

Become a Data-Driven Company

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What is a Data-Driven Company?

Throughout history, information gathering has played a pivotal role in the development of civilization. Traveler accounts of the Hellenic period, navigational charts of the 15th century, meticulous observation of natural phenomena of the 18th century—our world has been shaped by data.

With the advent of the Internet of Things, cloud-based computing, and unprecedented storage capabilities, our current capacity for gathering and analyzing data is unparalleled. To put it in perspective, your smartphone is over a million times more powerful than the computer onboard the Apollo 11.

There is no way to sugarcoat it, we are experiencing a revolution. Some call it Industry 4.0, others the data revolution. Leaving semantics aside, one thing is for certain: digital technology is at the forefront.

But computers, robotics, and AI are only one half of the picture. People make for the other half. A revolution can only take us as far as our paradigm allows. Technology is there to help us transform, but it's up to us to make the most of the tools we have at our disposal.

One way to adapt is to go the way of business giants like Netflix, Amazon, Uber, and Google. Putting data at the front and center of our processes. That, in a nutshell, is what being a data-driven company is all about.

Harvard Business Review defines data-driven as:

“A business condition that embraces and successfully manages data in all its forms to achieve digital transformation, compete on analytics or become AI-first.”

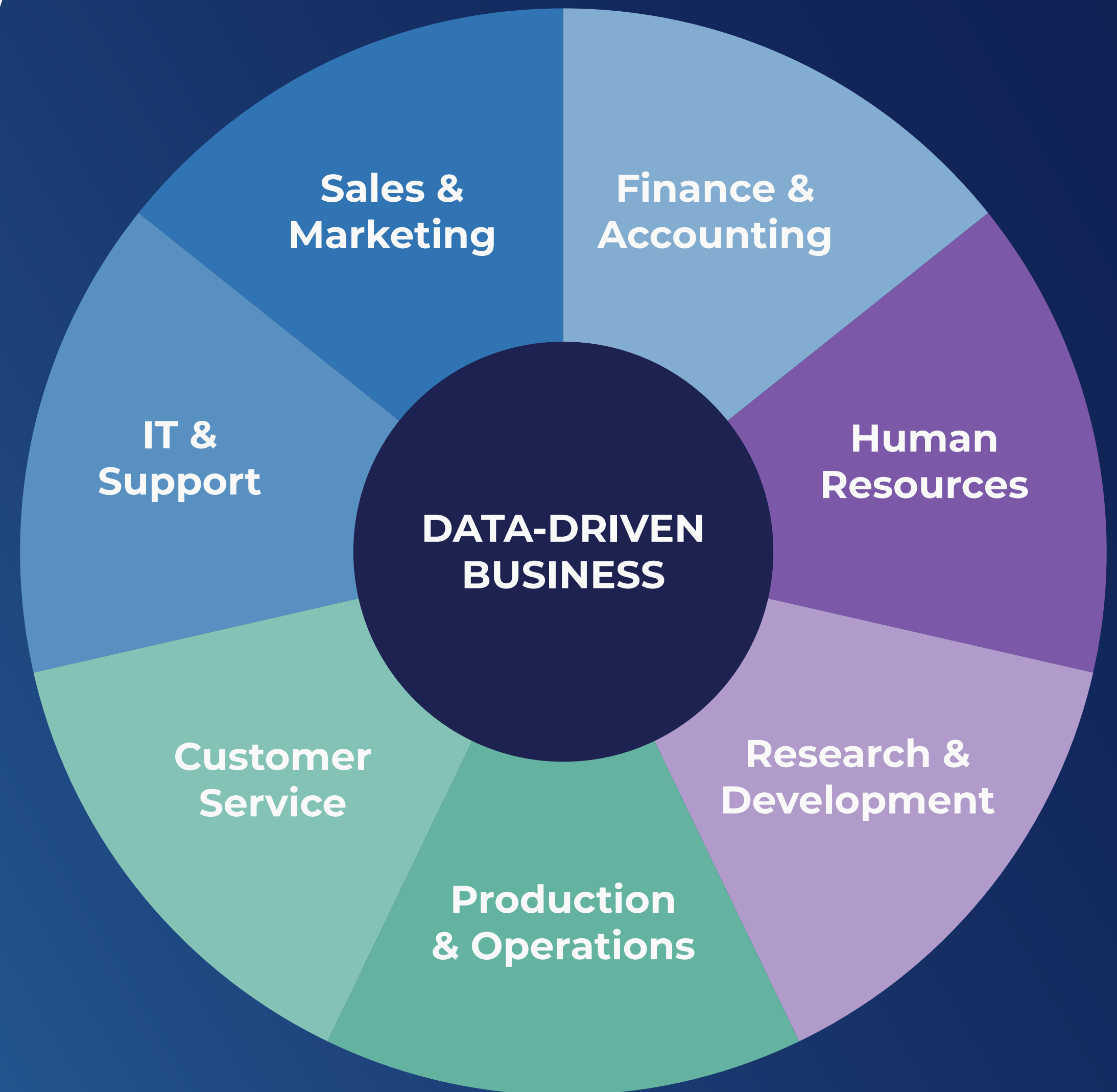


What is a Data-Driven Company?

In essence, data-driven environments adopt a data-based culture that permeates all levels of our company. It's a structural change where:

- New technology is implemented to help with data gathering, storage, and analytics.
- Pipelines are redesigned to accommodate for faster feedback cycles and more information.
- Decision-makers are constantly reviewing up-to-date data and building strategic and tactical approaches based on insights and forecasts.

A data-driven approach can improve any area of your business. It's a matter of building the right framework and injecting data gathering, analysis, and assessment into your processes.



What is a Data-Driven Company?

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|---|--|----------------------------------|
| Enjoy increased revenue | Have a better customer support | Make less biased decisions |
| Understand which decisions work and which don't - and why | Establish more realistic goals | Overcome dependency on intuition |
