A LEADER'S GUIDE TO BUILDING A DATA-DRIVEN CULTURE

INTRODUCTION

Today's leading enterprises recognize the importance of artificial intelligence, data science, and machine learning. But, many organizations are still struggling to successfully realize the potential of these advanced tactics.

Why? Friction hinders them from using their data effectively.

Most enterprises have the data—in fact, they normally have too much to know what to do with. If you have mountains of data at your fingertips that you're not using, you risk falling behind your competition. But, if you actively work toward becoming a more data-driven organization and closing the pervasive data science skills gap, you can promote internal alignment around how data is used, make a tangible impact with AI, and come out on top. Need more motivation? According to a DBTA study, data-driven organizations are 162% more likely to surpass their revenue goals than their non-data-driven counterparts.

The best time to start optimizing how data is viewed and used at your organization is right now, and in this guide, we're going to walk you through how to do just that.

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- Database Trends and Applications

A Leader's Guide to Building a Data-Driven Culture

Implementing a data-driven culture is the key to unlocking your organization's full AI potential. Becoming a "data-driven organization" might seem like a pipe dream—where would you even get the data you need to get started? The cold hard truth is that your business already has the data, you're just not equipping your people to use it effectively.

By harnessing and organizing your existing data, identifying and overcoming common roadblocks, and enabling each department to bake data into their foundational decisions, you'll be well on your way to making a meaningful cultural change. This guide will give you step-by-step instructions for creating a data-driven culture.

What to Expect

WHAT DOES BEING DATA-DRIVEN REALLY MEAN?

We're sure this isn't the first time you've heard the term "data-driven" thrown around, but what exactly do we mean by that?

When we talk about becoming a more data-driven organization, it's more than just using the data you collect more optimally (though that's certainly part of it!). A data-driven organization is comprised of data-driven leaders and employees who are committed to making tactical, strategic decisions based on data rather than "gut instinct," opinions, observations, or past experience.

How do you think large corporations like Apple, Amazon, Google, and Facebook all became some of the biggest companies in the history of the world? By recognizing the importance of data—capturing data at volume and then leveraging it to its full extent by fundamentally integrating data into their business strategies, culture, and processes.

Like we said before—it doesn't stop with collecting data. It's about how you use the gathered data to drive profitability and make a tangible impact. It's likely that your organization already generates enough data to do this. In the 2023 Frictionless AI Survey, 78% of respondents indicated they feel their organization is able to use existing data to improve business performance. Now, it's a matter of using it properly, rather than just letting it sit there.

If you think you need more data before you get started, we promise it's there—you just have to go out and get it! Here are a few go-to sources for invaluable data to get started:
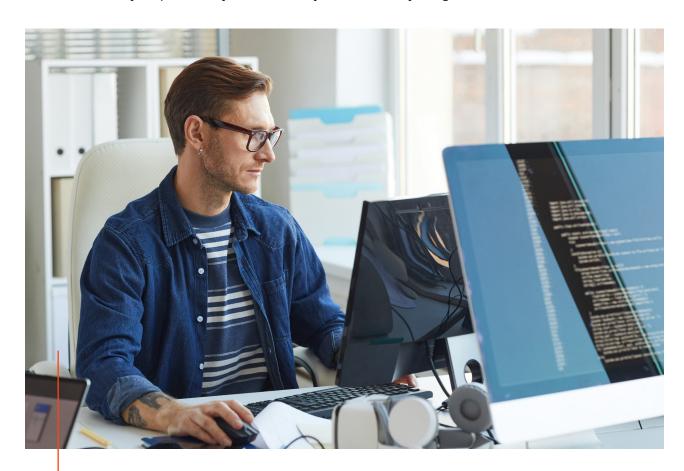• Social media stats, comments, followers, etc.
• Website analytics
• Customer interactions
• Online reviews
• Customer profiles
• Email marketing metrics
• Warranty claims
• IoT devices

Perhaps the biggest piece of the data-driven culture puzzle (and the one that most often gets overlooked) is the people.

You can say you're becoming more data-driven all day long, but if your people aren't on board, it won't work. MITSloan research confirms that limiting the people involved in data projects only contributes to limiting the projects' potential scale and impact.

Creating a data-driven culture involves change for both data people and non-data people. Non-data people need to become a bigger part of the data strategy, and, as a recent Harvard Business Review article states, "Data teams must [start seeking] joy not in a clever model, but in business results and the successes of those they serve."

So, as you embark on building a data-driven culture, don't leave "regular" people out of your plans—they're essential if you want to truly bring data science closer to the business.

78% of respondents indicated they feel their organization is able to use existing data to improve business performance.

WHAT ROADBLOCKS ARE IN THE WAY?

Like we just mentioned, most organizations already collect the data they need to become data-driven (or have access to it). So, what's the hold up?

Unfortunately, it's not that simple. Enterprises, especially established ones, encounter a lot of friction along the way. While they want to mature their data capabilities to keep up with higher data volume and more demand, at the same time, they're struggling with legacy data environments, processes, and cultural mindsets. Sound familiar?

