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5 Steps of the Data Analysis Process

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Businesses generate and store tons of data every single day, but what happens with this data after it's stored?

The short answer is that most of it sits in repositories and is almost never looked at again, which is quite counterintuitive.

Data can hold valuable insights into users, customer bases, and markets. When paired with **analytics software (https://www.g2crowd.com/categories/analytics?__hstc=171774463.f79489da43618c79f86a2bb594da6706.1614656915528.1614656915528.1614656915528.1&__hssc=171774463.1.1614656915528&_** data can help businesses discover new product opportunities, marketing segments, industry verticals, and much more.

The problem isn't a lack of data available, it's that many businesses are unsure how exactly to analyze and harness its data.

To clear up any uncertainties, we compiled this easy-to-read guide on the complete data analysis process for businesses looking to be more data-driven.

What is the data analysis process?

The first thing to know is there are five steps when it comes to data analysis, each step playing a key role in generating valuable insight.

What is the data analysis process?

1. Define why you need data analysis.
2. Begin collecting data from sources.
3. Clean through unnecessary data.
4. Begin analyzing the data.
5. Interpret the results and apply them.

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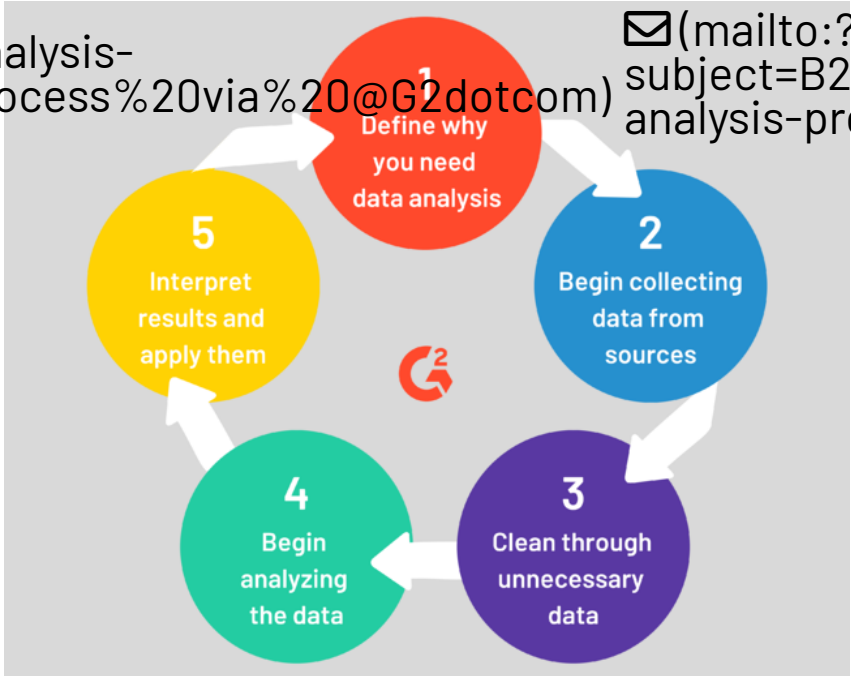

Now that you have a general overview of the data analysis process, it's time to dig deeper into each step.

Step 1: Define why you need data analysis

Before getting into the nitty-gritty of data analysis, a business will need to define why they're seeking one in the first place. This need typically stems from a business problem or question. Some examples include:

- How can we reduce production costs without sacrificing quality?
- What are some ways to increase sales opportunities with our current resources?
- Do customers view our brand in a favorable way?

In addition to finding a purpose, consider which metrics to track along the way. Also, be sure to identify sources of data when it comes time to collect.

This process can be long and arduous, so building a roadmap will greatly prepare your data team for the following steps.

Step 2: Data collection

After a purpose has been defined, it's time to begin collecting the data that will be used in the analysis. This step is important because whichever sources of data are chosen will determine how in-depth the analysis is.