| Have a better tracking of Workplace Performance | Process siloed data and put it to good use | Increase productivity and growth |

BENEFITS OF DATA-DRIVEN DECISION MAKING



Valuable Insights



Continual Growth



Improved Program Outcomes



Optimised Operations



Production of Future Trends



Actionable Insights

What is a Data-Driven Company?

WHERE TO START?

The path to becoming a data-driven company isn't straightforward. There isn't a single way to adapt, nor should there be. Each industry shares its own set of challenges and risks. Therefore, flexibility and ingenuity will be your guiding principles in this process. Having said that, a good first step is to write a data vision and mission statement. They serve as a guiding compass that acts as the basis of a new paradigm for your whole organization.

The vision statement answers the question: Why do you care about the data? It's the common goal that you can point to when people want to know why you are becoming a data-driven company.

Example of data vision statement: To employ our data to ensure first-rate understanding of our practices, processes, and standards to support our organization, our customers, and their partners in the achievement of their objectives.

A data mission statement answers the question: How are you going to reach our goal? Since the mission is a call to action it should succinctly establish your method of approach.

Example of data mission statement: To power innovation and transformation throughout the enterprise via the use of data and intelligent systems to guide our processes.

Think of your statement as a personal promise, a commitment to transform and to embrace a data-driven culture.

Building the Foundations for a Data-Driven Company

WHAT DOES IT MEAN TO BE A CULTURE THAT ACTS ON DATA?

- Voices are based on empirical proof
- Data is free-flowing throughout the company
- Data is always up-to-date
- Data is easy to access and freely shareable
- Data visualization and storytelling are core skills of our organization.



Building the Foundations for a Data-Driven Company

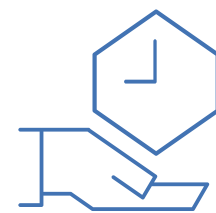
Before you build a framework that facilitates decision-making, you have to work on your foundations. In our experience, there are 3 prerequisites that every company should fulfill before they make the jump to a data-driven culture.

1 PREREQUISITE #1 Data Gathering

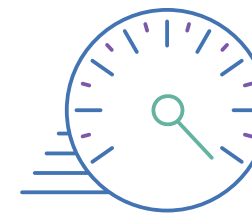
The company has to be collecting data.

Obviously, the key ingredient to a data-driven culture is data, but that doesn't mean that any kind of data will suffice. No matter how good your algorithms are, a prediction is only as good as the quality of the data you gather.

