# Data Studio Playbook

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# How to use this Playbook

This Google Data Studio Playbook is designed to give you a solid understanding of key Data Studio features and data visualization best practices. It will give you the information and guidance you need to build a Data Studio dashboard on your own. However, this is not intended to be a comprehensive resource for all things Data Studio. For updates on new features, check out the Data Studio Release Notes.

# Why Use Google Data Studio?

Google Data Studio is a free tool that allows you to build interactive dashboards and beautiful reports. Since its launch in 2016, Data Studio has evolved into a powerful data visualization tool to help brands track KPIs, visualize trends and patterns, and understand performance over time. Whether you're looking to build a comprehensive dashboard or a small report to answer a single business question, Google Data Studio can support you.

| Power 1st party integrations | Easy to create and share | Rapidly expanding functionality | User friendly interface |
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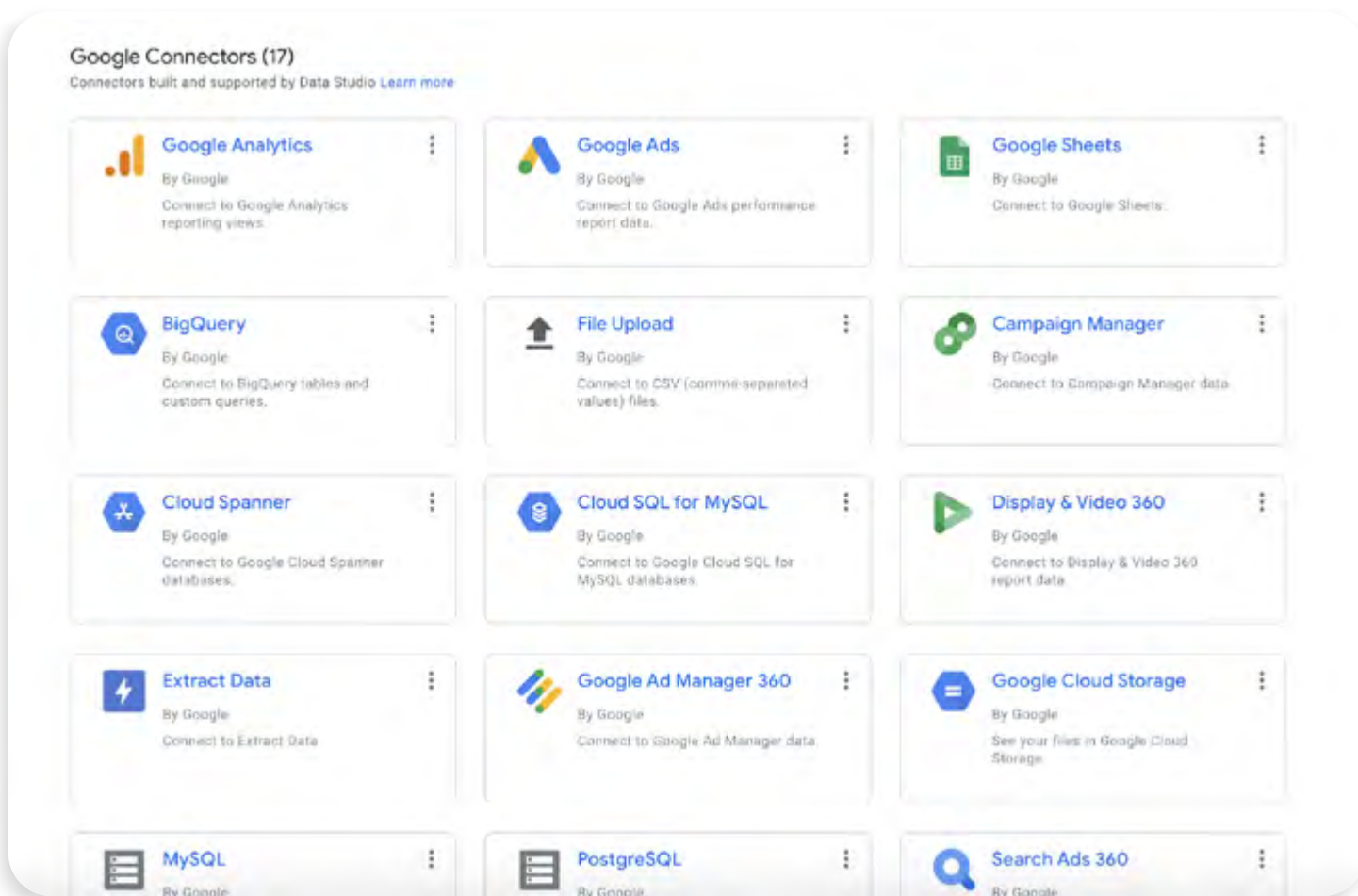Contact us at sales@cardinalpath.com

