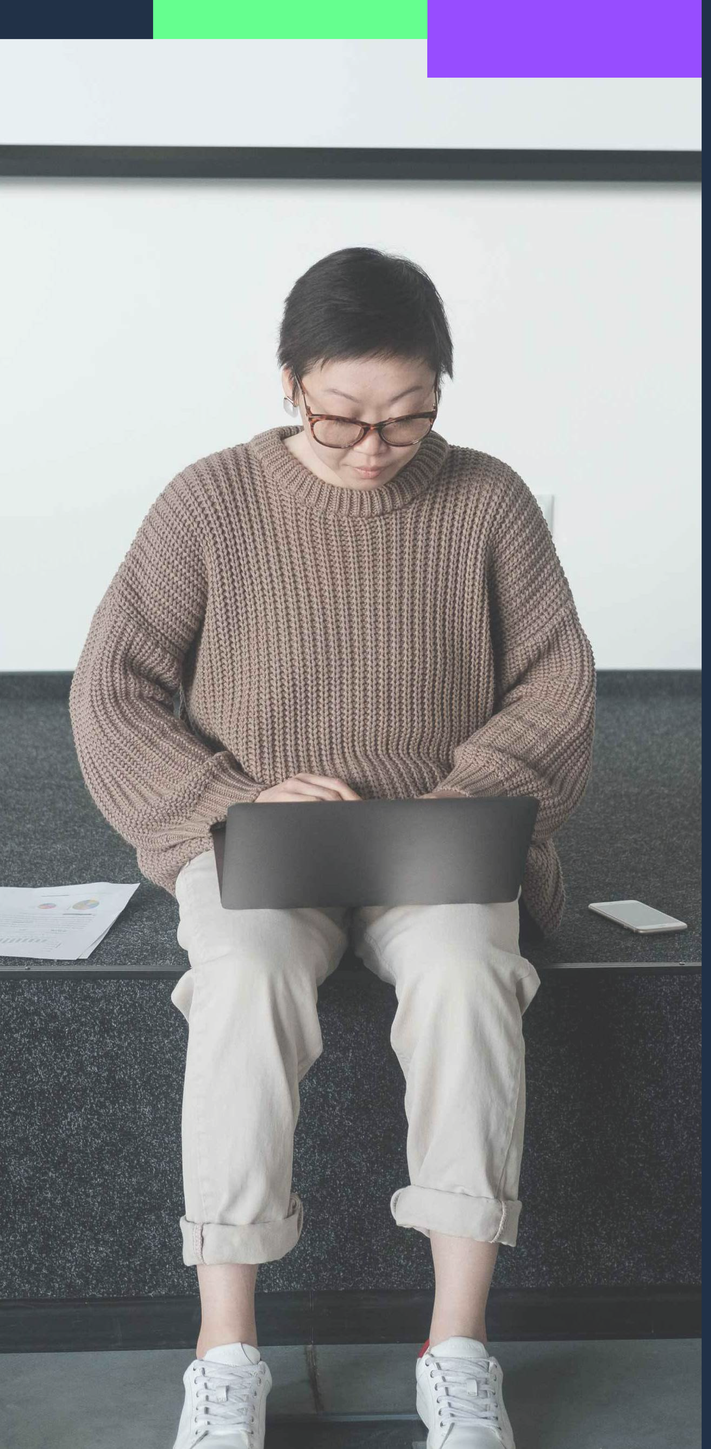
A great illustration of this comes from Sudaman Thoppan Mohanchandralal, Founder of NautilusPrinciple, a Data & Analytics strategy advisory firm, and Former Chief Data Officer at Allianz Benelux. Sudaman **explained the importance of data culture** in enabling broader success in data, citing that "data culture and skills are not just options, but they are mission critical."

However, organizations with no executive data leadership shouldn't fret. Senior data leadership could also take on a more hands-on role in culture and skills transformation.

Regardless of who owns the data literacy agenda, the task is too critical to be taken up alone. The chief learning officer, or the learning and development function, is also an integral co-owner and stakeholder in the data literacy agenda. Learning teams can not only execute the data literacy agenda but can contextualize data skills in the broader future skill set of the organization.

Cindi Howson, Chief Data Strategy Officer at ThoughtSpot, doubles down on this point during a DataCamp webinar appearance:

"Ideally, the chief data officer should own the data literacy agenda, but that is also largely dependent on where the CDO sits within the broader organization. The chief learning or people officer is also integral, as they help assess the organization's current skill set and can contextualize data literacy within the overall future of work conversation".



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Cindi Howson
Chief Data Strategy Officer at ThoughtSpot

Learn more from Cindi

The data skills leaders need from their teams

So far, we've explored in detail the value data skills bring to organizations, examined who should own the upskilling agenda, and expanded on the data literacy skill gap. However, what are the top data skills leaders want to develop in their teams? Our research canvassed the opinions of 558 business and leaders across functions in the UK and the US. From founders to executives, directors, and middle managers, we've asked various leaders from across industries what their biggest data skills needs are. The results match what we see with DataCamp for Business customers.

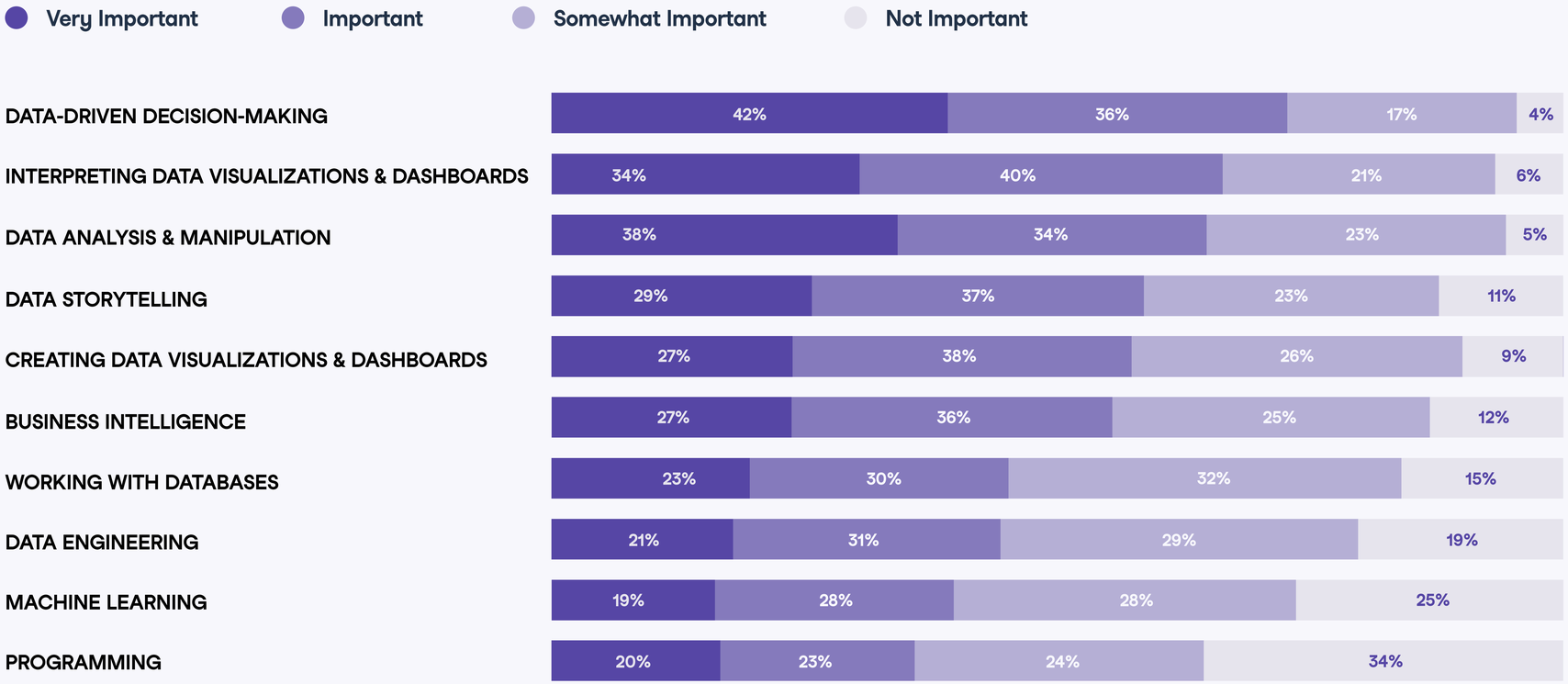
According to leaders across the US and the UK, **the most sought-after data skill is data-driven decision-making**, with 78% of leaders claiming it's the most important. This fact is hardly surprising, given that inaccurate decision-making was identified as the number one risk of inadequate data skills. Similarly, skills in **interpreting data visualizations and dashboards (74%), data analysis and manipulation (72%)**, and **data storytelling or the ability to present data to different audiences (66%)** are highly valued by data and business leaders. Again, this matches with findings we've already explored; businesses want to grow a workforce that can make fast, accurate decisions based on data.

That being said, leaders also seek more technical data skills.

The **ability to create dashboards and visualizations** (66%) and **knowledge of business intelligence tools (65%)** such as Tableau and Power BI are highly valued, as is **the ability to work with and create databases using SQL (53%), alongside programming skills in Python and R (42%).** More interestingly, **machine learning (47%)** and **data engineering (52%)** skills are valued by half of our respondents. This large number suggests that even if the workforce may not be expected to implement machine learning solutions or build data pipelines, they are increasingly expected to be conversational about it.

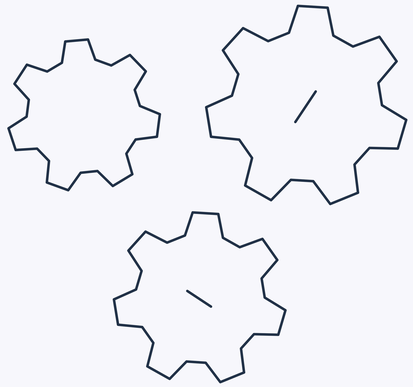
DATA-DRIVEN DECISION-MAKING IS SEEN AS THE MOST IMPORTANT SKILL LEADERS LOOK TO HAVE ON THEIR TEAMS

Question asked: *"How Important, if at all, are the following data skills for the day-to-day tasks of employees in your organization?"*



The above reinforces how organizations should think about data literacy. While data literacy is defined as the **ability to read, write, communicate, and reason with data,** from an organizational perspective, it's a spectrum of data skills ranging from basic data-driven decision-making to advanced machine learning and data engineering. Jordan Morrow confirms this by claiming: "A holistic data strategy is a data strategy that ties to the business objectives and gives the data and analytical work a direction to follow.

To enable that work, there is a spectrum of skills from a person who only knows how to read the data but asks questions, and then that permeates out to the most advanced technical person in the organization and people in between. It's not one size fits all."



"A holistic data strategy is a data strategy that ties to the business objectives and gives the data and analytical work a direction to follow. To enable that work, there must be a spectrum of skills, from the person who only knows how to read the data but asks questions, permeating out to the most advanced technical person in the organization and everyone in between. It's not one size fits all."