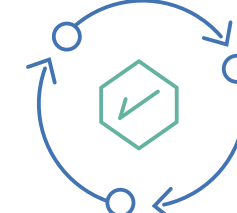
CHARACTERISTICS OF GOOD DATA:



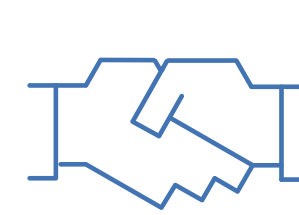
Timely



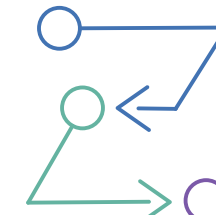
Accurate



Clean



Unbiased



Trustworthy

That's easier said than done, as even the cleanest of datasets have slight biases that can sway your conclusions. And that's the best-case scenario! In reality, most data is unstructured by nature. That means that data scientists spend, on average, 80% of their time organizing, cleaning, and preparing data for analysis.

Even if you've been collecting data for years, there is no guarantee that everything is going to fit nicely. Perhaps files siloed a decade ago have a very different structure than the ones you are currently using. Data has to be prepared, and that takes time and expertise.

A word of caution. Despite the hype around Big Data, not every problem can be solved by collecting every bit of information under the sun. If you have to spend months filtering out petabytes of garbage for pieces of useful information then the noise to signal ratio is going to slow down your decision-making.

It's not about collecting *a lot* of data, it's about collecting *the right amount* of data.

Building the Foundations for a Data-Driven Company

2 PREREQUISITE #2 A data-sharing environment

Data should be free-flowing and adaptable.

You can be sitting on piles of quality data, but that's not enough to become a data-driven company. If data is like a river, then you have to figure out what dams are interrupting its flow.

FREE-FLOWING DATA HAS THE FOLLOWING CHARACTERISTICS:

- **Joinable:** Data has to be in a form that can easily be joined with other datasets within and outside the company. That means that your data structure and your database have to be planned strategically.
- **Scalable:** Your databases should be able to seamlessly scale as you accumulate more data. Cloud-based solutions are extremely useful in this aspect.
- **Shareable:** Data should be easily accessible by all users within an organization. In the case of sensitive data, there should be established and well-known procedures to ask for clearance.
- **Queryable:** You need to have the proper tools to filter, group, aggregate, and manipulate data. Analysts need to have the tools to turn raw data into stories with relative ease.

Building the Foundations for a Data-Driven Company

3 PREREQUISITE #3 People with the right skillset

You need humans who are willing to engage with the data.

A company is defined by its people. So, you can't hope to have a data-driven environment if you don't have data-driven individuals and teams. We can identify three types of people who will help you grow as a data-driven company:

- **People who ask the right questions about the data:** This includes managers, analysts, researchers, and pretty much anyone inside the company who understands the nature of the data you are collecting and what kind of questions it could potentially answer.
- **People who interact with the data:** This includes mainly data scientists, people who have the skills necessary to extract the right data and analyze it.
- **People who use data to make decisions:** This includes decision-makers who value data and who can turn insights and forecasts into action.



The Hurdles Towards Becoming Data-Driven

WHY IS MAKING THE TRANSITION SO HARD?