Data collection starts with primary sources, also known as internal sources. This is typically **structured data (/structured-vs-unstructured-data#structured-data)** gathered from CRM software, ERP systems, marketing automation tools, and others. These sources contain information about customers, finances, gaps in sales, and more.

Then comes secondary sources, also known as external sources. This is both structured and **unstructured data (https://learn.g2crowd.com/structured-vs-unstructured-data?__hstc=171774463.f79489da43618c79f86a2bb594da6706.1614656915528.1614656915528.1614656915528.1&__hssc=171774463.1.1614656915528&_data)** that can be gathered from many places.

For example, if you're looking to perform a sentiment analysis toward your brand, you could gather data from review sites or social media APIs. Interested in economic trends? There are many **open data sources (/open-data-sources)** to collect this information.

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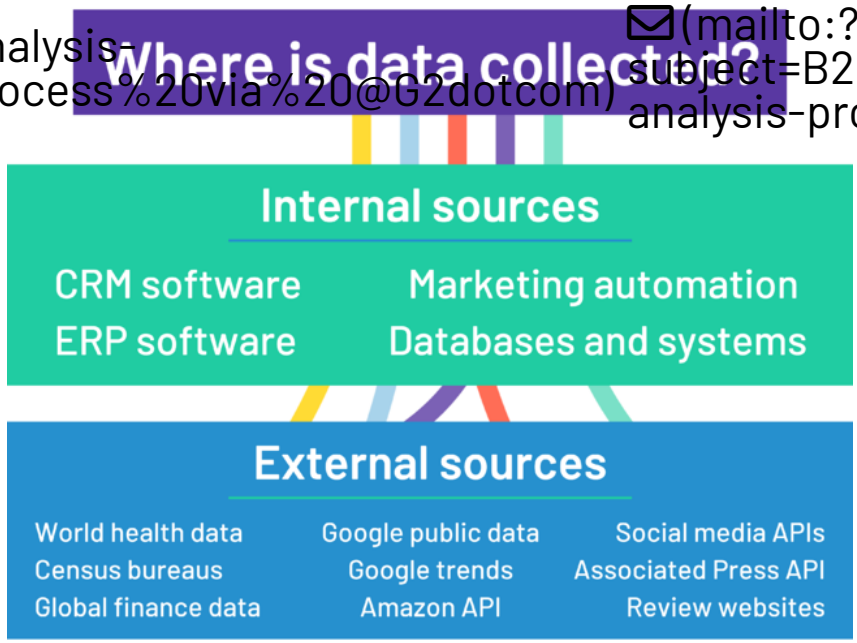
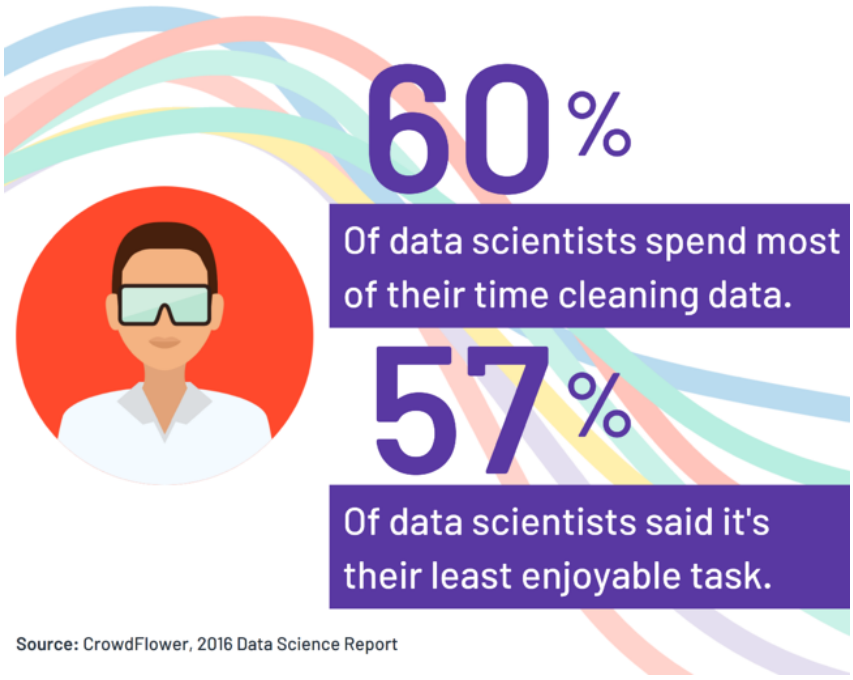