Jordan Morrow
Author of Be Data Literate: The Data Literacy Skills Everyone Needs to Succeed

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Most organizations have upskilling in place, but only a few have mature data literacy programs

We've seen so far that data skills are essential for both individuals and organizations in today's economy. Not only do leaders highly value data-literate employees, but those with sufficient data skills can expect to command a premium on their salary in today's job market.

As such, organizations across the spectrum are investing in data upskilling. Despite that, there is still room for improvement both in the scope of training programs and in the delivery of learning.

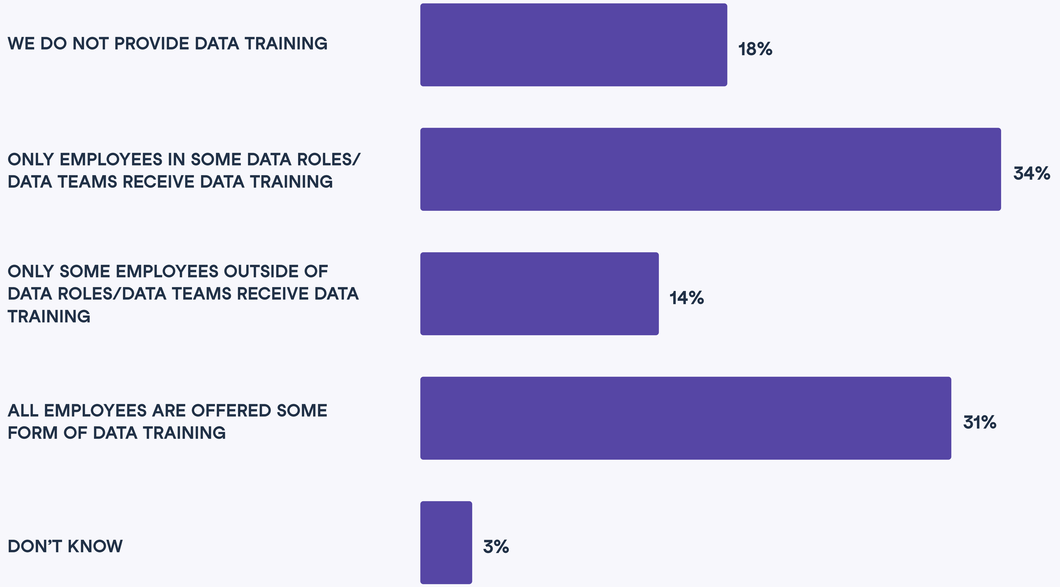
When asked about what would best describe the state of data training at their organization, **79% of leaders** across the UK and US said that they offer some form of data training for their workforce, with **18% not offering any data training at all.** However, the devil is in the detail. 34% of leaders mentioned that only employees in some data roles receive data training, and 14% of leaders claimed that only employees outside of data roles receive training.

This leaves only around a third of organizations with a mature training program that touches everyone within the organization. These findings suggest that enterprise-wide data upskilling has yet to become a priority for most organizations today.

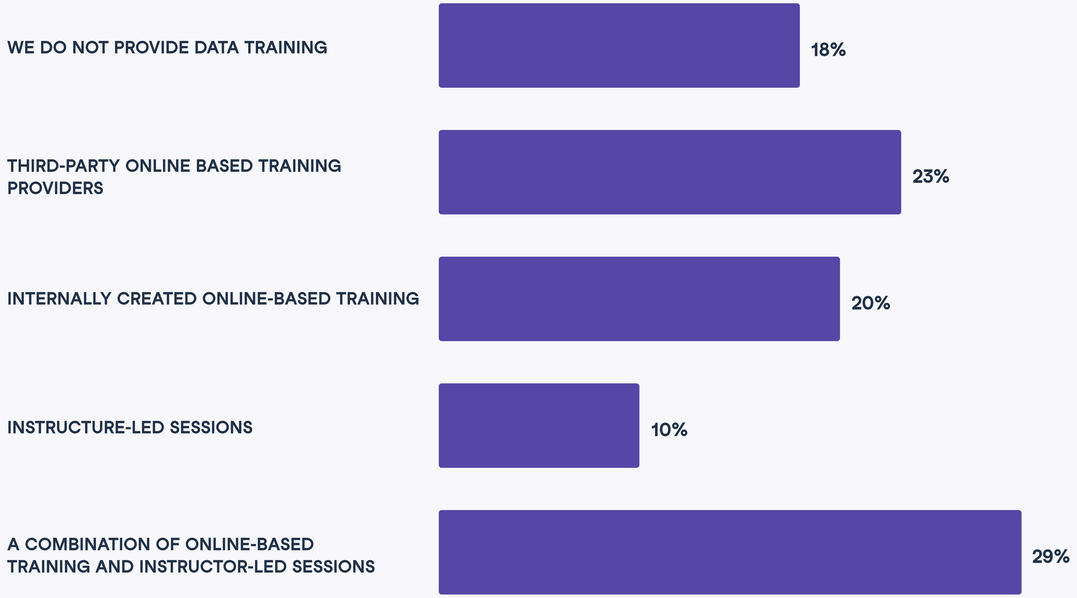
When asked about the training methodology, leaders also pointed towards scattered responses. Training methodologies were relatively varied, ranging from third-party-online-based training providers (23%) to internally created online training (20%), internal instructor-led sessions (10%), and a combination of online-based and instructor-led training (29%). **The remaining 18% did not offer any data training.** Interestingly, while fewer UK respondents than US respondents had no form of data training (13% in the UK vs. 23% in the US), US-based organizations were more likely to provide organization-wide data upskilling (27% in the UK vs. 34% in the US).

MOST ORGANIZATIONS DON'T HAVE A MATURE TRAINING PROGRAM SET IN PLACE, LEVERAGING A VARIETY OF LEARNING METHODOLOGIES

Question asked: *"What would best describe the state of data training at your organization?"*



Question asked: *"How do you upskill your workforce on data skills? (Single select option)"*

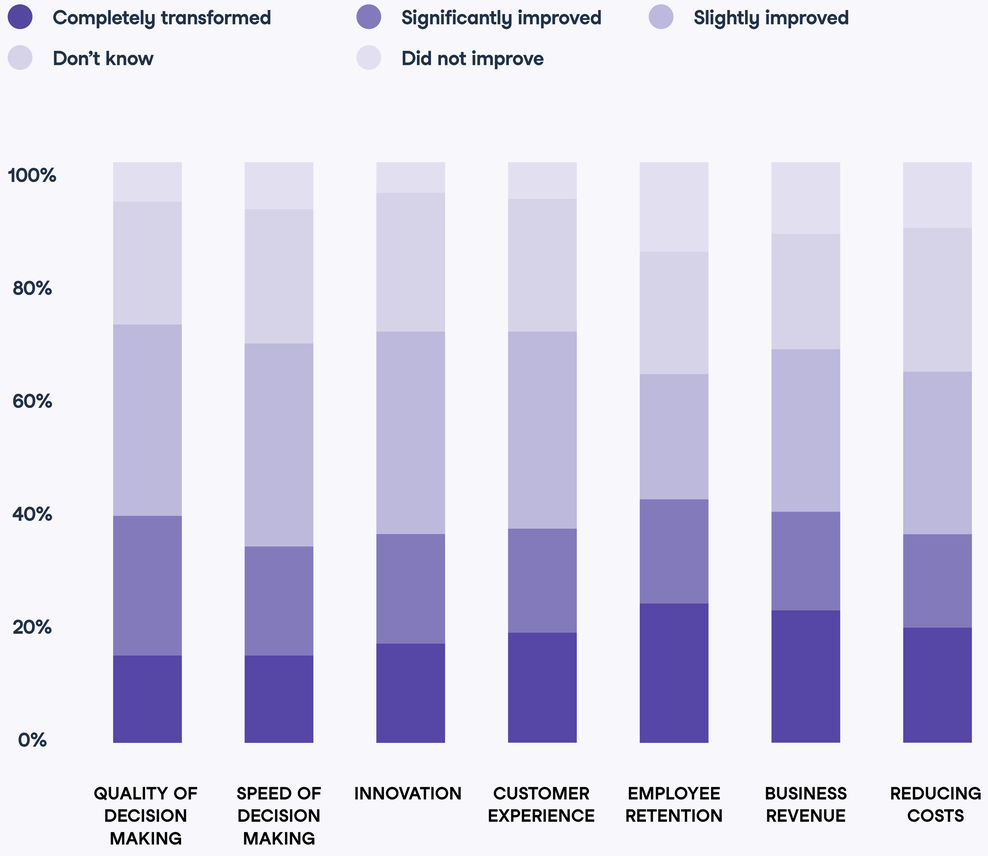


The benefits of mature, organization-wide upskilling

When it comes to the benefits that such data training brings, where are the most significant improvements seen? Over three-quarters of respondents said the **quality** (79%) and **speed** (77%) of **decision-making** improved as a result of data training, with over half (57% and 54%, respectively) saying they had improved substantially. This accelerates other improvements in **innovation** (77% claimed it was improved, 54% it was improved substantially), **customer experience** (75% improvement, 51% substantial improvement), and **employee retention** (61% improvement, 40% substantial improvement). More importantly, respondents have also seen a downstream business impact, with respondents mentioning improvements in **revenue maximization** (66% improved, 45% substantial improvements) and **cost reduction** (68% improvement, 43% substantial improvements) as key results from data upskilling.

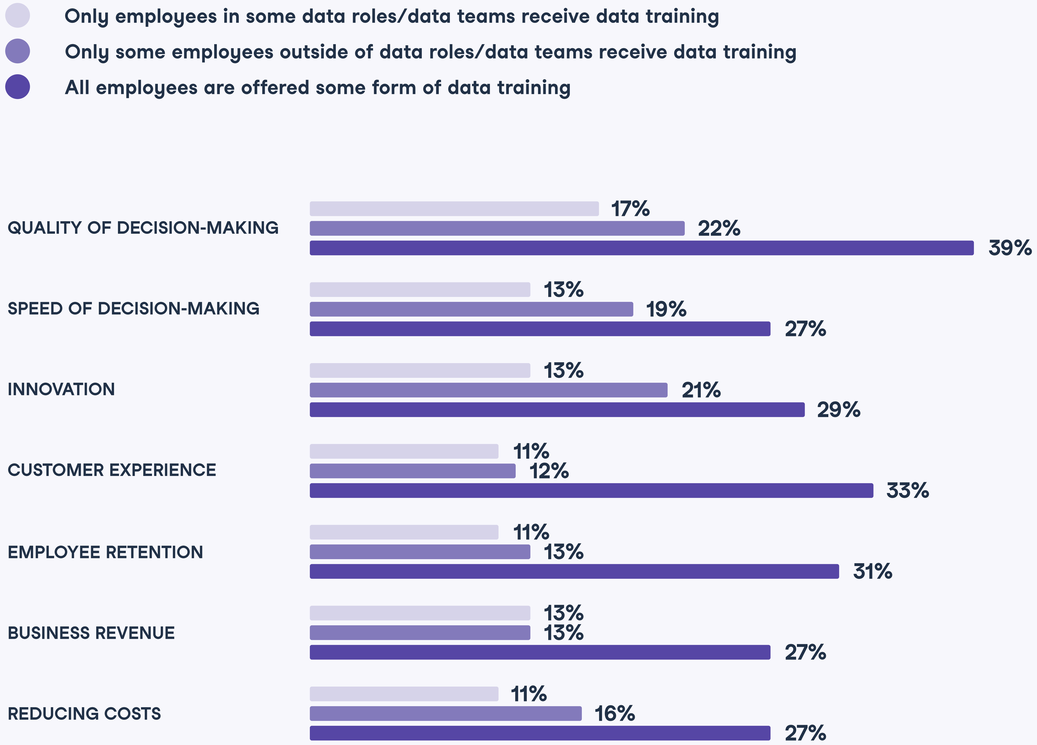
LEADERS WITH DATA UPSKILLING IN PLACE HAVE SEEN GREAT GAINS ACROSS A VARIETY OF DIMENSIONS

Question asked: *"What effect, if any, has data training in your organization had on each of the following?"*



ORGANIZATIONS WITH A MATURE DATA UPSKILLING PROGRAM REPORT MORE TRANSFORMATIVE GAINS THAN ORGANIZATIONS WITH A LIMITED UPSKILLING PROGRAM

Questions asked: *"What effect, if any, has data training in your organization had on each of the following? (Respondents who answered completely transformed)"*



What's more interesting is that respondents with mature, organization-wide data training consistently reported better results than their counterparts across all metrics. Organizations that offer all employees some form of data training reported a complete transformation of the quality of decision-making (39%), speed of decision-making (27%), innovation (29%), customer experience (33%), employee retention (31%), business revenue (27%), and cost reduction (27%).