Messy and Disorganized Data

How is data acquired? How is it organized? How does it move through the organization? Who governs it, and how is appropriate access determined and granted?

The answer to all these questions will lead you to establishing a cohesive, organized data architecture. Data architecture is a framework for managing data— its location, policies, arrangement, integration, and use throughout the organization, and for many businesses, it isn't given as much thought as it should.

Data architecture is foundational to creating a data-driven culture. If you want to generate value with data science, you need to organize your data before you can start with ideating use cases and implementing solutions. Starting a data initiative with messy, unreliable data is like building a house on a rotted, unstable foundation—most likely to end in total collapse.

Technically speaking, there are three major challenges that often stand in the way of building a data science-ready architecture: scalability, portability, and operationalization. We'll cover tips for how to overcome these in the next section.

The Dreaded Skills Gap

The skills gap is more prominent than ever, and it poses a very real threat to successful data science initiatives. In the 2023 Frictionless AI Global Survey, 75% of respondents say they struggle to find enough data science talent. 58% of respondents cited the shortage of talent/the time it takes to upskill current employees was the most prevalent problem in organizational AI strategy adoption.

The root cause of the issue is that data scientists and business experts don't understand each other. Traditionally, these teams operate in silos, which makes no sense when you consider that business experts' everyday operations rely on machine learning models, and data scientists' everyday work is to create models that have optimal business impact.

However, when organizations vow to become more data-driven, rather than looking at internal talent, they usually opt to hire or outsource ahead. Both options have their own unique set of challenges—hiring data scientists means facing the talent scarcity head-on and enduring a long road to value, while outsourcing to consultants is expensive and doesn't transform the organization long-term.

Stagnant Employee Mentality and Company Culture

More so than messy data and a lack of data science knowledge, the mentality isn't where it needs to be. In the same Frictionless AI survey, when respondents were asked if they believe their organization can scale AI projects without training domain experts in data science, 69% of executives said "yes," while just 51% of users said the same.

So while users might realize that the need better, the truth is, if you tell the average employee that they need to start using more data in their daily lives, they likely won't be as excited as you'd hope. After all, the word "data" wasn't mentioned in their job descriptions. People are busy, and even if they want to learn (some don't), they won't prioritize it to fit it into their limited, precious time. Unless the initiative is prioritized by leadership.

If you truly want to make a cultural change, you'll need buy-in from all your employees—not just data scientists. This means changing how people think about and use data, which starts with increasing data fluency and demonstrating the positive impacts data-driven decisions and processes can have on them directly. You'll also need to equip your people with tools that enable collaboration and flex to different workstyles and competency levels.

It's a tall order, and that's why 42% of enterprises surveyed say they are still trying to establish a data strategy. Are you ready to take on the challenge and join them?

75% OF RESPONDENTS SAY THEY STRUGGLE TO FIND ENOUGH DATA SCIENCE TALENT.

WHAT DO WE NEED TO DO TO CREATE A DATA-DRIVEN CULTURE?

At this point, you might be thinking, "Okay, so it seems like there are even more roadblocks than I expected there to be. Is it even worth it?"

Yes.

It all starts with leadership. Dresner's recent report cited that the presence of formal data leadership within an organization significantly increased the likelihood of support for a data literacy program. And with data literacy comes increased proof of data's value, greater buy-in, better results... all those good things.

Once your leaders are in place, it's time to develop a plan of action, which involves addressing each of the roadblocks above. Yours might look something like this:

- Clean up our data architecture and be intentional about how we structure data projects
- Upskill everyone in the organization who can contribute to a data project
- Establish a feasible list of use cases
- Adopt a data science platform that supports collaboration and all types of users
- Make an amazing impact on your people and your organization
- Email marketing metrics
- Set up a system for 'culture ops'—ongoing maintenance and care to ensure your data driven culture sees success for years to come!

If you need a bit more guidance than that, we're breaking it down step-by-step here.

Get (Your Data) Organized

We mentioned before that scalability, portability, and operationalization are some of the biggest hurdles organizations face when formulating their data architecture. We've developed a couple of questions you can ask yourself to test your data architecture before it's finalized.

- **Scalability** = How will your data grow over time? Is your current architecture capable of handling more data and more users?
- **Portability** = Can the models your team creates be used in multiple environments, or just one? Can your models stand on their own, or is their success tied to one of your current vendors?
- **Operationalization** = Can your models make useful predictions based on real-life data? Is your data architecture accessible to non-data scientists, too?

In addition to your data architecture, you'll also want to think about how your data projects are structured. Each data project generally has five stages: understanding the business problem, preparing the data, using data science to analyze the data, evaluating the findings, and implementing the results. Before you start a data project, and throughout each stage, you should ask yourself, "Who will this project impact, and how can we get them involved?"