While it's not required to gather data from secondary sources, it could add another element to your data analysis. This is becoming more common in the age of big data.

Step 3: Data cleaning

Once data is collected from all the necessary sources, your data team will be tasked with cleaning and sorting through it. Data cleaning is extremely important during the data analysis process, simply because not all data is *good* data.

To generate accurate results, data scientists must identify and purge duplicate data, anomalous data, and other inconsistencies that could skew the analysis. Although, **60 percent (https://visit.figure-eight.com/data-science-report?utm_source=Internal%20Referral&utm_medium=Email&utm_campaign=Data%2520Science%2520Report)** of data scientists say most of their time is spent cleaning data.



With advances in **AI platforms software (https://www.g2crowd.com/categories/ai-platforms?__hstc=171774463.f79489da43618c79f86a2bb594da6706.1614656915528.1614656915528.1614656915528.1&__hssc=171774463.1.16146569155288&_** more intelligent automation will save data teams valuable time during this step.

Step 4: Data analysis

One of the last steps in the data analysis process is, you guessed it, analyzing and manipulating the data. This can be done in a variety of ways.

One way is through **data mining (https://learn.g2crowd.com/data-mining?__hstc=171774463.f79489da43618c79f86a2bb594da6706.1614656915528.1614656915528.1614656915528.1&__hssc=171774463.1.1614656915528&_** which is defined as "knowledge discovery within databases." **Data mining techniques (/data-mining-techniques)** like clustering analysis, anomaly detection, association rule mining, and others could unveil hidden patterns in data that weren't previously visible.

There's also business intelligence and **data visualization software (https://www.g2crowd.com/categories/data-visualization?__hstc=171774463.f79489da43618c79f86a2bb594da6706.1614656915528.1614656915528.1614656915528.1&__hssc=171774463.1.1614656915528&_** both of which are optimized for decision-makers and business users. These options generate easy-to-understand reports, dashboards, scorecards, and charts.

Data scientists may also apply predictive analytics, which makes up one of four **types of data analytics (https://learn.g2crowd.com/types-of-data-analytics?__hstc=171774463.f79489da43618c79f86a2bb594da6706.1614656915528.1614656915528.1614656915528.1&__hssc=171774463.1.1614656915528&_** used today. **Predictive analyses (/predictive-analytics)** look ahead to the future, attempting to forecast what is likely to happen next with a business problem or question.

Step 5: Interpret the results

The final step is interpreting the results from the data analysis. This part is important because it's how a business will gain actual value from the previous four steps.

Interpreting the data analysis should validate why you conducted one in the first place, even if it's not 100 percent conclusive. For example, "options A and B can be explored and tested to reduce production costs without sacrificing quality."

Analysts and business users should look to collaborate during this process. Also, when interpreting results, consider any challenges or limitations that may have not been present in the data. This will only bolster the confidence in your next steps.

Why data analysis is so important?

From small businesses to global enterprises, the amount of data businesses generate today is simply staggering, and it's why the term "big data" has become so buzzwordy.

However, without data analysis, this mountain of data hardly does much other than clog up cloud storage and databases. To uncover a variety of insights that sit within your systems, consider **what data analytics is (/what-is-data-analytics)** and the five steps that come with it.

If you're ready to learn more about data analytics (/what-is-data-analytics), we compiled a complete beginner's guide on everything from qualitative and quantitative data to analytic trends.

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