These statistics show again just how vital effective data upskilling can be. As Mai AlOwaish, Chief Data & Innovation Officer at Gulf Bank, explains, data skills and training are truly the engines of successful digital transformation: "I'm a firm believer that transformation starts with the people, not the technology. I've seen time and time again, starting with people and their skills, their culture, and their buy-in, is what will drive success with digital transformation projects."

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Mai AlOwaish
Chief Data & Innovation Officer at Gulf Bank

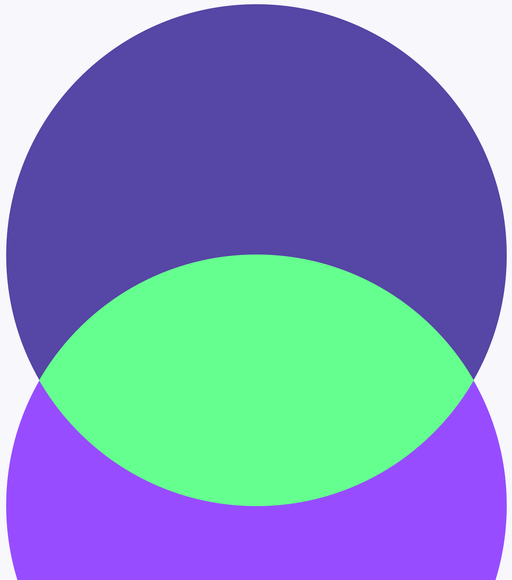
Learn more from Mai here

The challenges in upskilling in data literacy

While a significant portion of organizations already have some data training set in place, these learning programs aren't without challenges. Leaders engaged in data culture and skills transformation face headwinds when it comes to improving their workforce's data skills.

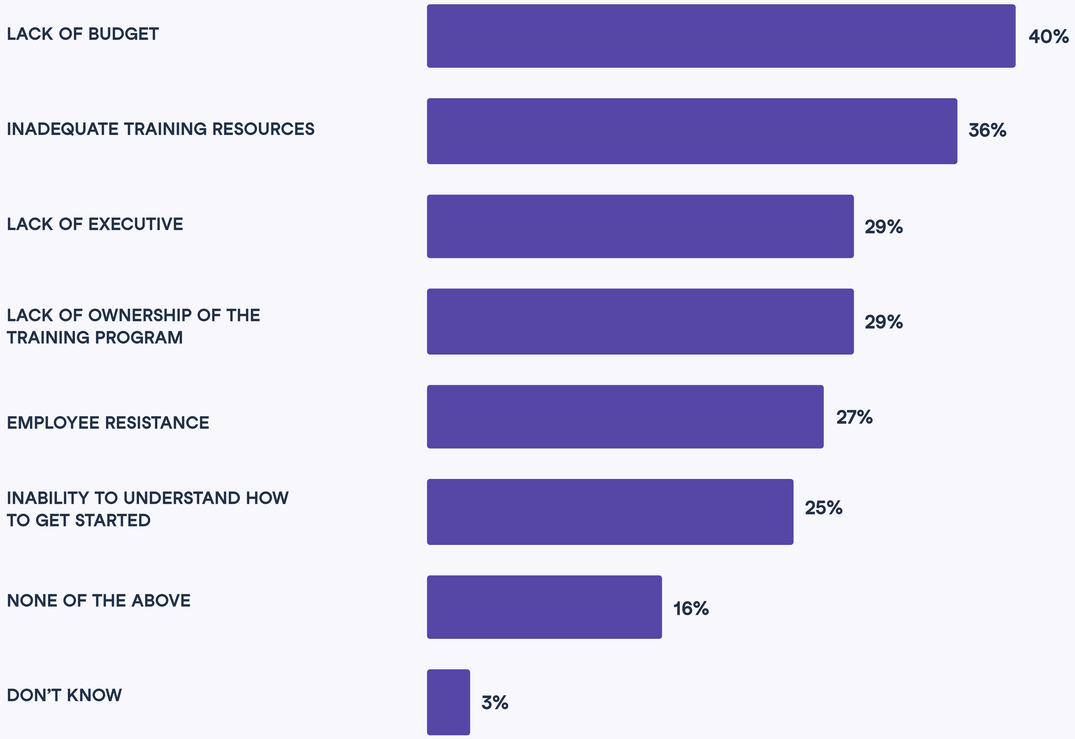
When surveyed about the biggest challenges leaders face when improving their workforce's data skills, a combination of cultural, logistical, and financial obstacles were the key culprits.

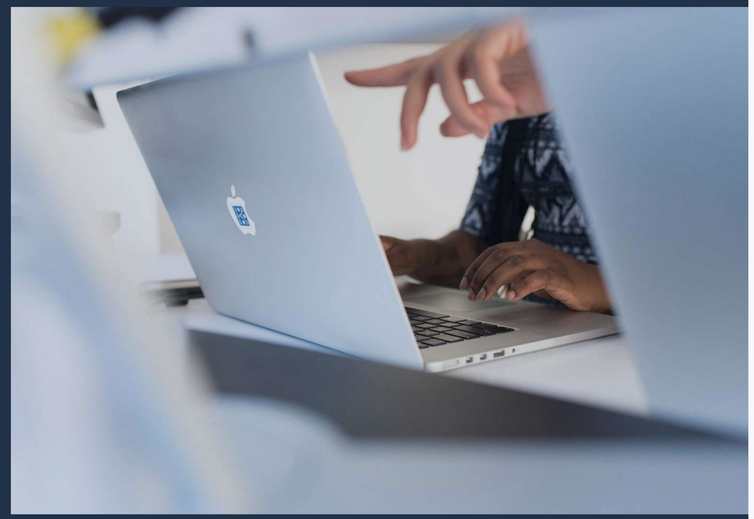
Namely, **lack of budget** (40%), **inadequate training resources** (36%), **lack of executive support** (29%), **lack of ownership of the training program** (29%), and **employee resistance** (27%) stood out as their top five challenges.



WHAT CHALLENGES HAVE YOU FACED OR ARE YOU CURRENTLY FACING WHEN IMPROVING YOUR WORKFORCE'S DATA SKILLS? (RANK BY IMPORTANCE)

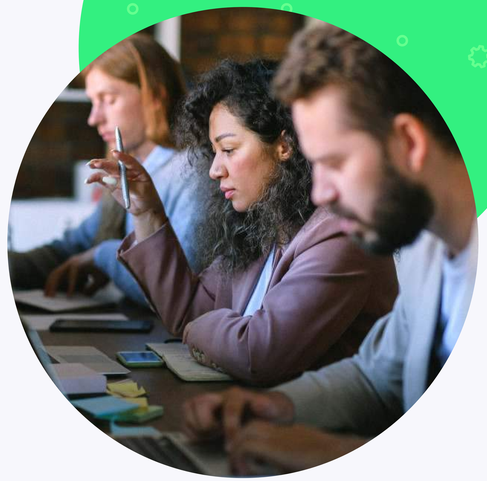
Question asked: *"How Important, if at all, are the following data skills for the day-to-day tasks of employees in your organization?"*





The lack of budget, executive support, and ownership challenges suggest that many organizations have yet to devise comprehensive data strategies that put people at the center of data transformation. According to Vijay Yadav, Director of Quantitative Sciences & Head of Data Science at the Center for Mathematical Sciences at Merck, successful data strategies also mean prioritizing culture and skills transformation initiatives. Vijay explains: “Data culture and skills are a big part of a successful data strategy. Ultimately, what leaders need to understand is whether everybody in the company sees data as an asset and, if so, how do they see it?

For example, somebody who’s worked on the shop floor all their life may not know how data can deliver value for them. So I think the upskilling and data literacy program is definitely something that you want to do early as part of your data strategy, to be able to deliver value down the line.”



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Data culture and skills are a big part of a successful data strategy. Ultimately, what leaders need to understand is whether everybody in the company sees data as an asset and, if so, how do they see it? For example, somebody who's worked on the shop floor all their life may not know how data can deliver value for them. So I think the upskilling and data literacy program is definitely something that you want to do early as part of your data strategy, to be able to deliver value down the line."

Vijay Yadav
Director of Quantitative Sciences & Head of Data Science at the Center for Mathematical Sciences at Merck

Learn more from Vijay

To better understand the remaining challenges around employee resistance and inadequate training resources, we asked respondents to rank their biggest challenges when working with third-party training providers. Results indicate that a large percentage of respondents using online learning are dissatisfied with the learning experience and content selection of traditional, video-based learning providers. This fact is not surprising, as data skills require active learning that is often tool- or concept-specific.

For example, data consumers need to understand how to interact with dashboards to make data-driven decisions, analysts need to be able to create data visualizations using the most popular business intelligence tools, and data scientists need to learn specific techniques in Python or R. This makes acquiring data skills fundamentally different to acquiring presentation skills or project management skills.

Illustrating this point further, 43% of respondents stated that **video-based only learning makes it difficult** to apply learned skills in the real world. Additionally, 30% of respondents stated that employees **struggle to understand where to start learning**, with 29% stating that even if they do understand where to get started, the **skills people learn** are not relevant to their roles.