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# Data Sources

## What data sources connect to Data Studio?

The first step is connecting to the underlying dataset. Data Studio provides native connectors with a variety of Google marketing products like: Google Analytics, Google Ads, and Google Campaign Manager. If you have already built a spreadsheet, you can connect to it directly with the Google Sheets connector or use the File Upload option to connect to a CSV file.

If you need to connect to a non-Google product, check out the Partner Connectors section on the Data Source pane.

Many ad platforms have pre-built connectors that you can leverage, although be aware that some may require payment.

If you still can't find what you're looking for, you can build your own data connector! Visit Google Data Studio for Developers to learn how to build, deploy, and publish a community connector.

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## Creating and Managing Data Sources

When connecting a data source there are a few key components that you will need to consider to ensure you are able to create and view the charts and graphs you need, manage who has access to the data sources, and to be able to modify the data types in the event something is imported incorrectly.
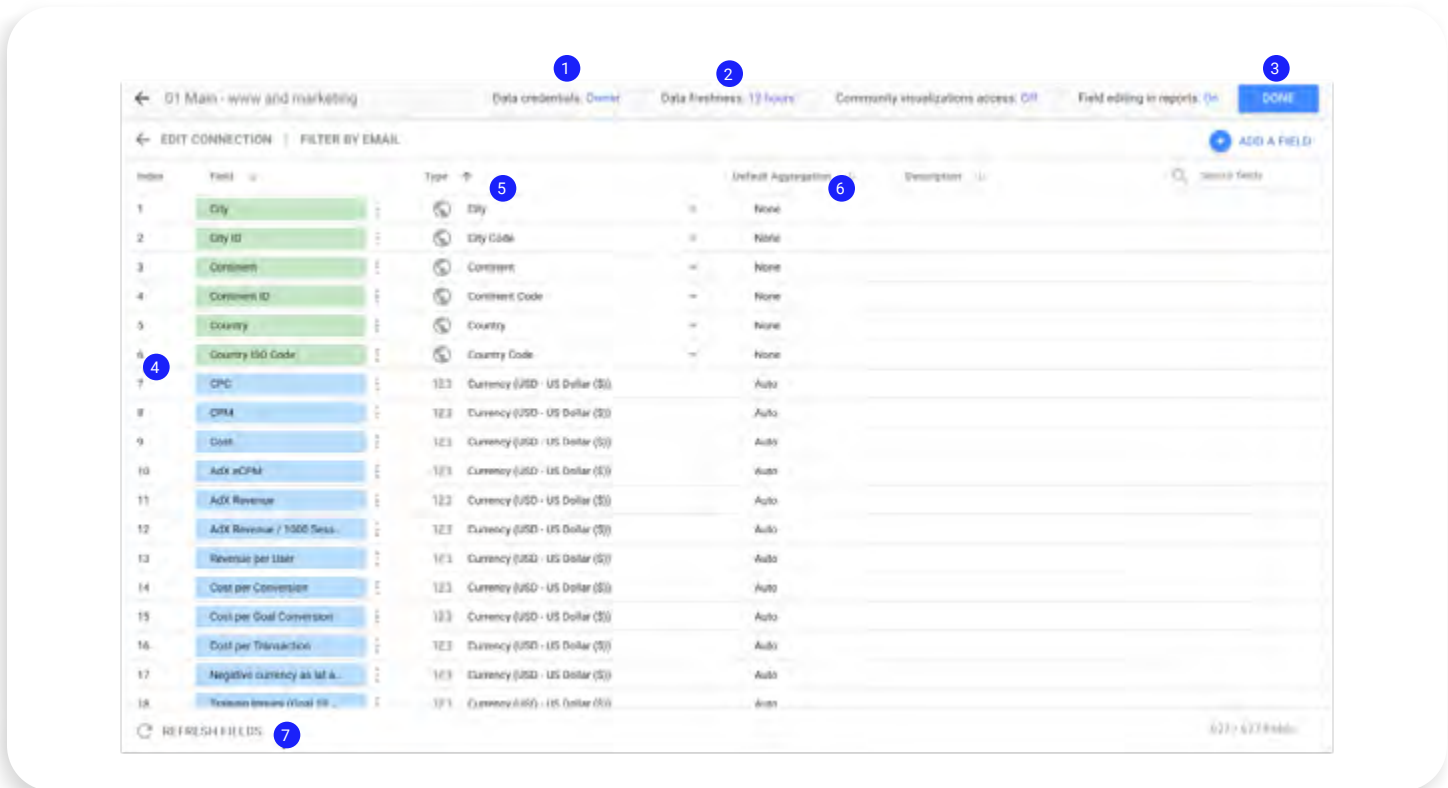