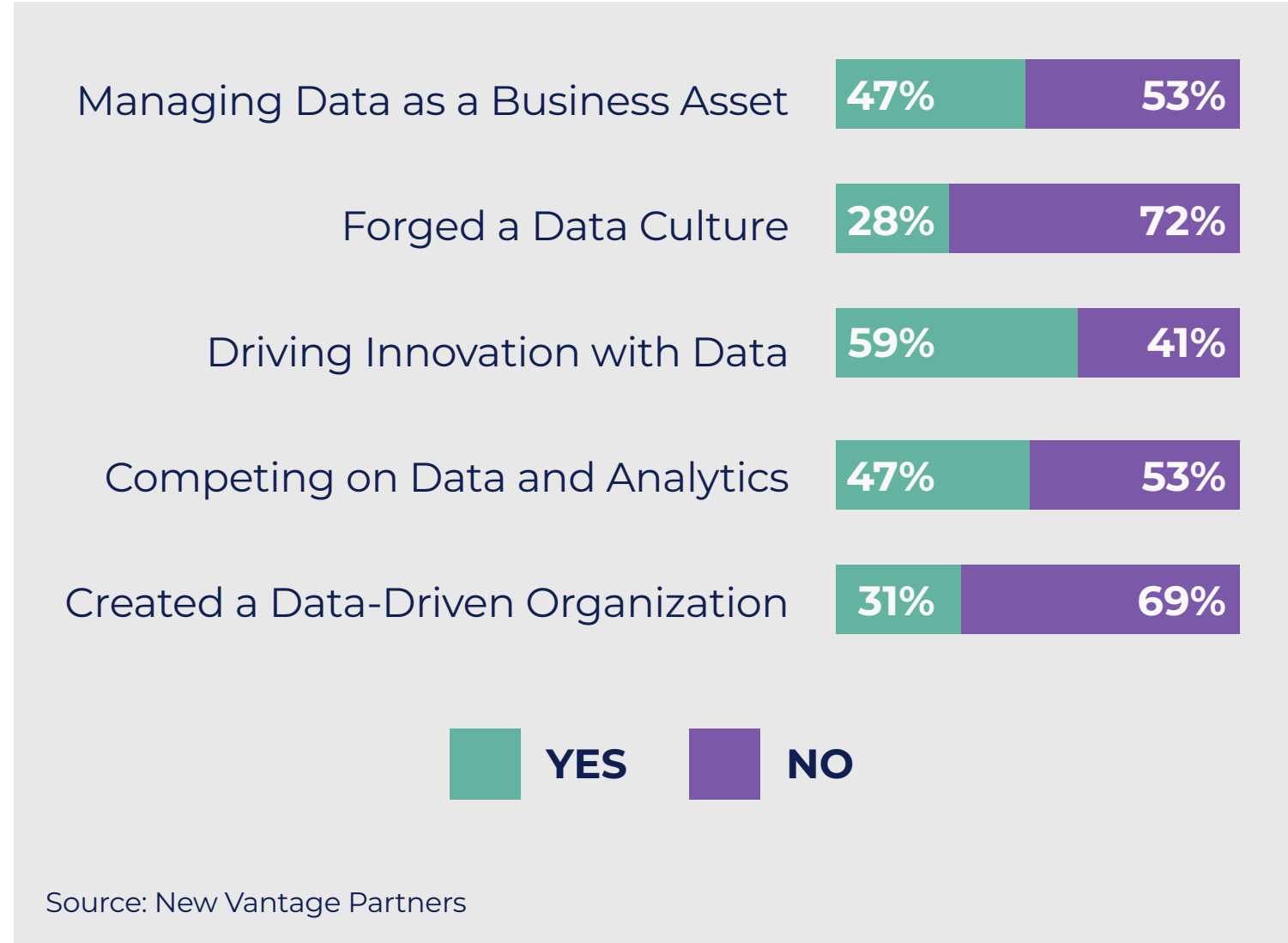
According to Harvard Business Review, companies are having a difficult time making the transition to a data-driven culture. As we can see in the following survey, 69% of all respondents feel like they haven't created a data-driven organization while 71% feel like they haven't forged a data-driven culture.

And yet, the Big Data and Analytics market has been steadily growing in the last decade, showing no sign of stopping. How can we reconcile this apparent paradox?