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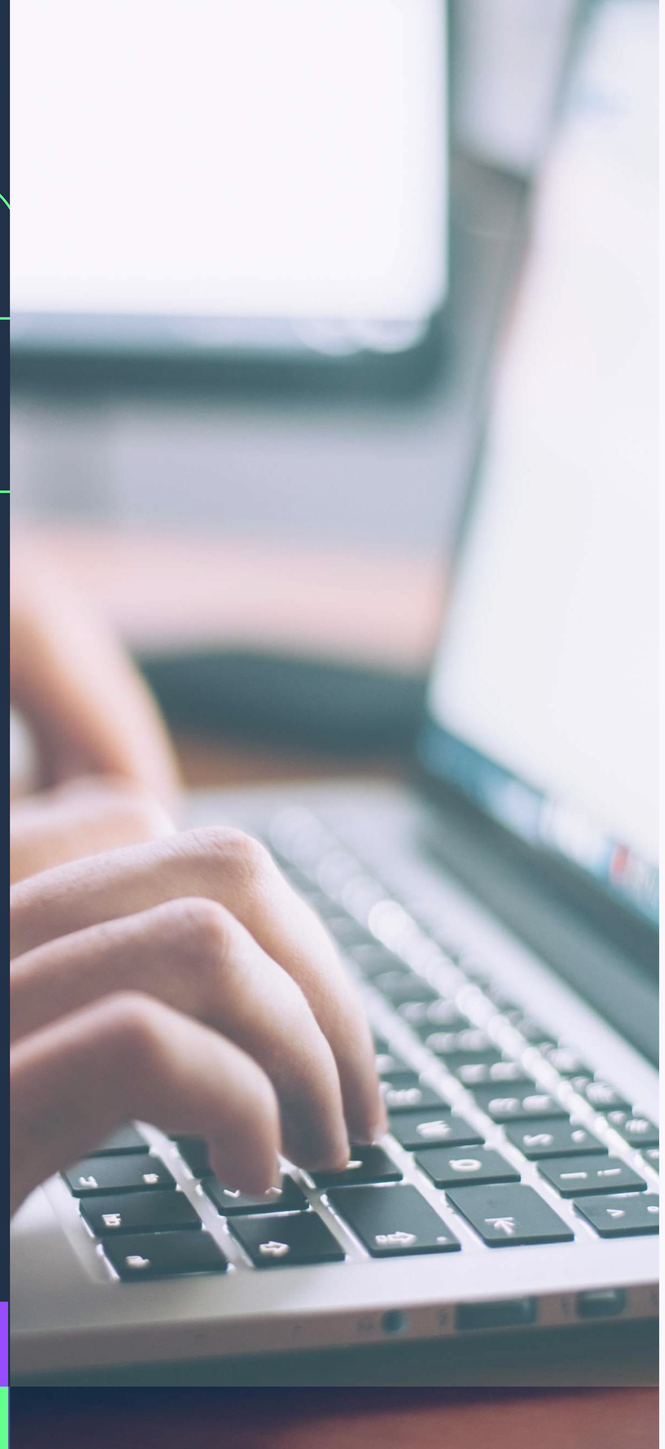
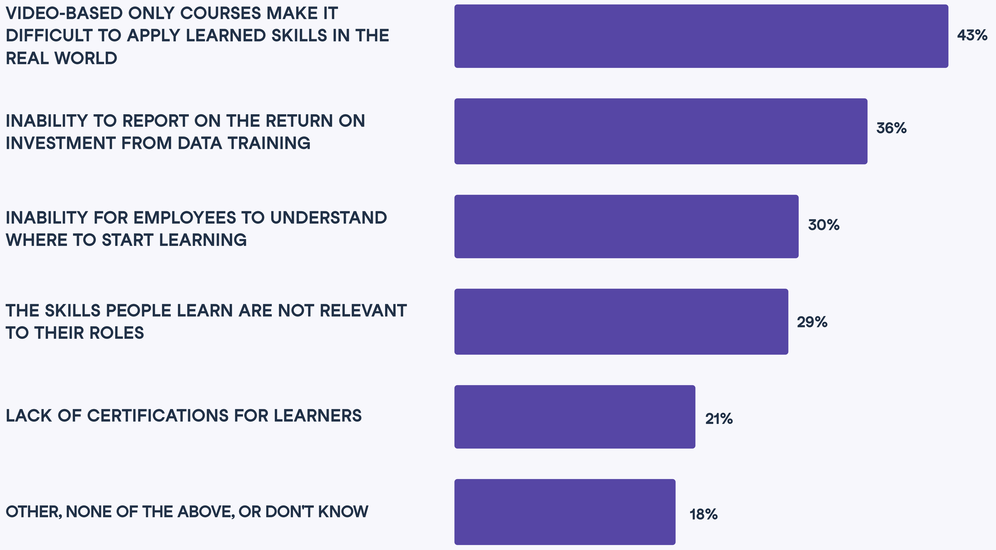


“The future of learning enables learners to take what they learned today and start applying it tomorrow, and DataCamp does that with the latest data technologies.”

Laurence Liew
Director of AI Innovation at AI Singapore

LACK OF ACTIVE LEARNING MODALITIES IS THE BIGGEST CHALLENGE FOR LEADERS USING THIRD-PARTY PROVIDERS

Question asked: *“If you use a third-party online training provider, what challenges have you faced?”*



These results showcase how traditional learning providers center their learning content around a large breadth of video-based content and resources, which, counterintuitively, makes it difficult for employees to know where to begin and apply their skills. As you'll see in Allianz's success story in the section below, having curated learning paths for different learner personas is more conducive to success.

Moreover, an interactive, active learning experience is key to succeed with online learning for technical skills. This is why DataCamp has been committed from day one to creating an interactive, gamified learning experience for learning data skills. As Laurence Liew, Director of AI Innovation at AI Singapore, puts it: "The future of learning enables learners to take what they learned today and start applying it tomorrow, and DataCamp does that with the latest data technologies."

An additional set of challenges came around reporting and certification. The second biggest challenge leaders faced when upskilling their workforce was the inability to report on the return on investment from data training. While this is a notoriously difficult problem to solve for any learning program, the tangible benefits of data upskilling, when done right, can be measured. Here are a few ways DataCamp for Business Customers have measured the success of their learning programs.

Examples of learning ROI

Bloomberg

As part of their data analysis with Python blended learning program, Bloomberg used a combination of DataCamp courses and internal expert-led sessions to scale Python fluency throughout Bloomberg. By monitoring actions on their internally built Python platform, Bloomberg's L&D team was able to prove a 561% increase in producer activities for cohorts that passed the class.

Allianz

As part of their data upskilling program, Allianz upskilled more than 6,000 people using DataCamp. By measuring time spent on tasks before and after the training program, the data academy team at Allianz found an average of 1.9 hours saved per week per employee enrolled in the learning program.

Rolls-Royce

By focusing their learning program on improving and streamlining key engineering tasks, Rolls-Royce was able to 100x the speed of data handling processes, leading to cost reduction efficiencies, and more time spent on high ROI tasks and projects.

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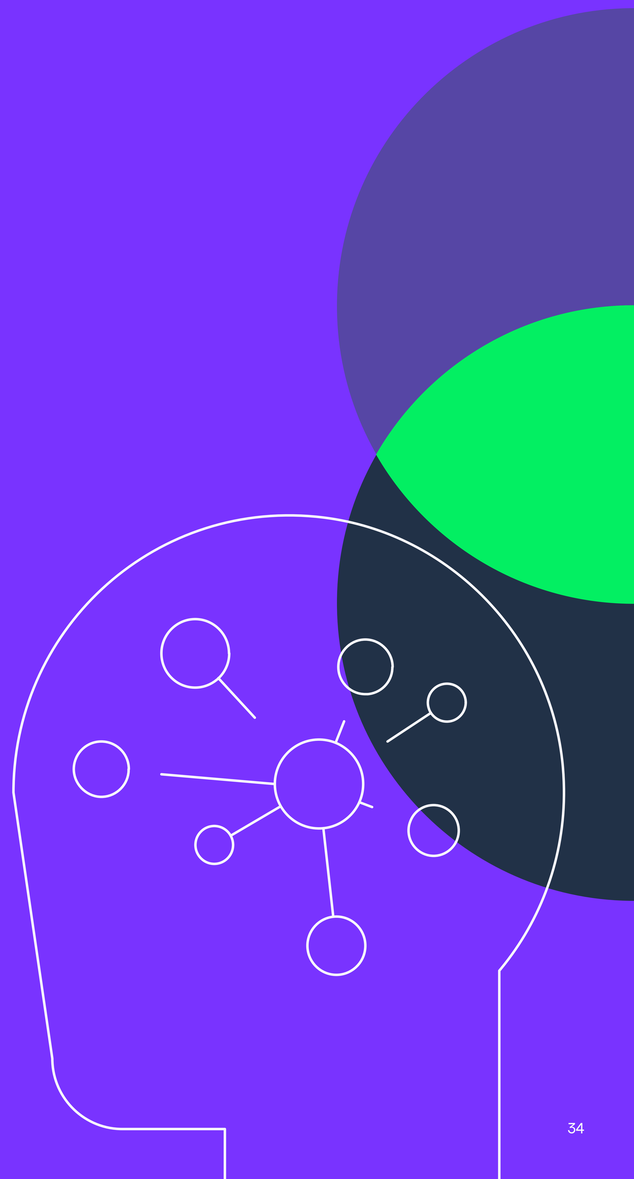
Section

3

Best Practices Learned from Leaders in Data Upskilling

In this section, we explore how leaders at the forefront of data upskilling, are overcoming the most common challenges associated with data skills transformation.



We saw in the previous section that the biggest challenges leaders are facing when it comes to upskilling their teams and workforce are a combination of lack of ownership of the training program **(29%)**, lack of executive support **(29%)**, lack of budget **(40%)**, inadequate training resources **(36%)**, and employee resistance **(27%)**.

At DataCamp, we've seen these challenges play out with our network of partners and DataCamp for Business customers, and we've seen them overcome these challenges and deliver transformational learning programs. This section distills these best practices for other leaders to follow.

Looking at these challenges more broadly, we can easily group them into three distinct categories:

- The first category is **executive sponsorship**, comprising lack of ownership, lack of executive support, and lack of budget.
- The second is l**earning experience and outcomes**, which covers inadequate training resources.
- The third category is **cultural**, focusing purely on employee and cultural resistance and adoption of data upskilling.

Let's break down how to combat these three challenges.

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Overcoming a lack of executive sponsorship

A lack of executive sponsorship is something often experienced by organizations early in the data maturity spectrum. This is especially true for industries where the value of data isn't necessarily evident. Finance and insurance, for example, are incredibly data-rich industries and tend to have leadership teams that are more aligned around the importance of treating data as an asset. So how should teams managing a data learning program react when they face resistance from their executive leadership? Here are key steps to consider:

Start off with a pilot project, and iterate

Change management projects can be long and arduous. However, to succeed in building internal momentum, start with a pilot program that targets a fraction of the learners you identified. Depending on the organization's size, this can be a team, an entire function, or even individuals from different groups. The feedback gathered from the initial participants can prove to be instrumental in refining the learning objectives and vision relevant to participants, setting a solid foundation for the program. Moreover, pilot projects are a great way to get leaders to experiment with how data upskilling can move the needle without necessarily committing massive amounts of resources to learning. The following sections will cover best practices in optimizing your pilot, and learning programs in general.

How Allianz scaled their learning program

How it started:

100 people taking DataCamp courses and resources as part of a pilot program

How it's going:

6,000 learners using DataCamp courses and resources

Align learning objectives with business goals

When proposing or managing a data upskilling program, it is critical to set goals based on transformational outcomes rather than skill-based goals. An example of a skill-based goal would be to have “1,000 front-line workers learn descriptive statistics”—or to have “supply chain analysts pick up business intelligence tools, such as Tableau or Power BI.”