**1**   **Data Credentials:** Keep your data safer by specifying Data Credentials. Selecting "Owner" embeds your data access directly into the report and doesn't require viewers to also have access to the underlying data set. Alternatively, selecting "Viewer" **does** require viewers to have access to the underlying data. If your data is highly sensitive and your dashboard will only be available to a few select individuals, you might consider setting "Viewer" access.

**2**   Select "Owner" if you want other people to view or create reports that use this data without requiring them to have direct access to the underlying dataset. Selecting "Viewer" requires all viewers of the dashboard to have access to the data set.

**3**   **Data Freshness:** Are you using your dashboard to access real-time data or just checking in periodically? Data freshness refers to how up-to-date your data is and depends on the connector you're using. Connectors have different default refresh schedules and refresh options. For example, Google measurement products like Google Analytics and Google Ads refresh every 12 hours whereas BigQuery refreshes every 12 hours by default but can be adjusted to every 1 hour or every 4 hours.

**4**   **Calculated Fields:** Use these to create new metrics and dimensions derived from your data. Check out the Data Studio Support documentation for a comprehensive list of functions to choose from!

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**5** **Dimensions and Metrics:** In Data Studio, a chart displays data from at least on of these two fields [dimensions or metrics](dimensions or metrics):

- **Dimensions** can be used to describe or categorize your data. Adding dimensions to a chart groups the data by those dimensions. Campaign name, Product ID, and Country are all examples of dimensions you might use to group the information in a chart. Any type of data can be a dimension, including a column of unaggregated numbers.

- **Metrics** help you to measure your dimensions. A metric is the result of an aggregated set of values. This aggregation could come from the underlying data set, or be the result of implicitly or explicitly applying an aggregation function, such as COUNT(), SUM(), or AVG().

**6** **Data Type:** Determines formatting of the values.

**7** **Default Aggregation:** Choose how the metrics should be aggregated at the Data Source level. You can also set this at the chart level or in a Calculated Field.

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# Key Components of a Data Studio Report

Once you've connected to a Data Source, your next step is to build the report. There are two primary components that make up your Data Studio report: charts and pages.

### Chart

### Page

### Report



## Charts

Charts are the building blocks of your Data Studio report and are used to visualize your data. Data Studio comes with pre-built chart templates for you to use and customize as needed.

To add your first chart, simply navigate to the toolbar, select "Add a chart",  and select your desired chart type. If the amount of choice feels overwhelming, fear not! We'll cover some best practices for choosing charts later in this Playbook.