The Hurdles Towards Becoming Data-Driven

COMPANIES ARE FAILING IN THEIR EFFORTS TO BECOME DATA-DRIVEN

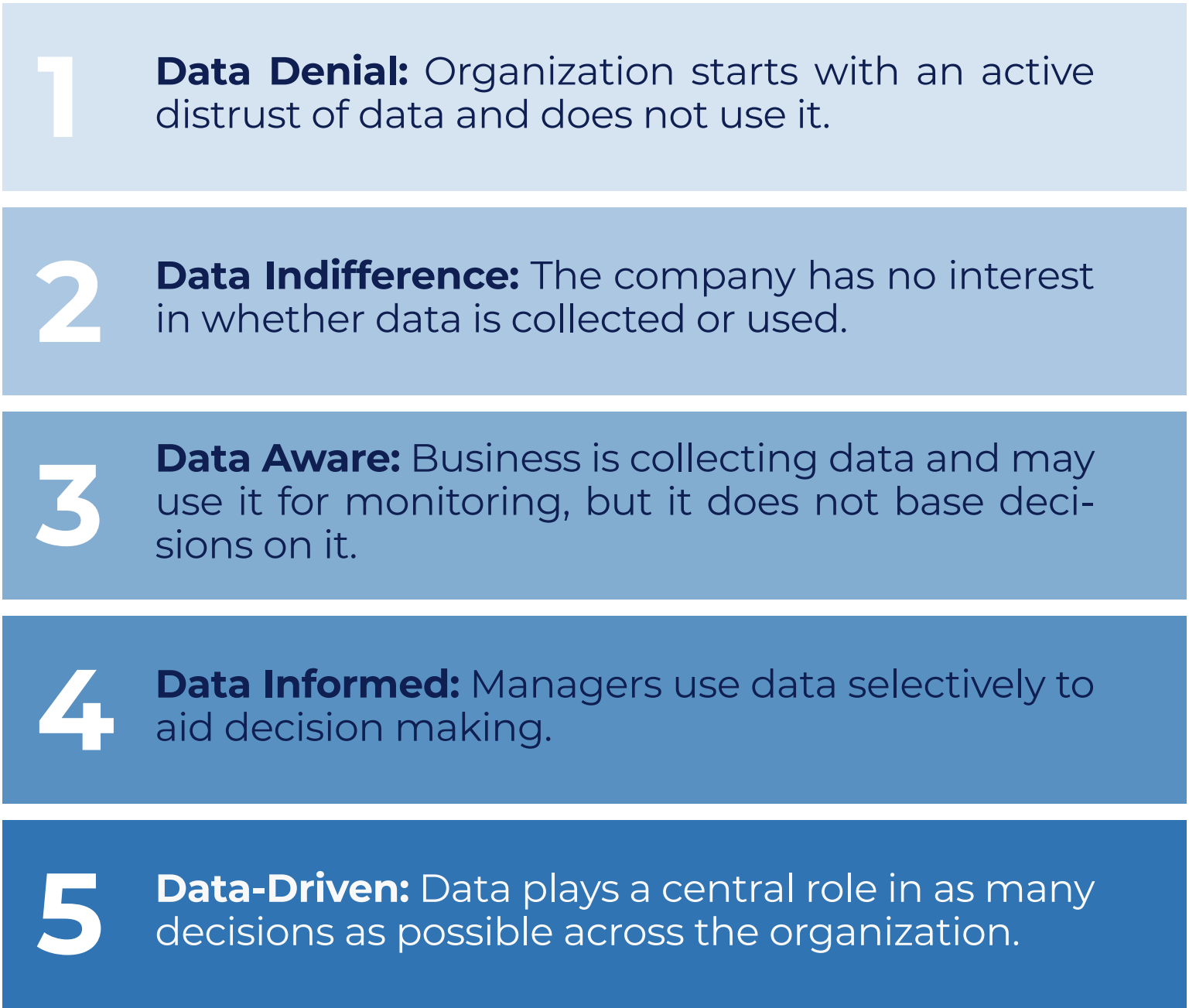


According to New Vantage Partners, most companies feel like the biggest obstacles for business adoption of data-driven solutions are:

- **A lack of organizational alignment with the values of a data-driven culture.**
- **Cultural resistance towards the change.**

In other words, the investment in new technology is there. The biggest hurdle is the company's inertia. Data is being gathered and processed, but at some point, human beings are resisting the paradigmatic change required to create a data-driven environment.

Five Stages Toward a Data-Driven Culture



Source: Quick Guide to Data-Driven Management | Smartsheet

The Hurdles Towards Becoming Data-Driven

FOSTERING A NEW CULTURE

While humans are infinitely adaptable, it's also true that we are creatures of habit. Challenging our worldviews and breaking our scripts can be extremely demanding. As such, it's important that alongside the implementation of new technology you foster a new culture in your workforce:

- **Develop and implement workshops** about the underlying philosophy of data-driven culture.
- **Make sure that your executives are on board with the change.** It's harder to promote a new purview if leaders are openly showing resistance.
- **Create training exercises for your employees** to familiarize themselves with the new tools.
- **Incentivize data engagement** by offering one-time bonuses for reaching certain milestones.
- **Track key performance indicators** before and after the adoption of new technology so that employees can see their growth
- **Create mentorship programs** where tech-savvy employees can help others learn to work with the new tools.
- **Redesign your pipelines** and reduce the number of obstacles to obtaining data across the company.
- **Reward creative thinking** based on data insights.
- **Keep an open communication channel** so that employees can share their worries and frustrations about the process.

At the same time, it's also important to look at the company's procedures and ask yourself if you are facilitating a culture of curiosity and creativity. No amount of workshops and words of encouragement will change a paradigm if you let your inertia keep business as usual.