Conversely, transformational outcomes are tied to business objectives. For example, “reducing tickets sent to the data team by enabling supply chain analysts to do simple analysis with Tableau or Power BI dashboards” or “improving margins by enabling insurance brokers to provide data-informed product recommendations.”

This approach helps create the business case for data upskilling and lets anyone managing the upskilling program set measurable goals that showcase return on investment.

A great example of a measurable goal comes from Rolls-Royce. Before investing in data upskilling, Rolls-Royce’s manual data handling processes were not moving fast enough to keep up with demands. Consequently, Rolls-Royce partnered with DataCamp to provide Rolls-Royce engineers with targeted Python courses that help move the needle in this particular outcome. As a result, Rolls-Royce saw a 100x increase in the speed of its data handling processes. This case study is a great example of a measurable, transformational outcome of data upskilling.

Expand on the multi-dimensional nature of learning ROI

Apart from measuring against the transformational goals you’ve set, it is also helpful to track a wide variety of ROI signals. This approach can include finer-level details on learner adoption, satisfaction, completion, retention rates, and other creative metrics you can measure. More importantly, this also includes regular assessments to measure skill acquisition over time. To that end, the following metrics can be helpful to prove the return on investment of a data upskilling program.

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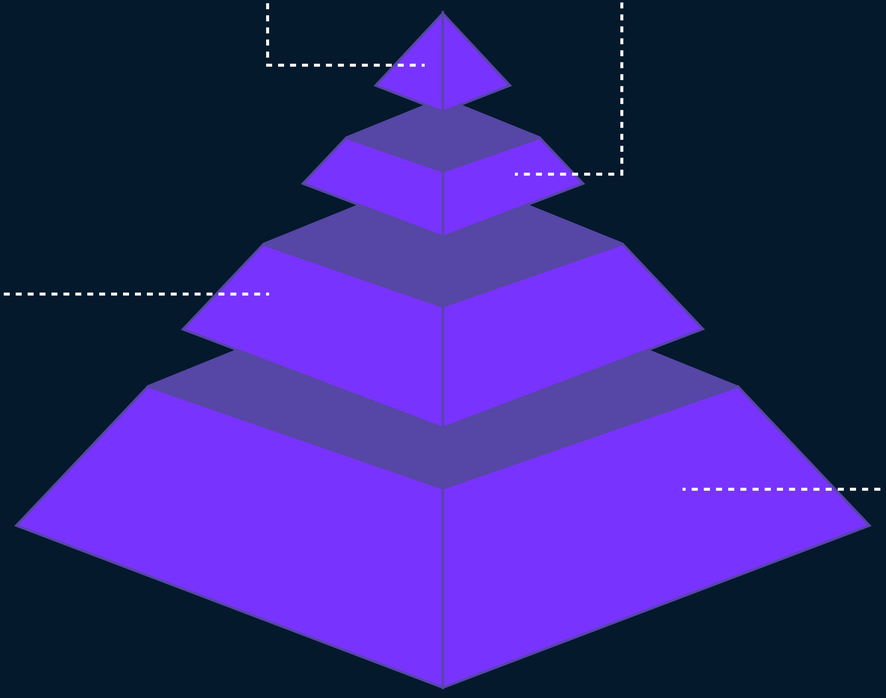
Results (ROI)

- **Transformational goals:** Measurement of initial transformational goal set out in the learning program
- **Employee retention:** The learning team can look at churn, billing, and retention for skill academy graduates versus non-graduates

Behavioral Change

- **Tool usage:** If you have an internal data platform, you can work with your engineering teams to measure how learners are engaging with your company's data in real life
- **Data culture participation:** The number of learners who become part of data culture events such as hackathons, tech talks, etc



Learning

- **Completion rates:** Percentage of employees who have completed the program
- **Assessment evolution:** How your people are ranking on DataCamp assessments throughout the learning program
- **XP points gained on platform:** DataCamp provides XP points for completing lessons, courses, assessments, projects, and more

Reaction

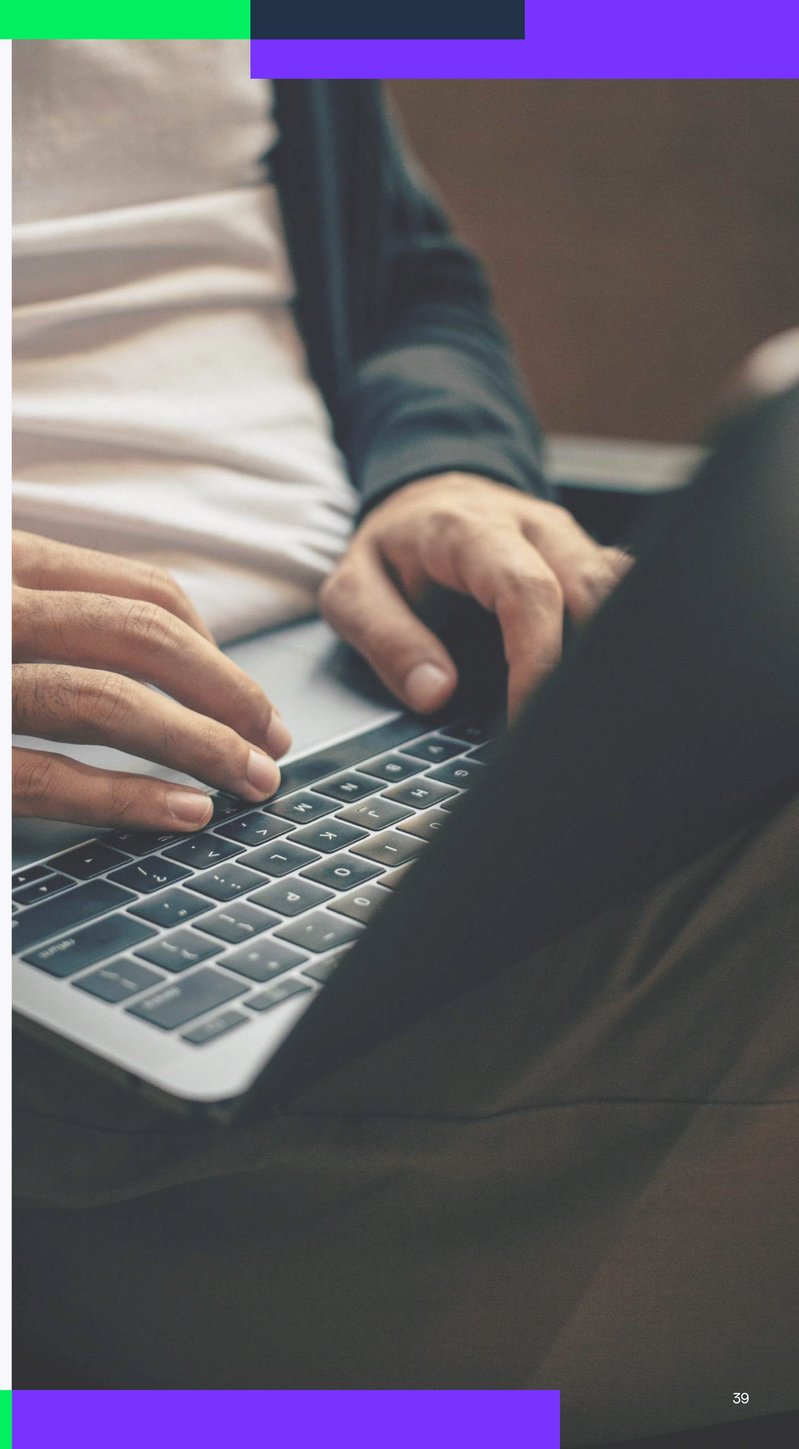
- **Adoption rates:** Number of active users in the program
- **Satisfaction rates:** Percentage of positive feedback on anonymous surveys
- **Email engagement rates:** How are learners interacting with upskilling-related emails and newsletters?

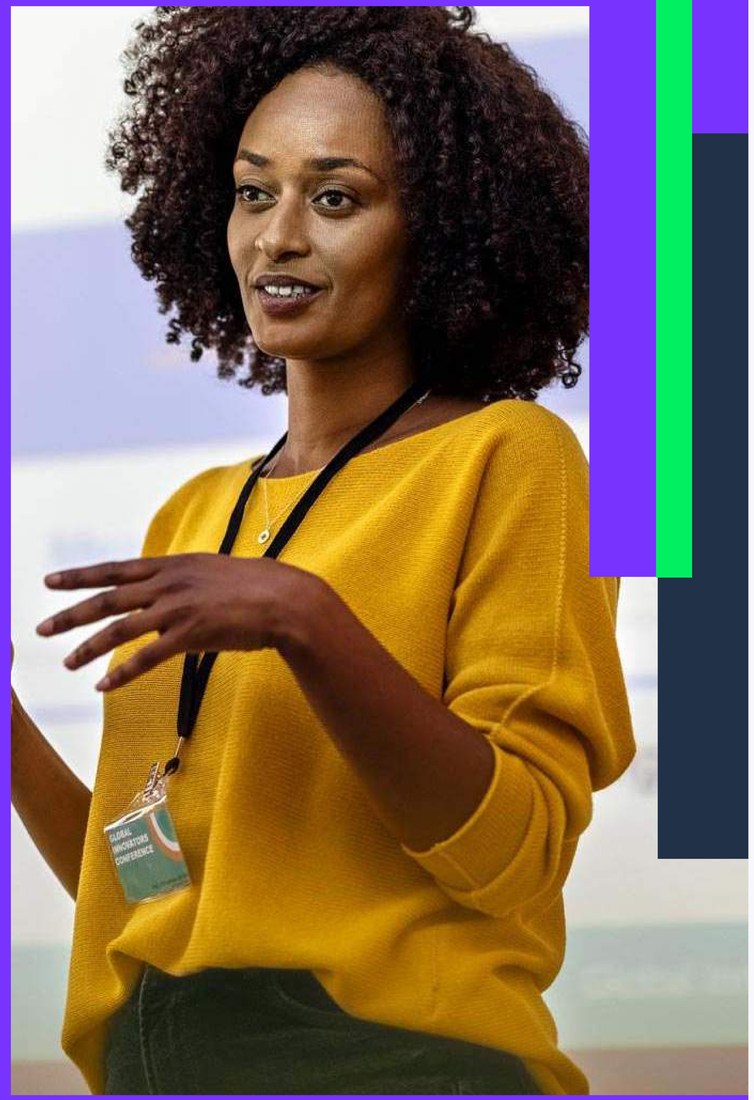
Of course, these metrics are by no means exhaustive. Often, tracked metrics can be tailored to your use case and organizational tech stack. A great example of this comes from Bloomberg's learning program. As part of Bloomberg's blended learning on Data Analysis in Python, Bloomberg used a combination of DataCamp courses and live-training sessions to upskill non-technical employees in Python. One of the measurements used to evaluate the program's success was the adoption of Python by the cohorts who completed the training. By working with engineering teams to track the different producer activities on Bloomberg's Python platform, the learning team at Bloomberg could record a 561% increase in Python usage.