*Sample Data Studio report*

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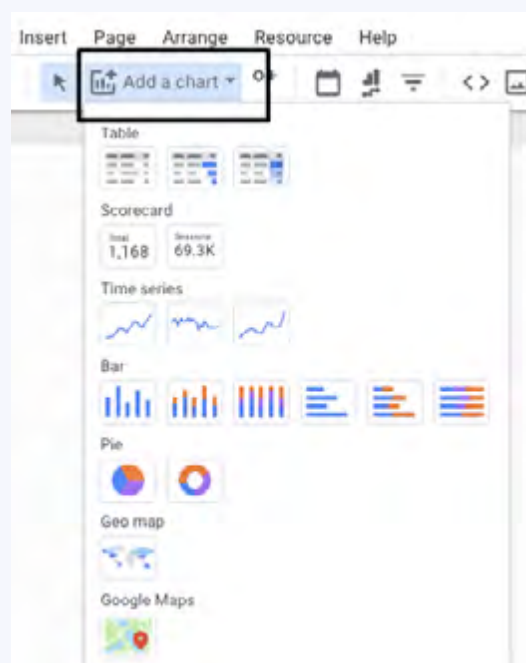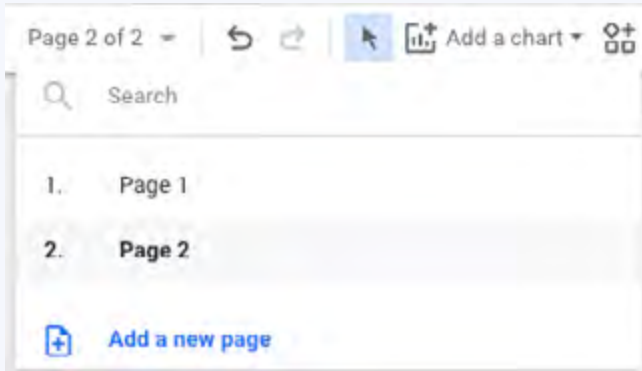
*Screenshot taken from a sample Data Studio dashboard*

**Pages**

Your Data Studio report might be a single page, like an Executive Summary, or multiple pages broken out into different sections, that tell a bigger story.

Using pages to organize the content of your report minimizes the clutter on any given page and makes for a better user experience.

To add a new page to your report, click on "Add a new page" in the upper left-hand corner. To rename the page, click the three dots next to the page title. From this area, you can also duplicate a page, remove it, or hide it in View mode. Duplicating a page will copy the page formatting and the charts on the page.

# Prepare for Your Reports

Data Studio is quite simply the visualization layer of your report. It will blatantly represent your data, warts and all. It's important to establish good data practices prior to showcasing data sets in a report. Take some time to prepare for your report with these steps.

### Step 1: Start with a Measurement Plan

A measurement plan helps to align business objectives with your data and ensure your report is answering the right questions. If you don't already have one, take an inventory of your KPIs tied to business objectives. Depending on the type of dashboard you've been tasked with creating, you might ask yourself some of these questions:

1. **What is the business objective we are trying to solve for?** This is the focus of your dashboard and what all the components should ladder up to. If you want to include a chart that doesn't align with the business objective, consider moving it out of the Executive Summary or eliminating it altogether.

2. **Are there any targets associated with this objective that should be visualized?** You may not always have targets associated with the objective, but if you do, progress toward them should be prominently displayed on the  dashboard.

3. **What initiatives are supporting this objective?** What tactics are you using to accomplish your objective?

Maybe you are running a marketing campaign or investing  budget in a few key influencers. The nature of the initiatives and campaigns that you are tracking will determine which metrics and dimensions are available for reporting purposes and what can be tied back to your business objectives.

4. **How are you measuring the success of the initiatives in meeting the business objective?** These are your KPIs or the metrics that will make up your report. You may still want to include metrics that aren't KPIs but your KPIs should have top billing.

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Using these questions as a guide, you may want to create an outline, wireframe, or just put a bunch of sticky notes up on your wall. Whatever your approach, a measurement plan will give you a jumping-off point for creating a dashboard that answers your business questions and provides value to your stakeholders.

