Cloud-based tools for accessing and visualizing data

Previously, you learned that the analyze and activate stages are the fourth and fifth stages of the data journey. When data analysts analyze, they identify trends and patterns in the data to obtain insights that answer stakeholder questions. When data analysts activate data, they present their visualizations and insights to stakeholders, so that stakeholders can apply the information they've learned to make informed decisions, and take data-driven action. Both the analyze and activate stages of the data journey rely heavily on a data analyst's ability to access and visualize data.

In this reading, you'll learn more about the types of tools that can help you access cloud data and create visualizations to analyze data and share your findings with stakeholders.

Types of visualization tools

There are a variety of tools you can use to create data visualizations to share with your stakeholders. Many of these visualization tools are cloud-based, which means you can access them from anywhere with internet access. These tools are highly scalable and flexible, so they can analyze large and complicated datasets from a variety of sources. Visualization tools typically fall into one of two categories:

1. No-code or low-code tools
2. Code-based tools

No-code and low-code tools

No-code and low-code visualization tools are cloud-based software that allow you to work with data without having to spend a lot of time writing code. Tools that are considered no-code or low-code often have a visual user interface and simpler controls for manipulating data. Data analysts can usually accomplish most visualization and dashboard design objectives by using drag-and-drop and point-and-click features.

No-code and low-code tools often make use of templates, and may be used by management teams, executives, and data analysts who need quick answers or visualizations. These tools are a great way for anyone to get started with data analysis, but many of them also offer more advanced users the ability to create more complex and custom reports.

Looker Studio

An example of a no-code or low-code visualization tool is Google's Looker Studio. Looker Studio requires minimal coding experience and utilizes a drag-and-drop interface to make it easy for any user to quickly build visual reports and dashboards. The easy-to-use interface also offers a variety of report templates that allow data analysts to efficiently create impactful dashboards. Looker Studio enables you to access data from a wide variety of private databases, public data sets, social media platforms, and marketing platforms.

Code-based tools

Code-based tools are a type of data visualization software used by large data-driven organizations to explore, analyze, and share business analytics. They're tools that allow you to analyze data, create visualizations, and design dashboards from scratch. While code-based tools require more code writing skills than no-code or low-code tools, they allow you to customize exactly how you want the data to be aggregated, filtered, grouped, sorted, or visualized. With code-based tools, you're also able to define rules for governance and security, so you can control who has access to the various data sets and control when data is refreshed. Code-based visualization tools allow data analysts to standardize definitions of metrics and dimensions, which promotes consistency and accuracy when information is shared across various reports or platforms.

Code-based visualization tools are generally used by data analysts, data engineers, and data practitioners who are very comfortable with programming languages, version control, software development, and data modeling concepts.

Looker

An example of a code-based data visualization tool is Google's Looker, which is a business intelligence data analytics platform. Similar to Looker Studio, Looker has some point-and-click options for building quick reports and dashboards, but Looker's real value is in the advanced coding options available for data analysts using its programming language, LookML.

One advanced Looker option allows data analysts to write code to combine data from multiple cloud sources into one cohesive data model. Looker also allows analysts to create a semantic layer, or dictionary, for their organization that defines their data in business terms. For example, an analyst could use the semantic layer to define what total gross margin means and how it's calculated, allowing members across the organization to reference total gross margin in a consistent way without calculating it themselves.

Another advanced feature allows data analysts to use Git-based version control on their dashboards and the semantic layer. Version control ensures that dashboards and definitions of metrics are time stamped, tested, and approved by the data team to maintain one accurate

source of truth that can be referenced by everyone in the organization. This prevents unauthorized changes, and maintains consistency for everyone using the data.

Key takeaways

There are a variety of cloud-based tools available to help you create data visualizations, including no-code or low-code, and code-based tools. No-code or low-code options, such as Looker Studio, typically use a visual interface that enables analysts to quickly create visualizations using drag-and-drop, or point-and-click features. Code-based tools, such as Looker, enable analysts with coding experience to have greater control over an organization's data, and customize how data is accessed, analyzed, and shared with stakeholders. No matter what type of tool you choose, you'll be able to use them to explore data, and communicate your data's story effectively to stakeholders.

Resources for more information

Review these resources to learn more about Google's Looker and Looker Studio tools:

- Overview of Looker
- Overview of Looker Studio