Treat learning like a value center, not as a cost center

Thus far, this report has shown the transformative value of data upskilling alongside the potential ramifications of low data literacy. Learning leaders can shore up executive sponsorship for data upskilling by shifting the perception of learning. This includes showcasing the results of a pilot program, clearly aligning learning objectives with transformational business outcomes, and clearly articulating learning as a value center rather than a cost center. This helps shift perceptions of executive teams about the importance of long-term investments like learning to drive sustained business value.

This notion is best illustrated by Marcus Robertson, Global Curriculum Lead at NatWest Group and DataCamp for Business Customer, who said: "Managers are often torn between developing their people and delivering results, but in order to deliver results, they need to develop their people." Learning leaders should feel confident in challenging the status quo, as executives who aspire to high degrees of data maturity cannot arrive there without **skills and culture transformation**.





Addressing poor learning experiences and outcomes

Understand your data personas, and their different competencies

One of the biggest mistakes learning leaders often commit when approaching data upskilling is treating data skills as a one-size-fits-all skill set. Contrary to most soft skills, compliance, or regulatory training, data skills are incredibly dependent on the type of relationship individuals have and need with data to fulfill their day-to day-tasks.

For example, managers and leaders may only need to interact with dashboards and make data-driven decisions, whereas analysts may need to produce these dashboards and insights.

Moreover, data skills are highly diverse. As we've seen throughout this report, an organization with a high degree of data literacy enjoys a workforce with a spectrum of skills, from data-driven decision-making to machine learning and data engineering.

Having a good understanding of data competencies and the different relationships people have with data are key ingredients in determining your data personas. Data personas are an incredibly useful tool for fitting different individuals within your organization into relevant learning profiles.

These archetypes help to determine a personalized learning path based on their persona, their department, the type of data they work with, their current skill set, and more.

We've seen a wide variety of data personas and competencies proposed by DataCamp for Business customers. Below, you'll see our distillation of these frameworks that you can plug and play in your own learning program.

The data competency framework

This framework looks the entire spectrum of data skills you may look to grow within your workforce. Use it as a guide when prioritizing which skills you'd like to grow within each persona. Scroll on for a data persona framework you can apply within your own organization.

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A deeper guide into the data competency framework

Communicating with data

- **Data storytelling:** The art of effectively communicating insights and findings from data analysis.
- **Understanding data science concepts:** Being knowledgeable and conversational about the methods, theories, and tools used in the field of data science.
- **Understanding data engineering concepts:** Being familiar with the processes and technologies involved in the design, construction, and maintenance of data pipelines and infrastructure.
- **Understanding machine learning concepts:** Being knowledgeable about the possibilities and limitations of machine learning, and the techniques used to train and operate predictive models.

Read with data

- **Interpreting data insights and visualizations:** Being able to understand and make sense of data-based findings and their representations.
- **Data-driven decision-making:** Using data and analysis to inform business decisions.

Reasoning with data

- **Business analysis:** Using data and analysis to understand and improve business processes and operations.
- **Statistical analysis:** Using statistical methods to analyze and make inferences from data.
- **Reporting with data:** Presenting data-based findings and insights in a clear and concise manner.

Working with data

- **Data wrangling and manipulation:** Transforming, and organizing data for analysis.
- **Predictive modeling and machine learning:** Training and using predictive models to make predictions about future events.
- **Data engineering:** Designing and building the infrastructure and processes for collecting, storing, and analyzing data.
- **Programming:** Mastery of programming languages to perform data related tasks.
- **Importing and cleaning data:** Reading data from various sources and ensuring they are of free of data quality issues.
- **Data visualization and dashboard design:** Creating graphical representations of data and designing interactive dashboards for data exploration and analysis.

N/A | Beginner | Intermediate | Advanced

- Data wrangling & manipulation
- Predictive modelling & machine learning
- Data engineering
- Programming
- Importing & cleaning data
- Business intelligence & no-code tools
- Data visualization & dashboard design
- Reporting with data
- Statistical analysis
- Business analysis
- Data-driven decision-making
- Interpreting data insights & visualizations
- Data storytelling
- Understanding data science concepts
- Understanding data engineering concepts
- Understanding machine learning concepts

Persona:
Data Consumers

These individuals need to consume data insights to make better data-driven decisions. They tend to have leadership roles (CXOs, VPs), or are individual contributors that don't need to create data insights (customer service, sales, etc..).

Key highlights:

- Do not need to code or create data insights
- Often times need data only to make decisions

Tools they need to know:

- Spreadsheets, Business Intelligence Tools

Recommend resources:

- [Skill Track] Data Literacy Professional
- [Skill Track] Understanding Data Topics
- [Skill Track] Data Skills for Business
- [Skill Track] Spreadsheet Fundamentals
- [Skill Track] Tableau Fundamentals
- [Skill Track] Power BI Fundamentals
- [Course] Communicating Data Insights
- [Course] Data Storytelling Concepts

N/A Beginner Intermediate Advanced

- Data wrangling & manipulation
- Predictive modelling & machine learning
- Data engineering
- Programming
- Importing & cleaning data
- Business intelligence & no-code tools
- Data visualization & dashboard design
- Reporting with data
- Statistical analysis
- Business analysis
- Data-driven decision-making
- Interpreting data insights & visualizations
- Data storytelling
- Understanding data science concepts
- Understanding data engineering concepts
- Understanding machine learning concepts

Persona:
Citizen Data Practitioners

These individuals are often tasked with working with data on a day-to-day basis but are usually not part of a technical or data organization. They tend to be individual contributors as part of functional teams (e.g., financial analysts, marketing analysts, etc.).

Key highlights:

- Needs to create data insights using mainly business intelligence tools and SQL
- Are subject matter experts in a functional domain

Tools they need to know:

- Spreadsheets, Business Intelligence Tools, SQL

Recommend resources:

- [Career Track] Data Analyst in Tableau
- [Career Track] Data Analyst in Power BI
- [Career Track] Data Analyst in SQL
- [Skill Track] Tableau Fundamentals
- [Skill Track] Power BI Fundamentals
- [Skill Track] SQL for Business Analysts
- [Course] Data-Driven Decision-Making in SQL
- [Course] Applying SQL to Real-World Problems

*Depending on the type of role (e.g., data engineer, data scientist, data analyst) — the degree of proficiency for competencies may shift.

Persona:
Data Practitioners

These individuals are data practitioners who are part of a wider data organization. They are tasked with surfacing data insights, running experiments, creating predictive models, and providing value with data. They are often comprised of data analysts, data scientists, and even data engineers.

Key highlights:

- Needs to provide value with data
- Are part of a data or technical organization

Tools they need to know:

- Python or/and R or/and Julia
- SQL
- Business intelligence tools
- Command line tools
- Cloud based tools

Recommend resources:

- [Career Track] Data Scientist with R
- [Career Track] Data Analyst with R
- [Career Track] Data Scientist with Python
- [Career Track] Data Analyst with Python
- [Career Track] Data Analyst in SQL
- [Career Track] Data Engineer with Python
- [Skill Track] Marketing Analytics with Python
- [Skill Track] Applied Finance in Python
- [Course] Introduction to Version Control with Git
- [Course] Data Processing in Shell

N/A Beginner Intermediate Advanced

- Data wrangling & manipulation
- Predictive modelling & machine learning
- Data engineering
- Programming
- Importing & cleaning data
- Business intelligence & no-code tools
- Data visualization & dashboard design
- Reporting with data
- Statistical analysis
- Business analysis
- Data-driven decision-making
- Interpreting data insights & visualizations
- Data storytelling
- Understanding data science concepts
- Understanding data engineering concepts
- Understanding machine learning concepts

Persona:
Data Experts

These professionals are the top-tier talent within the organization, possessing advanced technical expertise that effectively bridges the gap between research and engineering. Their primary focus centers on developing and deploying sophisticated data and machine learning systems. These specialized individuals may hold titles such as machine learning engineers, machine learning scientists, and data engineers.

Key highlights:

- Highly technical individuals
- Can be part of an R&D or engineering organization
- Create and deploy machine learning models in production

Tools they need to know:

- Python or/and R or/and Julia
- SQL
- Business intelligence tools
- Command line tools
- Cloud based tools

Recommend resources:

- [Career Track] Data Engineer with Python
- [Career Track] Machine Learning Scientist with Python
- [Career Track] Machine Learning Scientist with R
- [Skill Track] Image Processing with Python
- [Skill Track] Big Data with PySpark
- [Skill Track] Natural Language Processing in Python
- [Skill Track] Network Analysis with R
- [Skill Track] Analyzing Genomic Data in R

Create personalized learning experiences for your personas

We saw in the previous section how data competencies and personas can be used to identify who exactly to upskill. Once you understand the data competencies you want to grow and who your data personas are, it's essential to roll out personalized learning paths that address where your people's skills are today and where you want them to be in the future.

Depending on the number of participants in your program, the different teams involved, and the level of granularity you're looking for, learning paths can be personalized on an individual, team, or group level. Moreover, learning paths can be varied for each persona.

For example, a citizen data practitioner in marketing may need to take marketing analytics courses, whereas a citizen data practitioner in finance may need to take financial analysis courses.

Build a learning ecosystem

When rolling out an enterprise-wide upskilling program, it's important not to settle on just courses. Instead, leaders should deliver a learning ecosystem centered around community, learning, knowledge-sharing, and collaboration. One of the best ways to do this is by launching a data academy. A data academy is essentially a hub within the organization where the people of your organization can learn from each other, access custom learning materials, share their experiences, engage in apprenticeships and mentorship, and more.

The best way to kickstart a data academy is by expanding the learning offering for your data literacy program with new learning modalities. Here are a few examples:

- Blended learning: Combining online, self-led learning with instructor led-learning lets you scale the usefulness of your own internal learning resources.
- Community of practice: Create a place where learners can share their learning outcomes and lessons in a social and encouraging environment. This could be a newsletter, slack channel, or even an internal podcast.
- Hackathons, lunch and learns, expert talks: Some other great socially-driven learning modalities which focus on discussing data solutions to real-world problems and learning from experts in shorter, less formal, and more engaging sessions.
- Multimodal learning: Leverage podcasts, webinars, white papers, and blog posts as part of the learning journey of your participants. This will help ground their newly acquired data skills as part of key industry trends.
- Online courses: The rise of MOOCs has completely revolutionized education and how people learn. However, for data upskilling, it's important to choose learning resources that prioritize application readiness and the ability to quickly apply what was learned rather than getting mired by theory, installations, and learning outcomes that don't apply to the work itself.