## Step 2: Keep the Audience Top-of-Mind

For a dashboard to be really useful, you need to understand your audience.

Are you building dashboards for C-level executives who are focused on revenue and growth, or for marketing managers who are concerned with the performance of their campaigns and acquisition channels? Maybe your small-to-medium sized business owners?

Your audience and their needs should inform how your dashboard looks and presents information, but more importantly, what metrics are being featured. To make your dashboards scannable and easy to view, you might develop an Executive Summary to answer the top-line questions and then use individual pages to drill into more specific areas.

You should also consider frequency. How often do your stakeholders need to access the reports? If you know your CEO wants an Executive Summary on a monthly basis but your Marketing team needs daily information about an important campaign, you'll likely need to design two separate dashboards.

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# Visualization Best Practices

Have you ever seen a data visualization or report that just doesn't work? Maybe it felt too busy, too confusing, too disorganized, or it missed the mark in other ways. No matter what reporting tool you're using, there are some data visualization best practices you should employ as a matter of course. We've boiled down the top five ways to help you stand up a dashboard that people will want to use.

## 1 Choose the best visual for your data

Steer clear of complexity.  Visualizations are meant to deliver complex information in a simple, engaging way. Choose a chart that is easy for your audience to understand and tells the story most effectively. Below are four visualization types to  become familiar with:
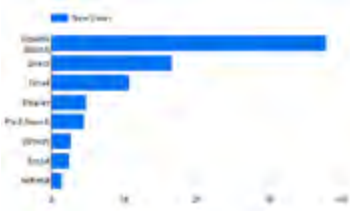


**Bar Chart**
Used to visualize categorical data alongside a single metric.



**Line/Time Series Chart**
Used for identifying trends over time or comparing metrics within a period.



**Scorecard**
Quickly visualizes an aggregate of a metric and an optional comparison of a previous period.



**Table**
Ranked data set with multiple dimensions and metrics. Although these are **not** ideal for visual consumption, you can use features like color, heat-mapping, or bars to enhance a flat table.

While these are the most common visualization types, there are plenty more out there. Below are some resources that explore chart types in more depth.

- The Wall Street Journal Guide to Information Graphics by Dona M. Wong
- Good Charts by Scott Berinato
- "Chart Suggestions: A Thought Starter" by Andrew Abela

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## ❷ Blank space is your friend

A mistake many new designers make is crowding a dashboard with as much information as possible. But clutter achieves the opposite of what the dashboard intends. Your layout should be intentional and clearly guide the end-user through the story.

Consider the following two examples:



**Dashboard A** makes use of a consistent layout and good spacing between charts, whereas



**Dashboard B** feels overly cluttered with little space between scorecards.

Consider dividing up the pages in your dashboard with a consistent interface. Don't be afraid to leave space between the elements. The goal **is not** to fill up the page with every possible metric.

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### 3 Consider color

*"Consistent and meaningful use of color makes your reports more attractive and easier to understand."* - Data Studio

Color is important because it allows you to set the mood, guide the viewers' eye, and tell a powerful story. Color should be used thoughtfully and strategically. Here are some tips for how to use color effectively:

Use a consistent color scheme. There are plenty of palette examples online including Learn UI Design.

**DATA STUDIO TIP:** Your company probably has a preferred color palette. If you need to incorporate that into your dashboard, add those colors to the Data Studio report theme before you start building. (Data Studio support article on Themes)

When comparing subsets of data to the whole, use contrasting colors. You might use grey for everything except the item you are calling attention to.