The Hurdles Towards Becoming Data-Driven

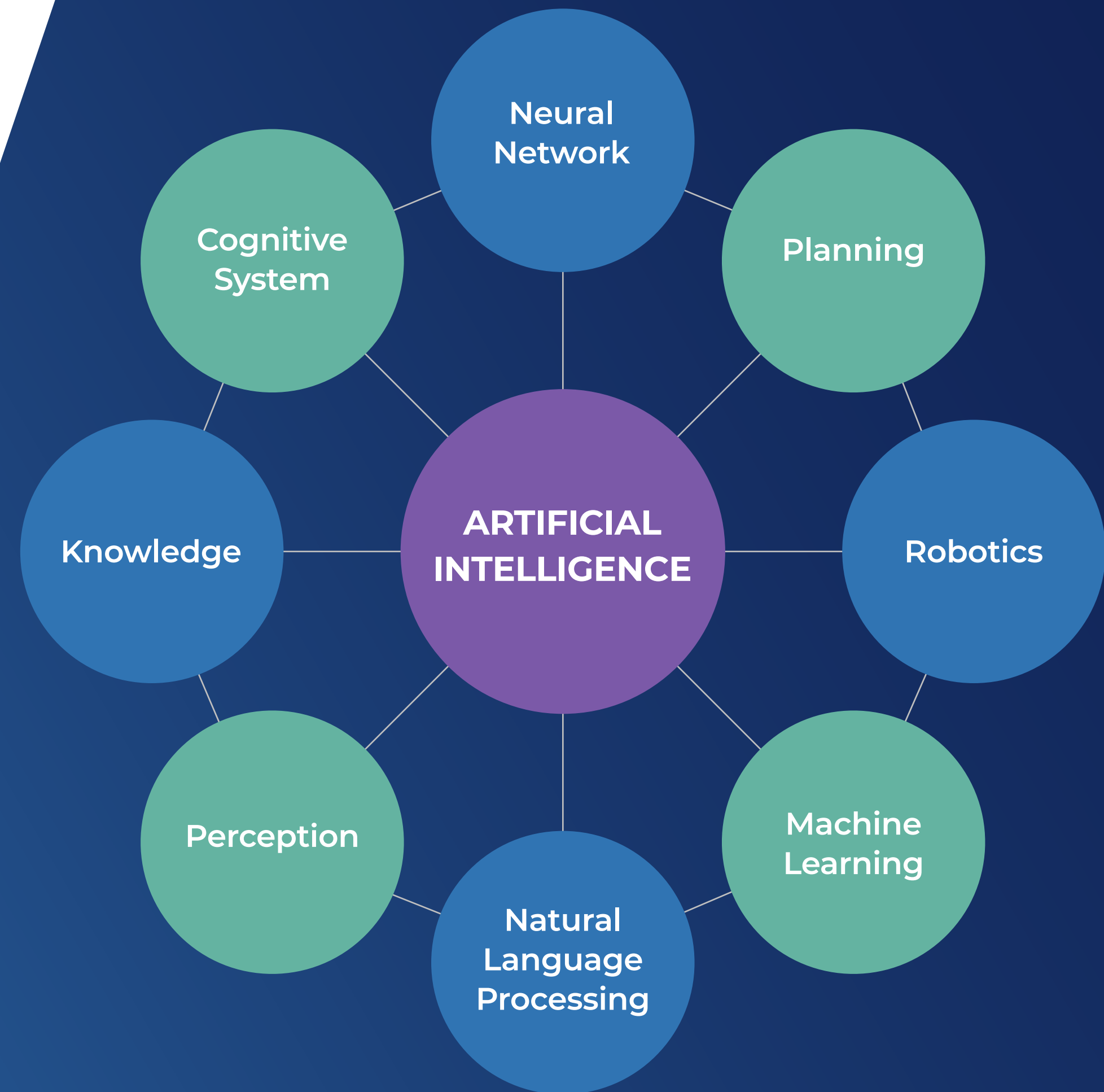
DROWNING IN A SEA OF DATA

Another issue that crops up when companies start making the transition to a data-driven culture is that data insights can get lost due to an excess of information. We mentioned it before, but it bears repeating: part of becoming a data-driven company is learning to balance the signal-to-noise ratio.

An expert data scientist might have the experience to explore data without having a clear goal in sight. But for most people, the best approach, especially in the beginning, is learning to ask the right questions.