Our 5 Best Practices For Launching Data Academies

Overcoming cultural and employee resistance

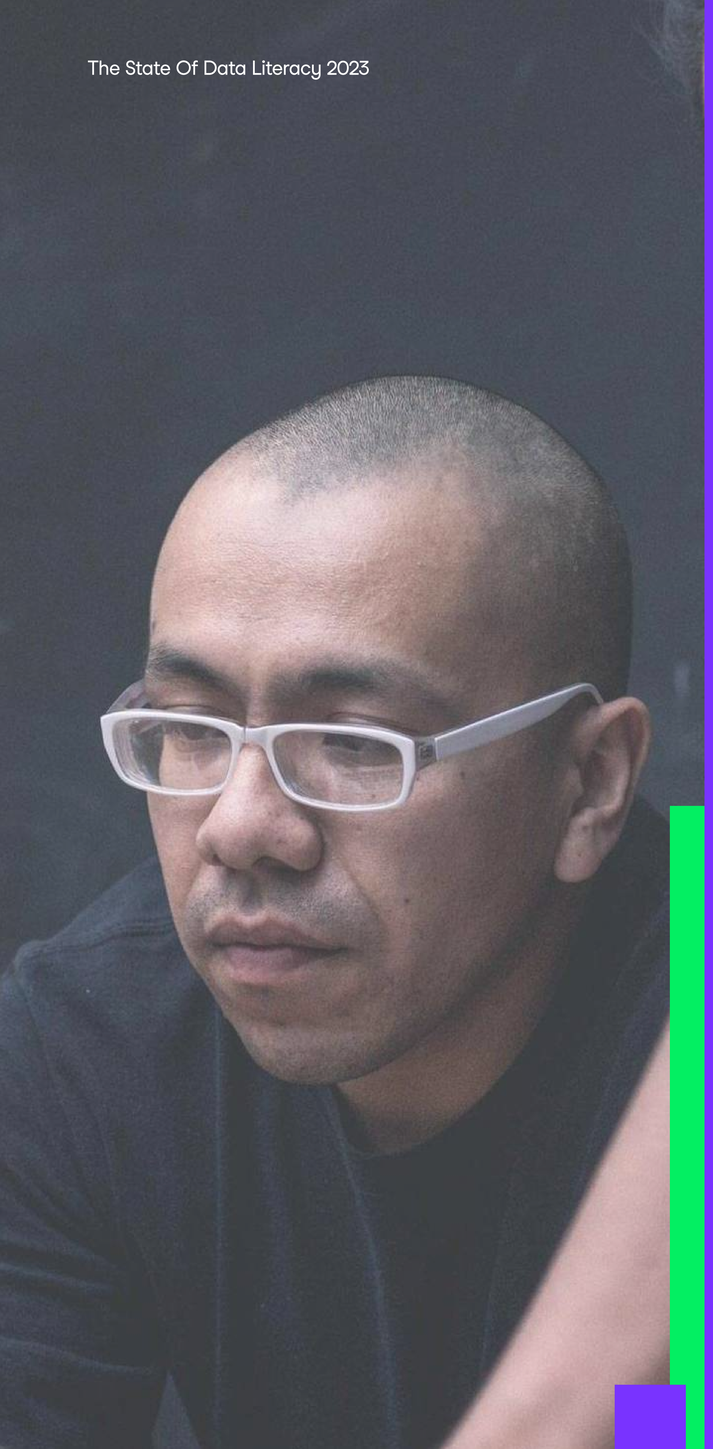
Think like a marketer

Arguably one of the most important elements of the framework, evangelizing the program is extremely important when creating buy-in from your workforce. Leaders should consistently articulate the value of picking up data skills. The value shouldn't be constrained to how data upskilling can benefit the organization's bottom-line metrics but also how developing data skills can enable better career outcomes for individuals.

Emily Hayward, Data & Digital Change Manager at CBRE, explains this perfectly on the DataFramed podcast. She argues that data persona work helps anyone managing an upskilling program to evangelize their learning program:

Our data personas were really important for helping us create demand amongst colleagues. It helped us understand what learning they needed, and we could justify why we've given them some learning content over others based on their persona and their role. It also helped us in our communications because it helped us personalize our messaging and our approach. Our persona work helped us answer "what's in it for me," because I guarantee you that's all people really care about. How is it going to help them be smarter, quicker, better, and more productive at their job? Part of the persona work massively helped bring that to life for people."

Emily Hayward
Data & Digital Change Manager at CBRE



Glenn Hofmann, Chief Data & Analytics Officer at New York Life Insurance, shared some of the ways New York Life evangelizes its learning program and data products in general.

“The data science academy is one of the most popular programs at New York Life, and that supports our branding efforts. Whenever the data team works on data projects, we actually create videos that will have people from our team and partners speak, and it's like a three-four minute video, easy to digest and be consumed by anybody. In fact, we use these videos in our executive officer training.”

There are a variety of tactics you can adopt to evangelize your learning programs. Most importantly, executives, leaders, and middle managers should be engaged and asked to celebrate and evangelize the importance of learning consistently.

Moreover, engaging learners from your pilot program and sharing their success stories is a great reference point for any data skeptics within your organization.

Tactics you can adopt to evangelize your program:

- Link to your data literacy program in all your communications
- Launch an internal podcast on the importance of upskilling
- Create learner testimony videos from your pilot program
- Begin a learner-of-the-month program
- Launch a lunch-and-learn initiative with data experts within your organization

Make data human

A big aspect of cultural and employee resistance to data upskilling initiatives stems from common misconceptions about why and how data is becoming a priority one agenda item. Data science and its related fields, like machine learning and artificial intelligence, often create fear within the broader population of the organization. These fears are skills-related, where individuals are worried that their skill set may become obsolete, or automation-related, where they tend to believe that machine-learning-based solutions will automate large degrees of their job.

While the evolving nature of skills today is putting **pressure on the skills economy,** learning leaders can go a long way in reducing data fear within their organization.

Megan Brown, Ph.D., and Director of the Global Center for Excellence for Advanced Analytics and Data Science at Starbucks, explained how leaders could assuage data fear. “I think culturally, we have a fear of math. Numbers aren't necessarily where we feel the strongest in general. So workforces are naturally worried that their career won't be able to keep up with the coming data demands. And a large part of that is how we, learning and data leaders, choose to communicate. If we're not paying attention to whom we’re speaking to and jumping into a technical conversation with business audiences, that will just add to the fear of math.”

Another aspect is clearly setting expectations about how data will be used as part of the data transformation program. Cindi Howson, Chief Data Strategy Officer at ThoughtSpot, explained that while data should be used to hold teams and individuals accountable, it shouldn’t be used to punish individuals or disincentivize the use of data.

Cindi expands by saying: “No one wants to feel belittled, and when you make data hard and inaccessible, that’s the first feeling folks get. Moreover, leaders shouldn’t use data to punish individuals. We need to use data to improve business processes, to keep teams accountable, but we need to ensure people feel confident surfacing data to discuss business outcomes.”

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Inside the data upskilling program at Allianz

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Allianz

How Allianz Upskilled 6,000+ Employees Across the Globe with DataCamp

Allianz is one of the world's leading insurers and asset managers. They have a deep-rooted belief that decisions are made better with data, so they turned to DataCamp to help their teams become more data analytics literate and make more informed decisions.

- Global financial services provider (Insurance and Asset Management)
- 155,000 worldwide employees
- 126+ million customers in 70+ countries
- 6,000+ Employees learning on DataCamp

Overview of the Allianz Group

Allianz was founded in Germany in 1890 and has provided insurance and asset management services to its customers worldwide for more than a century. Many consider insurance actuaries to be the first data-driven professionals, using data to predict future risks and losses.

Following in this tradition of embracing data insights, the Group Data Analytics team at Allianz SE (Global Headquarters) had a mission to empower everyone in the organization to become more data literate. The company's upskilling program went beyond the traditional technical insurance profiles you might expect, reaching across teams including HR and Communications, highlighting how important it is for every role to know how to access and extract insights from data. Everyone will need data literacy skills to understand and make data-driven decisions.

> **I have 13 years of experience in the insurance industry, but I wanted to take that domain knowledge and apply it to data analytics in Allianz. That's why I chose to upskill myself through DataCamp.**
>
> DEEPA NAIR, BUSINESS ANALYST, ALLIANZ

Learn more about how Allianz upskilled more than 6,000 people on data

At the heart of every successful learning program is personalization, learning objectives tied to transformational goals, and the ability to measure learning impact. Learn how Allianz created 22 personalized learning paths for their different populations, tied learning goals to business goals with capstone projects, and was able to measure a 1.9 hours average time saved per week for each employee upskilled.

Read the Full Allianz report

"We have set different learning objectives for data analytics skills, depending on the different target groups, and DataCamp helped us with this. DataCamp has been tremendous to help craft and shape custom tracks, which had to be vetted against our internal experts."

Elizabeth Reinhart
AI and Data Analytics Capability Building Senior Manager, Allianz

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Section

4

The Future of Data Literacy

From the evidence we've assessed so far, it's clear that business leaders and professionals can see the importance of a data-literate workforce. Modern businesses rely on those with data skills to make fast and informed decisions, innovate in the workplace, provide a better customer experience, improve employee retention, boost business revenue, and reduce costs. So what does the future hold for data literacy?

89%

of leaders believe schools and universities need to provide all students access to data literacy courses in their curriculum.

Nearly 90% of our respondents agreed that schools and universities needed to provide all students access to data literacy courses in their curriculums. Clearly, the move towards improved data fluency must start at a grassroots level, and it goes beyond organizations. Governments and society at large must treat data literacy as the fundamental skill that it is.

However, despite this agreement that formal education must play a role in data-upskilling, other evidence shows that a disconnect remains. A 2021 report from Forrester found that despite data literacy being the most in-demand skill for entry-level positions, only 48% of academic institutions they surveyed had data literacy skills initiatives in place. That same report found that institutions with data skills initiatives had a 11.5% higher job placement rate than those who didn't.

It's clear that curriculums worldwide need to account for data literacy, and those that do will likely see a benefit for years to come.

When looking to the future, **88% of those surveyed agreed that data literacy skills are foundational skills in the 21st century**, with over half (52%) strongly agreeing that this was the case. Similarly, **85% of respondents agreed that organizations must invest in life-long learning for their workforce to adapt to the new era of data literacy.** Slightly more people agreed that this was the case in the US (87%) compared to the UK (82%), and more people in the US strongly agreed (54%) compared to the UK (41%).

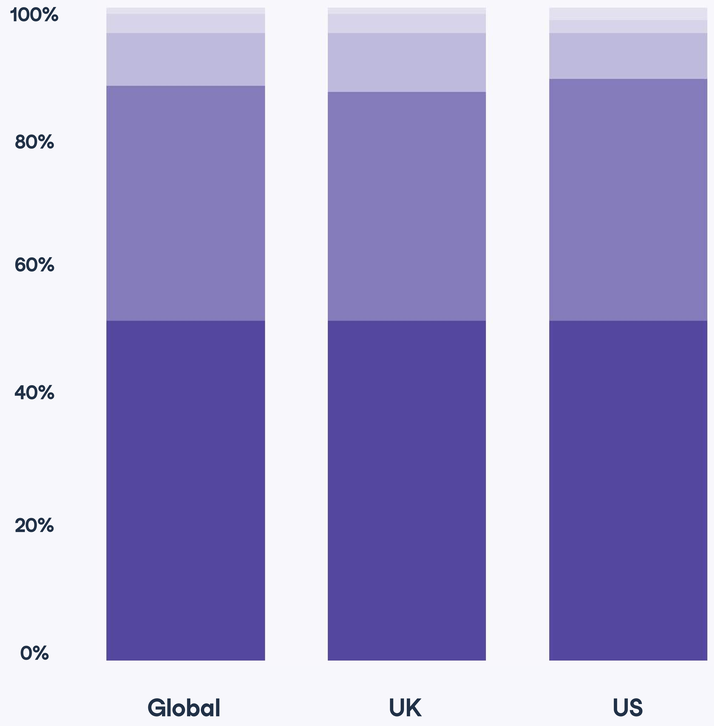
Evidently, industry leaders have identified data literacy as a modern-day essential that requires continuous development. However, as discussed in Section 2, only 14% of leaders claimed that employees outside of data roles receive data training.

