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# WHAT'S THE DIFFERENCE BETWEEN DATA ANALYTICS & DATA SCIENCE?

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🏷 **Analytics, Business Analytics**

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If you were to gather the world's foremost business leaders and ask them to identify the biggest difference between doing business in the 20th century versus the 21st, a large percentage would likely say one word: data.

Since the turn of the century, data's proliferation in business has grown with the emergence of social media, smartphones, the internet of things (IoT), and other technological advances. By some estimates, if you were to take all of the data generated by humanity in 2020 and divide it among the world's population, you'd find that each person created 1.7 megabytes of data *every second*. In fact, it's estimated that more than 90 percent of the total data created by humans has been generated in just the last two years.

This exponential growth has led organizations of all sizes to wonder how they can leverage information to realize business benefits. Meanwhile, individuals are increasingly seeking to develop their data skills to make their resumes stand out, advance their careers, and gain job security.

"In this world of big data, basic data literacy—the ability to analyze, interpret, and even question data—is an increasingly valuable skill," says Harvard Business School Professor Jan Hammond in the online course Business Analytics.

If you're new to the world of data and want to bolster your skills, two terms you're likely to encounter are "data analytics" and "data science." While these terms are related, they refer to different things. Below is an overview of what each word means and how it applies in business.

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## DATA ANALYTICS VS. DATA SCIENCE

**What Is Data Analytics?**

**Data analytics** refers to the process and practice of analyzing data to answer questions, extract insights, and identify trends. This is done using an array of tools, techniques, and frameworks that vary depending on the type of analysis being conducted.

The four major types of analytics include:

- **Descriptive analytics**, which looks at data to examine, understand, and *describe* something that's already happened.
- **Diagnostic analytics**, which goes deeper than descriptive analytics by seeking to understand the *why* behind what happened.
- **Predictive analytics**, which relies on historical data, past trends, and assumptions to answer questions about what will happen in the future.
- **Prescriptive analytics**, which aims to identify specific actions that an individual or organization should take to reach future targets or goals.

Applying data analytics tools and methodologies in a business setting is typically referred to as **business analytics**. The main goal of business analytics is to extract meaningful insights from data that an organization can use to inform its strategy and, ultimately, reach its objectives.

Business analytics can be leveraged in a variety of ways. Here are a few examples to consider:

- **Budgeting and forecasting**: By assessing a company's historical revenue, sales, and costs data alongside its goals for future growth, an analyst can identify the budget and investments required to make those goals a reality.
- **Risk management**: By understanding the likelihood of certain business risks occurring—and their associated costs—an analyst can make cost-effective recommendations to help mitigate them.
- **Marketing and sales**: By understanding key metrics, such as lead-to-customer conversion rate, a marketing analyst can identify the number of leads their efforts must generate to fill the sales pipeline.
- **Product development (or research and development)**: By understanding how customers have reacted to product features in the past, an analyst can help guide product development, design, and user experience in the future.

## WHAT IS DATA SCIENCE?

Whereas data analytics is primarily focused on understanding datasets and gleaning insights that can be turned into actions, **data science** is centered on building, cleaning, and organizing datasets. Data scientists create and leverage algorithms, statistical models, and their own custom analyses to collect and shape raw data into something that can be more easily understood.

"From the first steps of determining the quality of a data source to determining the success of an algorithm, critical thinking is at the heart of every decision data scientists—and those who work with them—make," says Professor Dustin Tingley in the Harvard Online course Data Science Principles. "Data science is a discipline that's built on a foundation of critical thinking."

Data scientists lay the groundwork for all of the analyses an organization performs. They do this by performing key functions, including:

- **Data wrangling**: The process of cleaning and organizing data to be more readily used.
- **Statistical modeling**: The process of running data through different models—such as regression, classification, and clustering models, among others—to identify relationships between variables and gain insight from the numbers.
- **Programming**: The process of writing computer programs and algorithms in a variety of languages—such as R, Python, and SQL—that can be used to analyze large datasets more efficiently than through manual analysis.

While it's unlikely you'll need to perform any of these duties in your job unless you're specifically hired as a data scientist, data science still holds value for business professionals. Familiarizing yourself with the concepts, terminology, and techniques used by data scientists on your team can empower you to better communicate with these important professionals and give you a firmer understanding of what insights are and aren't possible to glean from the data.

Additionally, a proficiency in key data science skills can enable you to assess and draw insights from your organization's data—increasing the value you bring to your organization while reducing your reliance on others. Developing your data science skills can allow you to:

- Identify and avoid mistakes that commonly arise while interpreting datasets, metrics, and visualizations
- Embrace data-driven decision-making and ensure your business decisions are backed by numbers
- Form hypotheses, run experiments, and gather evidence that empowers you to recognize business challenges and solutions
- Understand market size, buyer trends, competition, and opportunities and risks your business faces

The examples above are just a selection of potential applications for data science in business. Many others exist, depending on the specific data being leveraged.

## NOT AN EITHER/OR DECISION

There are key differences between data science and data analytics. The good news is that, unless you plan on going into one of those fields—for example, as a data scientist or data analyst—the differences are relatively small.

For business professionals seeking to increase their understanding of data and how it can be leveraged in their organizations, it's more important to understand the key concepts, frameworks, and techniques that underlie *both* fields.

***Are you ready to accelerate your career by developing a data mindset that can help inform your business decisions? Download our [Beginner's Guide to Data & Analytics](#) to learn how you can leverage the power of data for professional and organizational success.***

**About the Author**

*Tim Stobierski is a marketing specialist and contributing writer for Harvard Business School Online.*

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