New data perspectives

As you have been learning, you can find data pretty much everywhere. Any time you observe and evaluate something in the world, you're collecting and analyzing data. Your analysis helps you find easier ways of doing things, identify patterns to save you time, and discover surprising new perspectives that can completely change the way you experience things.

Here is a real-life example of how one group of data analysts used the six steps of the data analysis process to improve their workplace and its business processes. Their story involves something called people analytics—also known as human resources analytics or workforce analytics. People analytics is the practice of collecting and analyzing data on the people who make up a company's workforce in order to gain insights to improve how the company operates.

Being a people analyst involves using data analysis to gain insights about employees and how they experience their work lives. The insights are used to define and create a more productive and empowering workplace. This can unlock employee potential, motivate people to perform at their best, and ensure a fair and inclusive company culture.

The six steps of the data analysis process that you have been learning in this program are: **ask, prepare, process, analyze, share,** and **act**. These six steps apply to any data analysis. Continue reading to learn how a team of people analysts used these six steps to answer a business question.

An organization was experiencing a high turnover rate among new hires. Many employees left the company before the end of their first year on the job. The analysts used the data analysis process to answer the following question: **How can the organization improve the retention rate for new employees?**

Here is a break down of what this team did, step by step.

First up, the analysts needed to define what the project would look like and what would qualify as a successful result. So, to determine these things, they **asked** effective questions and collaborated with leaders and managers who were interested in the outcome of their people analysis. These were the kinds of questions they asked:

- What do you think new employees need to learn to be successful in their first year on the job?
- Have you gathered data from new employees before? If so, may we have access to the historical data?
- Do you believe managers with higher retention rates offer new employees something extra or unique?
- What do you suspect is a leading cause of dissatisfaction among new employees?
- By what percentage would you like employee retention to increase in the next fiscal year?

It all started with solid **preparation**. The group built a timeline of three months and decided how they wanted to relay their progress to interested parties. Also during this step, the analysts identified what data they needed to achieve the successful result they identified in the previous step - in this case, the analysts chose to gather the data from an online survey of new employees. These were the things they did to prepare:

- They developed specific questions to ask about employee satisfaction with different business processes, such as hiring and onboarding, and their overall compensation.
- They established rules for who would have access to the data collected - in this case, anyone outside the group wouldn't have access to the raw data, but could view summarized or aggregated data. For example, an individual's compensation wouldn't be available, but salary ranges for groups of individuals would be viewable.
- They finalized what specific information would be gathered, and how best to present the data visually. The analysts brainstormed possible project- and data-related issues and how to avoid them.

The group sent the survey out. Great analysts know how to respect both their data and the people who provide it. Since employees provided the data, it was important to make sure all employees gave their consent to participate. The data analysts also made sure employees understood how their data would be **collected, stored, managed, and protected**. Collecting and using data ethically is one of the responsibilities of data analysts. In order to maintain confidentiality and protect and store the data effectively, these were the steps they took:

- They restricted access to the data to a limited number of analysts.
- They cleaned the data to make sure it was complete, correct, and relevant. Certain data was aggregated and summarized without revealing individual responses.
- They uploaded raw data to an internal data warehouse for an additional layer of security.

Then, the analysts did what they do best: analyze! From the completed surveys, the data analysts **discovered** that an employee's experience with certain processes was a key indicator of overall job satisfaction. These were their findings:

- Employees who experienced a long and complicated hiring process were most likely to leave the company.
- Employees who experienced an efficient and transparent evaluation and feedback process were most likely to remain with the company.

The group knew it was important to **document** exactly what they found in the analysis, no matter what the results. To do otherwise would diminish trust in the survey process and reduce their ability to collect truthful data from employees in the future.

Just as they made sure the data was carefully protected, the analysts were also careful **sharing the report**. This is how they shared their findings:

- They shared the report with managers who met or exceeded the minimum number of direct reports with submitted responses to the survey.
- They presented the results to the managers to make sure they had the full picture.
- They asked the managers to personally deliver the results to their teams.