It's ok to start small and grow in complexity as people get used to the tools. It's better to take small steps and learn a bit at a time than to burn out due to an excess of information. Data filtering and data visualization play a vital role in this stage.

Another way to avoid getting overburdened by the amount of data is to rely on artificial intelligence (AI) and machine learning (ML). Algorithms can process and cross-reference datasets in a fraction of what it takes a human to explore one dataset.



Algorithms can help you guide your search and find patterns that might go unnoticed. Of course, while an AI can help you uncover hidden relations, it's up to you to weave those findings into a cohesive story. The AI is the compass, but you are the one steering the boat.

A Data-Driven Decision-Making Framework

The following framework is flexible and highly customizable. You can use it as is or you can change it, adapt it to your business, and make it your own.

7 STEPS OF DATA-DRIVEN DECISION-MAKING



A Data-Driven Decision-Making Framework

UNDERSTAND THE CONTEXT

As mentioned before, to make the most of your data you have to ask the right questions. And to know what the right question is, you need to understand the context you are working in.

In scientific terms, you are creating a research question by observing your surroundings. For example, a logistics manager may notice that some warehouse workers are more productive than others and might wonder why that is.

An analyst from a marketing department might notice an uptick in search queries about their product, and they want to find out what could be related to that sudden increase. Experience plays a big part in understanding your context. It's also true that the world is changing and becoming more complex by the minute. So, you can't rely exclusively on your intuitions.

A competitive market demands that you keep researching and updating your knowledge base. The more you know about your environment the better the questions you can ask.

CHOOSE AND COLLECT DATA

Based on your research question, you'll have a good idea about the kind of data you are going to need. Now it's time to pick the right strategy for collecting and preparing the data for analysis.

There are dozens of ways in how you can approach data collection depending on the type of data you are gathering, for example:

- Historical data might require manually scanning documents and using AI to translate images into words.
- Web scraping to collect information from web pages.
- Using APIs to gather information from social media.

It's a good idea to have pipelines in place for constant data gathering from your most common sources. Automation can speed up the gathering process considerably. In fact, with the right pipeline, you can avoid the whole collecting part and just focus on choosing the relevant data.



A Data-Driven Decision-Making Framework

ANALYZE AND VISUALIZE THE DATA

Data analytics can go from basic descriptions to complex mathematical models. How you frame your question will help the data scientists choose the right kind of analytics to run.

Descriptive statistics gives basic but important information, for example, how many times a word appears next to your brand name or what's the average number of tweets per hour about your product. On the other hand, statistical inference helps you predict trends based on the information you have. This can go from basic operations to highly sophisticated machine learning models.

Choosing how to represent the data is equally important. A data scientist has to know their audience beforehand to choose the best method to relay the story behind the data.

For example, a math-savvy group will benefit from having extensive tables with all the values front and center, while a business strategist will find graphs and charts a lot more useful. You need to build a visualization tailored to your audience.

DESIGN AN ACTION PLAN

At this stage, the decision-makers choose how to approach the task at hand based on the results from the data collection. In a data-driven environment, this process is supported by a data scientist or another expert who can provide further insight from the data gathered.

With the help of virtual environments and digital clones, simulations can be run to assess the possible outcomes of each plan. This serves as another data entry that decision-makers can explore before committing to a plan.

A Data-Driven Decision-Making Framework

PRIORITIZE DECISIONS

Based on all the evidence and the decision-maker's experience, you'll have to prioritize decisions on a personal framework. Depending on the nature of the task at hand, you might prioritize budget, time efficiency, or whatever may seem most appropriate at the time.

This may sound too subjective, but there is a reason for that. While AIs are powerful tools, they are not infallible. For example, machine learning models can't predict events that aren't part of the data they were trained with.

As such, the decision-maker has to weigh the current situation and make adjustments if needed. Sometimes the simulations will be spot on, other times, human ingenuity will play a role in correcting the course.