Be aware of color blindness. Avoid using red and green in the same display. (To learn more about color blindness in data visualization, check out this fantastic blog post from Tableau)
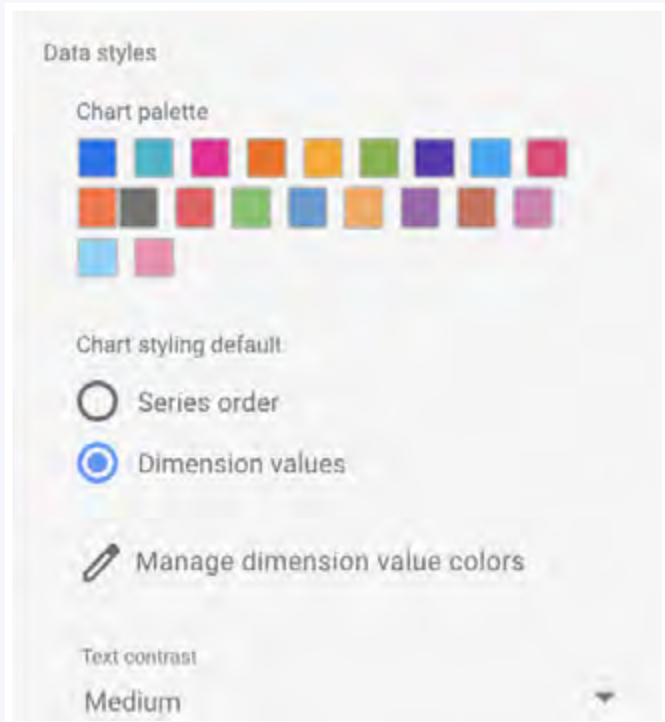
### 4 Incorporate interactivity but don't rely on it

Interactivity is a great way to engage users. Allowing them to customize data gives them control over the insights they take away from it.

Again, consider your audience. An executive might just want the high level information and interactivity could prove frustrating. A Marketing Director, on the other hand,might be really interested in diving into the data and even customize the dashboard experience.
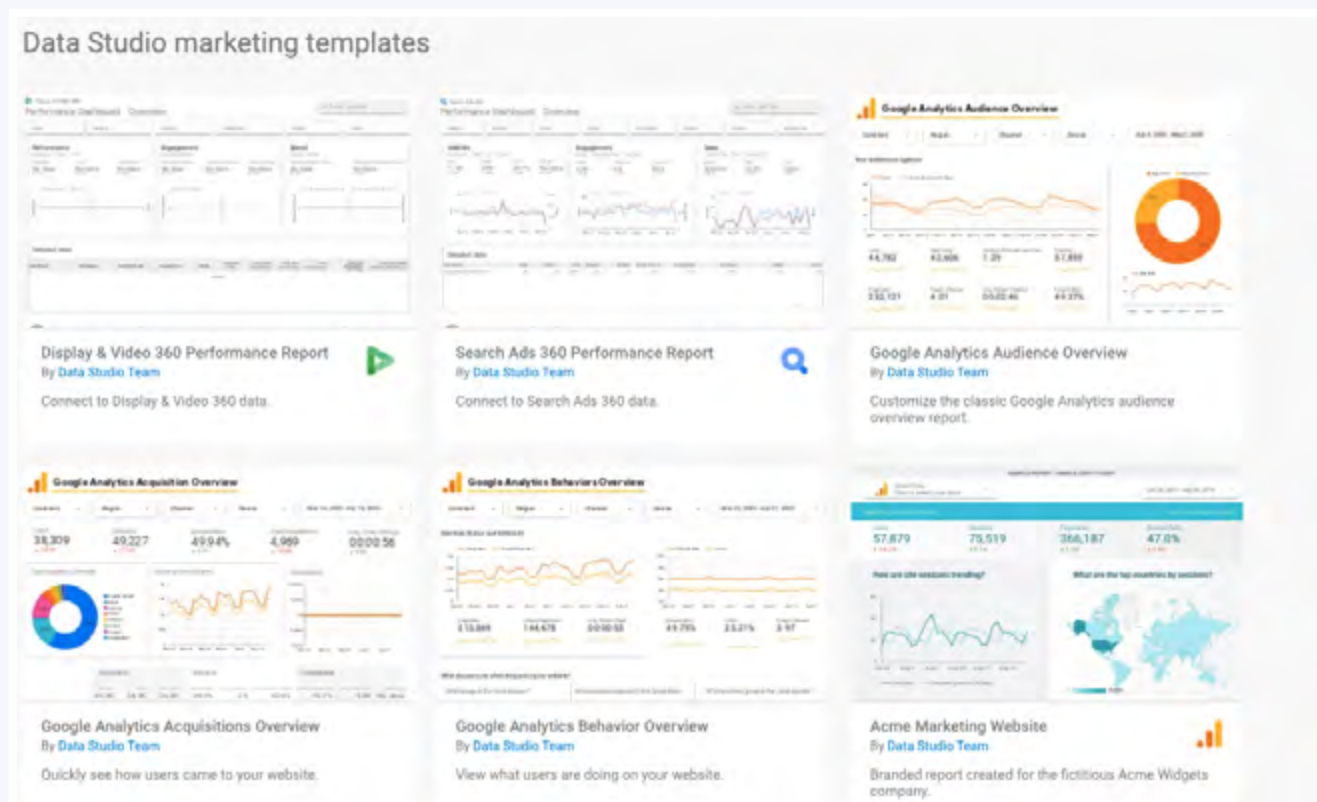
It's important to educate the end-user about how to engage with the dashboard. Some features may not be obviously interactive and could be missed. A small text annotation beneath a filter can go a long way.