STAGE	HOW NON-DATA PEOPLE CAN HELP	WHAT IT WOULD LOOK LIKE WITHOUT THEIR INVOLVEMENT
Understand the business problem	Contribute business expertise to ensure the right problem is being solved	Your data science project starts off on the wrong foot, and you have a 0% chance of producing the results you were tasked with
Prepare the data	Ensure the data you're using is of the best quality and is most relevant to the problem	You use bad data for your model, and it leads to bad results
Use data science to analyze the data	See initial results and provide feedback	You produce irrelevant results and waste your own valuable time
Evaluate the findings	Determine the best use cases for the results	The model never has an impact, because it can't be mapped to business value
Implement the results	Start building the findings into everyday processes and workflows	The results don't go anywhere, because data scientists don't know how their models can best serve the business

If you don't get "regular" people involved in data projects, you won't be able to produce the results you want.

Structuring your data projects to involve non-data scientists means you get more collaboration, better feedback, and more impactful results. But, to create a true data-driven culture, it's about more than just getting people involved in processes. You also want to...

Teach Everyone to Love Data

Remember that pesky skills gap we mentioned earlier? And the fact that some of your employees might not really be that invested in data projects? Well, luckily for you, we have a solution to both of these problems.

Upskilling

Upskilling means providing all your employees with the knowledge they need to use data science and machine learning to produce top results for the business. While 47% of organizations said they have a data science enablement program in place in limited areas of the organization, 43% of organizations have data science enablement programs in place throughout the organization.

We mentioned before that there are typically two options for combatting the skills gap—hiring more data scientists or working with consultants. Upskilling is the third option, and it has the lowest cost and risk of failure. When you opt to upskill, you keep money and talent in-house, and you empower all your employees to explore new use cases with machine learning.

Upskilling goes both ways—business experts learn how to do data science, and data scientists learn about the business context behind the problems their models work to solve. It involves getting data and business experts talking and extracting the most value possible from their collaboration. To do this successfully, you need to teach true data literacy, not just supply on-platform training.

Adopt a Platform That Works for Everyone

You can't upskill your workforce without giving them proper tools to do so, and a platform that supports everyone is an essential part of a data-driven organization. Here are a few things that Altair RapidMiner, our data analytics and AI platform, does to not only provide technology for your enterprise to rely on, but also a foundation upon which to build your data-driven culture.

- Multiple working environments so that everyone, from experienced coders to business analysts, can do data science at their own pace.
- Center of Excellence methodology that provides tailored onboarding, use case prioritization, support, training, and resources as your team gets started with data science.
- The Altair RapidMiner Academy, which teaches non-platform-specific foundational data science skills so that users come out of each course able to map real business problems to data science approaches.
- Interested in learning applied data science? Our Solution Goldmine is a collection of real-world, peer-reviewed data science solutions available to the community. Check them out and create your own today!

Have Patience

Reinventing company culture doesn't happen overnight. Don't underestimate the amount of time, focus, commitment, and persistence needed to successfully develop and implement a data-driven culture.

Gaining buy-in might not come as easily as you hoped, but there are a few things you can do to increase your odds of things going smoothly:

- **Start where there is a critical business need.** Pick a high-impact use case to demonstrate the value of investing in data—it will set you up for a quick win to build credibility, gain support, and build momentum for similar use cases going forward.
- **Rethink how you view and use data.** Let's say it one more time: Get more people involved! Data science isn't just for data scientists and involving non-data employees in early conversations will start a quicker, more seamless cultural transformation.
- **Stay committed.** If at first you don't succeed, try, try again. You will run into setbacks. Be prepared and keep going.

Establish Your Own Tenets of Data-Driven Culture

At the beginning of this eguide, we defined what a "data-driven culture" means to us, but in practice, it will look different to every organization. That's why it's important to develop a universal understanding of what your data-driven culture looks like. Similar to company values or a culture code you might already have intact, we recommend creating your own tenets of a data-driven culture that everyone agrees to adhere to.

- **Data science is still science.** It requires experimentation and iteration, and models won't be perfect on the first try.
- **When in doubt, communicate.** Collaboration is key, especially when it comes to developing high-impact data-driven solutions.
- **Always bring receipts.** Every time you want to suggest a process change or make a big decision, have the data ready and available to support it.

WRAPPING UP

Embedding data-driven decision-making into the organization does more than just create a data-driven culture—it's also key for enterprises to establish a competitive advantage, optimize processes, and attack inefficiencies.

Teaching employees how to use the tools you implement and encouraging them to buy into the vision of transforming the organization with data science should be an essential part of your AI strategy. At Altair, we like to think of the perfect recipe as investing in the right team, creating a culture that optimizes their expertise, and making the most of your data. Creating a data-driven culture, bringing in tools that support your entire team, and encouraging collaboration will increase data literacy, which will thus create a positive impact on the business.

Altair is a global leader in computational science and artificial intelligence (AI) that provides software and cloud solutions in simulation, high-performance computing (HPC), data analytics, and AI. Altair enables organizations across all industries to compete more effectively and drive smarter decisions in an increasingly connected world – all while creating a greener, more sustainable future.

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