This process gave managers an opportunity to **communicate the results** with the right context. As a result, they could have productive team conversations about next steps to improve employee engagement.

The last stage of the process for the team of analysts was to work with leaders within their company and decide how best to **implement changes and take actions** based on the findings. These were their recommendations:

- Standardize the hiring and evaluation process for employees based on the most efficient and transparent practices.
- Conduct the same survey annually and compare results with those from the previous year.

A year later, the same survey was distributed to employees. Analysts anticipated that a comparison between the two sets of results would indicate that the action plan worked. Turns out, the changes improved the retention rate for new employees and the actions taken by leaders were successful!

Is people analytics right for you?

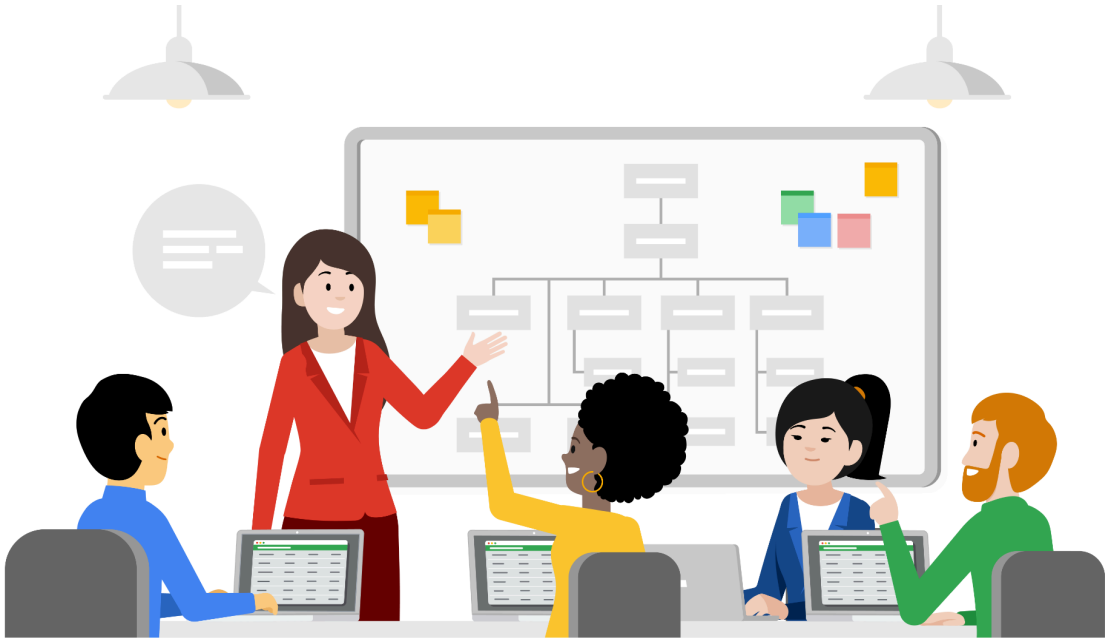
One of the many things that makes data analytics so exciting is that the problems are always different, the solutions need creativity, and the impact on others can be great—even life-changing or life-saving. As a data analyst, you can be part of these efforts. Maybe you're even inspired to learn more about the field of people analytics. If so, consider learning more about this field and adding that research to your data analytics journal. You never know: One day soon, you could be helping a company create an amazing work environment for you and your colleagues!

Additional Resource

To learn more about some recent applications of data analytics in the business world, check out the article "4 Examples of Business Analytics in Action" from Harvard Business School. The article reveals how corporations use data insights to optimize their decision-making process.

How data analysts approach tasks

The data analysis process is composed of the six phases of **ask**, **prepare**, **process**, **analyze**, **share**, and **act**. Their purpose is to gain insights that drive informed decision-making. Earlier in this course, you explored a case study about a group of data analysts using the six phases of data analysis to improve employee retention at their company. In this reading, you'll focus on the phases themselves and explore how a data analyst might use this process to help a fictional company make data-driven decisions about investing in training.