Your story should come across with or without interactivity. Use interactivity to enhance your data story rather than relying on it to tell the story.

**Data Studio Tip:** Filter controls enable users to select values from a list of dimensions and have their charts automatically update with their selection. You might have a consistent set of filters across each page of your dashboard or have chart-specific filters. Some chart types feature Optional Metric toggles or Metric sliders for an extra layer of interactivity.

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## 5 Work smarter, not harder

Before you set about creating a custom dashboard, spend some time reviewing public dashboards on your tool of choice. Data Studio has a great Report Gallery with Marketing Templates, Featured Dashboards, and community-submitted reports. Many of these are "plug-and-play" templates which just require you to associate your own data source. Once you've swapped out the data source with your own, your data will flow right in. It's unlikely that a template will serve 100% of your needs but using one can save you lots of time in initial setup and formatting.

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# Working with Your Data

Among Data Studio's many excellent features, these are two you should get to know intimately:

### Filters

Filters allow you to isolate information in your dataset and get specific with your visualizations. Filters don't change your underlying data; they just reduce the amount of data shown in your report. Filters work by **Including** or **Excluding** data according to the conditions you set.

**Filter Examples:**

- Include Channels with Sessions >= (greater than or equal to) 25
- Include records with Region equals New York
- Exclude Landing Pages matching RegEx (\/|\/blog|\/contact-us)

Filters can be applied at different levels of your report, including at the Chart Level, Report Level, and Data Source Level. Additionally, filters can be interactive controls.

### Calculated Fields

Create new dimensions and metrics based on your underlying dataset. With calculated fields, you can:

- Perform basic mathematical operations
- Use functions to manipulate your data
- Create groups of values

You might use a Calculated Field to calculate Conversion Rate or organize a set of values into buckets.



*An example Calculated Field from a Data Studio report*

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# Sharing Reports

Once you've finished your dashboard, you'll likely need to share it with others. Data Studio makes it easy to create and share reports but you'll need to safeguard your dashboard against unintentional "breaking".

Be mindful about who gets Edit access to the Report and even more mindful about who gets Edit access to the Data Source.

View access is probably right for most users, and won't allow them to mistakenly alter the underlying dataset. . ranting access to specific individuals instead of making the link publicly available is another good way to maintain dashboard integrity.

You don't need a Google account to view a dashboard and this means your data could get into the wrong hands. Even without the ability to  edit the data source or the visualization, your information must still be kept secure.

For more information on sharing, refer to the Data Studio support documentation.

# Additional Resources

Data Studio can be a fun and rewarding experience - especially when users are engaged and able to make important business decisions from dashboard insights. As you grow your Data Studio skillset, check out the following resources:

• Cardinal Path Webinars on Data Studio: Part 1 and Part 2

• Data Studio Video Tutorials

• Cardinal Path Dashboarding Checklist

• Data Studio on Reddit

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