While it is clear both modern organizations and educational institutions have identified data skills as fundamental to the future, more needs to be done to close the data skills gap on both fronts. However, as we've seen with the findings of this report and the case studies of DataCamp for Business customers, those who do make a concerted effort to upskill their personnel in data can make significant gains.

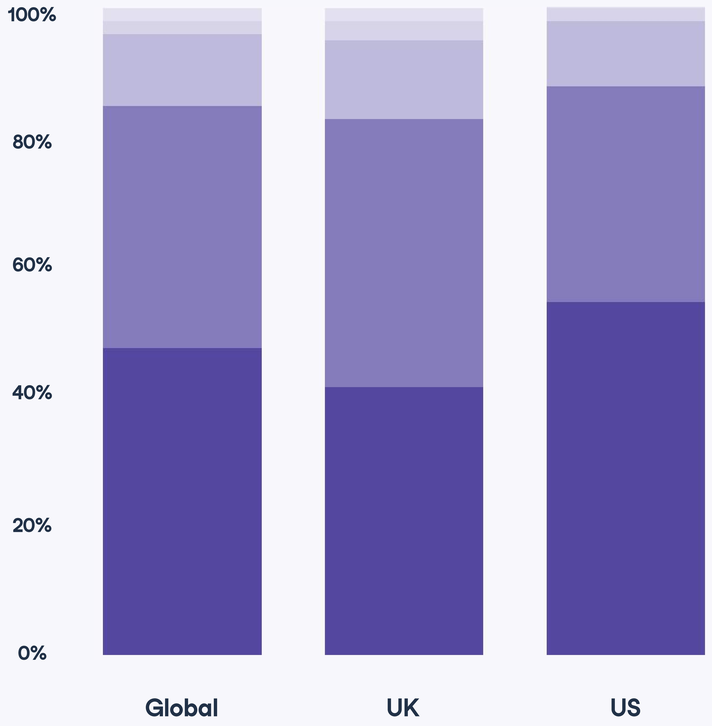
When it comes to role-specific concerns for the future, our results showed that data skills can potentially protect individuals from potential fears of automation. 63% of respondents felt that employees with tasks that require high data literacy skills are less likely to be impacted by automation. In a lot of ways, this makes sense, as individuals with high degrees of data skills are more competitive in the job market, are more likely to be resilient and adaptable, and have higher degrees of transferable skills.

LEADERS BELIEVE DATA LITERACY SKILLS CAN ALLEVIATE SOME OF OUR BIGGEST CHALLENGES OF THE DECADE

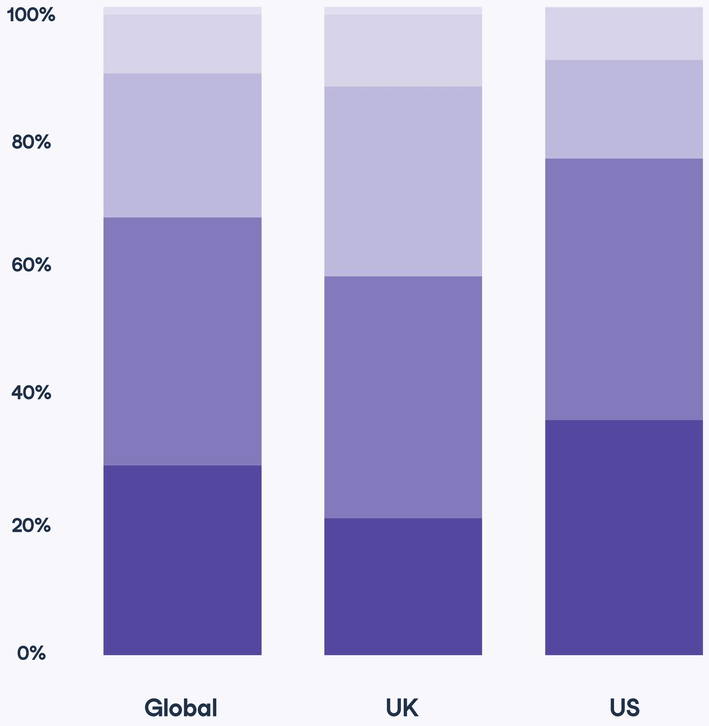
Question asked: *"To what extent do you agree or disagree with the following statement: "Data literacy skills are foundational skills in the 21st century?"*



Question asked: *"To what extent do you agree or disagree with the following statement: "To adapt to the new era of data literacy, organizations need to invest in life-long learning for their workforce?"*



Question asked: *"To what extent do you agree or disagree with the following statement: "Employees with tasks that require high data literacy skills are less likely to be impacted by automation"?"*



Strongly agree · Agree · Neutral and don't know · Disagree · Strongly disagree

Conclusion

This idea for this report began after DataCamp's Data Literacy Month. Yet the scope of our findings goes beyond a month-long celebration of data education. We've seen that while organizations are willing to pay a premium for those with data skills, hiring their way out of data inadequacy isn't a long-term solution. Instead, leaders need to instill a data culture at their organizations—one which permeates from the top down.

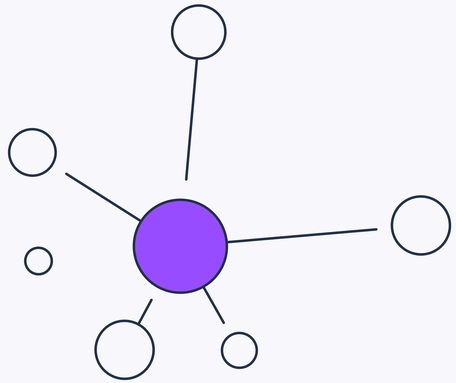
While many companies have data skills training in place, few of these are the mature data literacy programs needed for employees to flourish. A lack of budget, lack of executive support, lack of ownership of the training program, inadequate training resources, and employee resistance can stand in the way of successful data literacy training. However, there are strategies that leaders can use to overcome such challenges:

- Start with pilot projects to demonstrate the benefits of data training to make it far easier to then implement wider training.
- Align learning objectives with organizational goals and treat learning as a value center to increase buy-in across the business.
- Create learning personas and individualized learning plans to vastly improve the success of data upskilling.
- Create a learning ecosystem that champions relevant data learning.
- Make data human so that even non-experts can see the value that data upskilling brings to their role and future career.

The data skills that individuals learn will be essential in the years to come. The business leaders we surveyed for this report resoundingly believe that data literacy has impacts beyond just an organizational level. Wider society will also benefit from a data-literate populace, and those countries that prioritize closing the current data skills gap will be better placed than those that do not.

However, both organizations and educational institutions are behind where they need to be. It is only through a concerted, consistent effort that these essential skills will be more widespread.

DataCamp is at the forefront of this push for the democratization of data. Through our online platform, incentives, and research like this report, we will continue to champion data skills for everyone.



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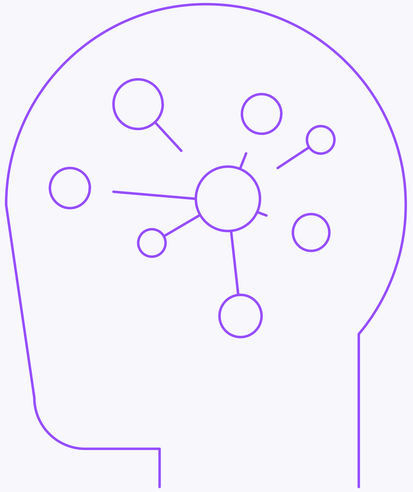
Methodology

This research has been conducted using an online interview administered to members of the YouGov Plc UK and US panel of individuals who have agreed to take part in surveys. In this research, the survey features the opinions of a sample of 558 business leaders in the UK and the US. The data was collected between 2022-10-12 and 2022-10-24 with all the qualitative interviews referenced with thought leaders in the data and education space were featured from the DataFramed podcast.

Invitations to surveys don't expire and respondents can be sent to any available survey. The responding sample is weighted to the profile of the sample definition to provide a representative reporting sample. The profile is normally derived from census data or, if not available from the census, from industry accepted data.



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Panel of experts

Emily Hayward
Data & Digital Transformation Manager at CBRE

Anjali Samani
Director, Data Science, Data Intelligence at SalesForce

Cindi Howson
Chief Data Strategy Officer at ThoughtSpot

Mai AlOwaish
Chief Data & Innovation Officer at Gulf Bank

Laurence Liew
Director of AI Innovation at AI Singapore

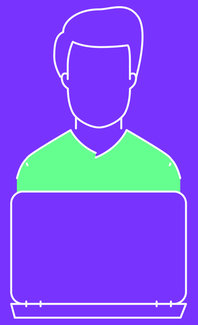
Marcus Robertson
Global Curriculum Lead at NatWest Group

Elizabeth Reinhart
AI & Data Analytics Capability Building Senior Manager at Allianz

Kate Strachnyi
Founder of DATAcated

Megan Brown
Ph.D, Director, Global Center of Excellence for Advanced Analytics and Data Science at Starbucks

Jordan Morrow
Vice President of Data & Analytics at Brainstorm, author of Be Data Literate: The Data Literacy Skills You Need to Succeed



Glenn Hofmann
CDAO at New York Life Insurance

Sudaman T M
CEO of NautilusPrinciple & former CDAO of Allianz Benelux

Vijay Yadav
Director of Quantitative Sciences - Digital, Data, and Analytics at Merck

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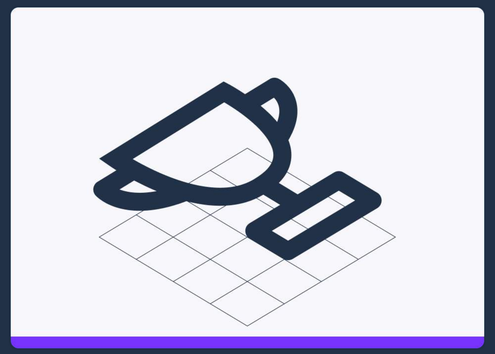

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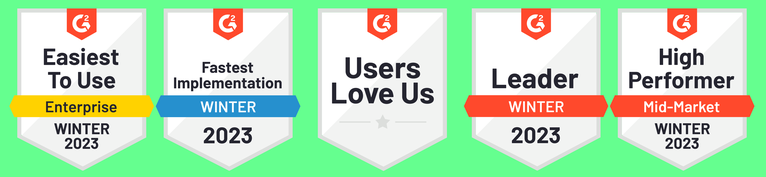
Thank you for reading.

Are you an organization interested in scaling your data literacy skills?

Book a meeting with our sales team **here**

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