EXECUTE

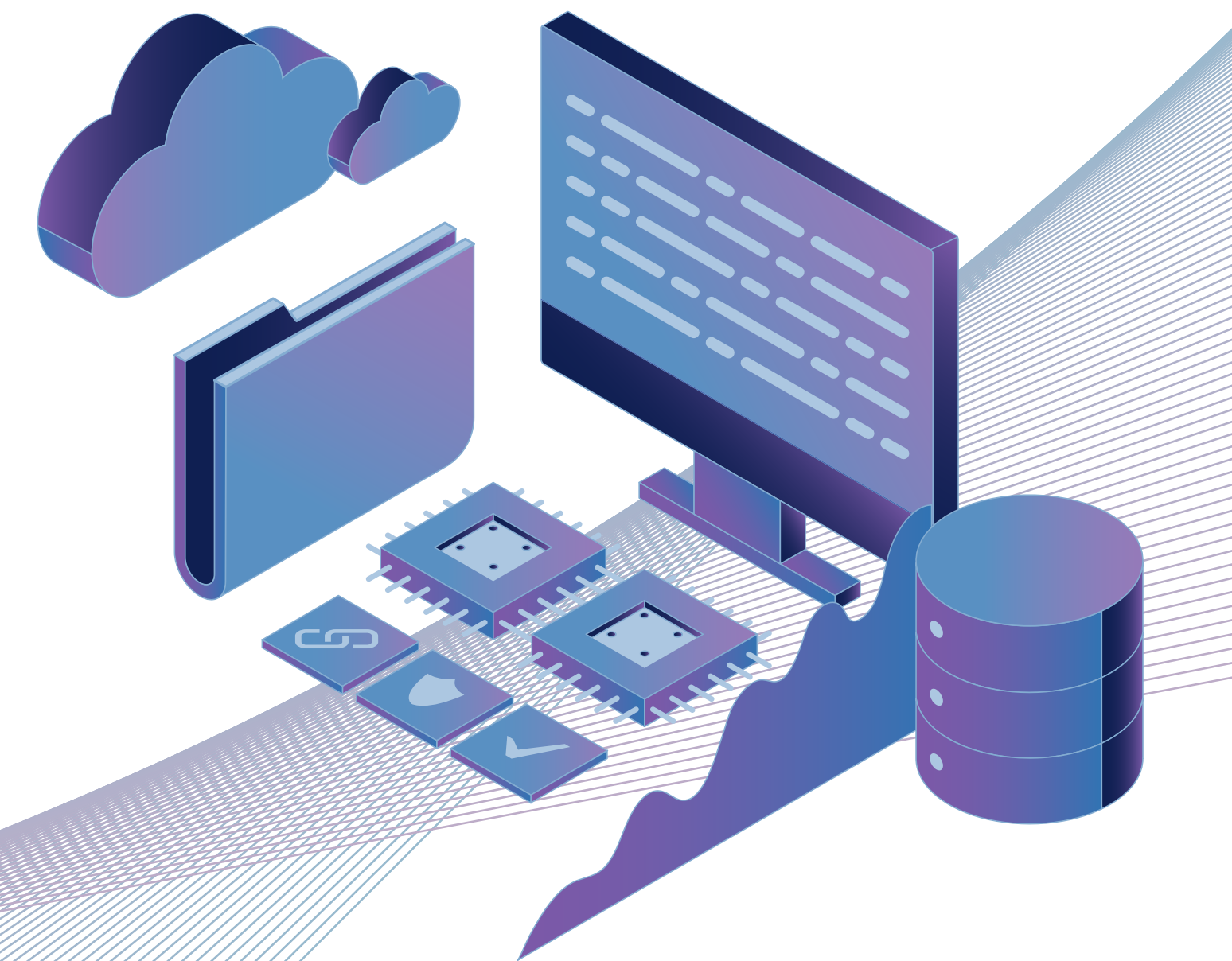
Once you make a decision, it's time to spring into action. Execution also involves further data gathering, as you can register the effects of your intervention in real-time.

EVALUATE

With the data gathered from the execution phase, you can then proceed to evaluate the outcome. Regardless of the result, you'll assess what aspects of your intervention yielded positive results and which show room for improvement.

LEARN

After the process is complete, you'll store the conclusions from the previous phase as data that you can use for further analysis or as a reservoir of strategic choices for similar contexts in the future.



Final Remarks

COMMITTING TO BECOMING A DATA-DRIVEN COMPANY IS THE FIRST STEP IN A VERY LONG PROCESS.

You have to sow the seeds of a paradigm shift and make small changes until the transformation sprouts. While demanding, it's a worthwhile endeavor, one that will help you and your company grow and stay competitive in a business environment that's being changed by technology.





About BairesDev

The Top 1% of Tech Talent is the backbone of our business. We deliver end-to-end technology solutions created by the most highly vetted, expert-level teams in the business.