The six phases of data analysis

The data analysis process helps analysts break down business problems into a series of manageable tasks:

In the **ask phase**, you'll work to understand the challenge to be solved or the question to be answered. It will likely be assigned to you by stakeholders. As this is the ask phase, you'll ask many questions to help you along the way.

Next, in the **prepare phase**, you'll find and collect the data you'll need to answer your questions. You'll identify data sources, gather data, and verify that it is accurate and useful for answering your questions.

The **process phase** is when you will clean and organize your data. Tasks you perform here include removing any inconsistencies; filling in missing values; and, in many cases, changing the data to a format that's easier to work with. Essentially, you're ensuring the data is ready before you begin analysis.

The **analyze phase** is when you do the necessary data analysis to uncover answers and solutions. Depending on the situation and the data, this could involve tasks such as calculating averages or counting items in categories so you can examine trends and patterns.

Next comes the **share phase**, when you present your findings to decision-makers through a report, presentation, or data visualizations. As part of the share phase, you decide which medium you want

to use to share your findings and select the data to include. Tools for presenting data visually include charts made in Google Sheets, Tableau, and R.
Last is the **act phase**, in which you and others in the company put the data insights into action. This could mean implementing a new business strategy, making changes to a website, or any other action that solves the initial problem.

Putting the process into practice

Now, think about how the phases in this process can be applied to a business situation.

The retirement contribution dilemma

The management team at a fictional midsized tech company, Geo-Flow, Inc., noticed that employee participation in the company's retirement contribution program was lower than expected. The company had invested a lot of resources in establishing its world-class benefit program, with the goal of reducing employee turnover. Because so few employees were using the program, leaders wondered if they should develop educational training to explain the benefits to employees. They wanted to make a well-informed decision before committing to the investment, so they asked their data analytics department to make a recommendation.
The analysts used the six phases framework and began by defining the problem. They **asked**, "Are employees investing in the company's retirement contribution program?"And, if not, "Should we create an educational program to encourage participation?" Satisfied with their research questions, they **prepared** their analysis project by gathering data from HR, such as employee demographics, salary levels, and current retirement contributions.
Next, they **processed** the data by cleaning and organizing it. They removed duplicates and data from individuals who had retired or left the company, then sorted the data by the employees' ages, departments, and length of employment. Their **analysis** showed that some employee groups were less likely to contribute to the plan or to be aware that the company offers a matching contribution. They interpreted these results to mean that these employee groups were not receiving enough education on the company's retirement contribution matching program. They also studied the data to find trends and insights and used data visualization to review their analysis by exploring it in different contexts.
The analysts **shared** their findings with the management team using visualizations including bar and pie charts that illustrated the facts clearly so decision-makers could easily interpret the data. The report showed that, while overall participation was decent, some employee groups were not taking full advantage of the retirement program—but they might, if they knew more about the program and the matching contribution the company offers.
Based on these findings, the company took **action**, creating a targeted educational program focusing on the benefits of retirement contributions, specifically aimed at the employee groups identified as low contributors. Results showed that a few months after implementing this training, there was a significant increase in retirement contributions among the targeted groups.

Iteration during the data analysis process

The data analysis process is designed to build on itself, so the results from each step are the inputs for the next step. Keep in mind, however, that you might not always move through the steps linearly. For example, you might be in the analyze phase and find out your data was pulled from the wrong

database. Or, you could learn while cleaning the data that your original question didn't adequately define the problem.

In cases such as these, you may have to go back to an earlier stage and work through the process with new, better information. The important thing is not to skip steps and miss something that's important. In fact, the biggest mistake analysts make when using this framework is looking for quick and easy answers.

Finally, make sure to review your work in each phase of the analysis. This helps you learn more about the situation and your own skill set, which will lead to the kind of continuous growth that helps data professionals succeed.

Key takeaways

The six phases of the data analysis process help answer business challenges, such as understanding how to improve a retirement program. Additionally, iterating on and reviewing your work throughout the data analysis process is critical for obtaining quality results.