10 Best Practices for
Building Effective Dashboards

A well-designed dashboard is a powerful launch point for data-driven conversations. Armed with the same collection of information, your business makes faster decisions based on a single source of truth.

A great dashboard's message and metrics are clear, its color enhances meaning, and it delivers the most relevant information to your audience. So how do you build dashboards for your organization that live up to this promise?

It really comes down to three things: thoughtful planning, informed design, and a critical eye for refining your dashboard.

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Thoughtful Planning

1. Know your audience

The best dashboards are built with their intended audience in mind. This doesn't happen by accident. Ask yourself, who am I designing this for? Is it a busy salesperson with 15 seconds to spare for key performance indicators, or is it a team reviewing quarterly dashboards over several hours?

It's also important to know your audience's level of expertise with the subject matter and data. For example, a beginner might need more action-oriented labelling for filters or parameters than an advanced user. If you don't know a lot about the audience, start by asking questions about their priorities and how they consume data to inform the best way to present the data. Remember that you can always create more dashboards. The best approach is to start simple.


A financial team tasked with reviewing high-level information about international tourism income could easily use this dashboard.

2. Consider display size

If you build a dashboard solely for a desktop monitor, but your viewers primarily use their mobile phones to consume data, you're probably not going to have a very satisfied audience. Do some research up front to understand how your audience's habits might inform your dashboard design.

Surface the most important KPIs: Remember that your audience won't always be able to drill down on a small screen, so when you design for mobile phones or tablets, show only the most important metrics. In practice, this means creating dashboards with elements that are easy to click and have limited, intentional interactivity.
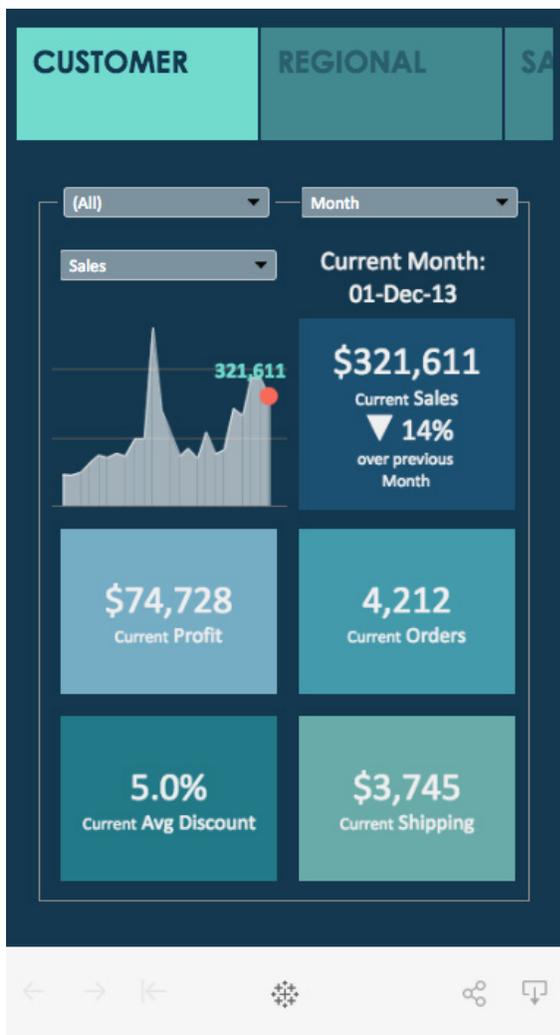
In this dashboard, there are no more than three interactions. This simplicity reduces confusion and helps with overall user experience on mobile.

Stack content vertically for phone screens: Most people use their phones in portrait mode. Unless you need to show a wide map view or timeline, prioritize optimizing your dashboard vertically for phones.

In Tableau, phone layouts are automatically generated whenever you create a new dashboard, arranging the dashboard's contents algorithmically in a phone-friendly manner. You can also choose the "Edit layout myself" option to manually add and arrange items to reflect changes to the Default dashboard. To see how your dashboards appear on different devices, review and add device layouts with Device Preview.

3. Plan for fast load times

Even the most beautiful dashboard won't have an impact if it takes too long to load. Sometimes long load times are caused by your data, your dashboard, or a combination of the two.

Some of the most critical decisions you make as an author begin in the data preparation stage before you even create your first view. Wherever possible, especially on production views, perform calculations in the database to reduce overhead. Aggregate calculations are great for calculated fields in Tableau, but perform row-level calculations in the database when you can.

Determine if you need to limit the amount of data surfaced in your dashboard, either by creating filters on a data source or creating an extract. Extracts are typically much faster than a live data source, and are especially great for prototyping. Keep in mind that extracts are not always the long-term solution. When querying against constantly-refreshing data, a live connection often makes more sense when operationalizing the view.

For more optimization tips, learn how to Optimize Workbook Performance in the Online Help. Knowing Tableau's Order of Operations may also help you shave time off your load times.

Informed Design

4. Leverage the sweetspot

Always consider how your audience will "read" your dashboard. Your dashboard should have a sensible "flow" and a logical layout of different pieces of information.

As you design your dashboard, consider the parts that form logical groups and use your design to group them together. Shading, lines, white space, and color are all useful ways to make the connections.
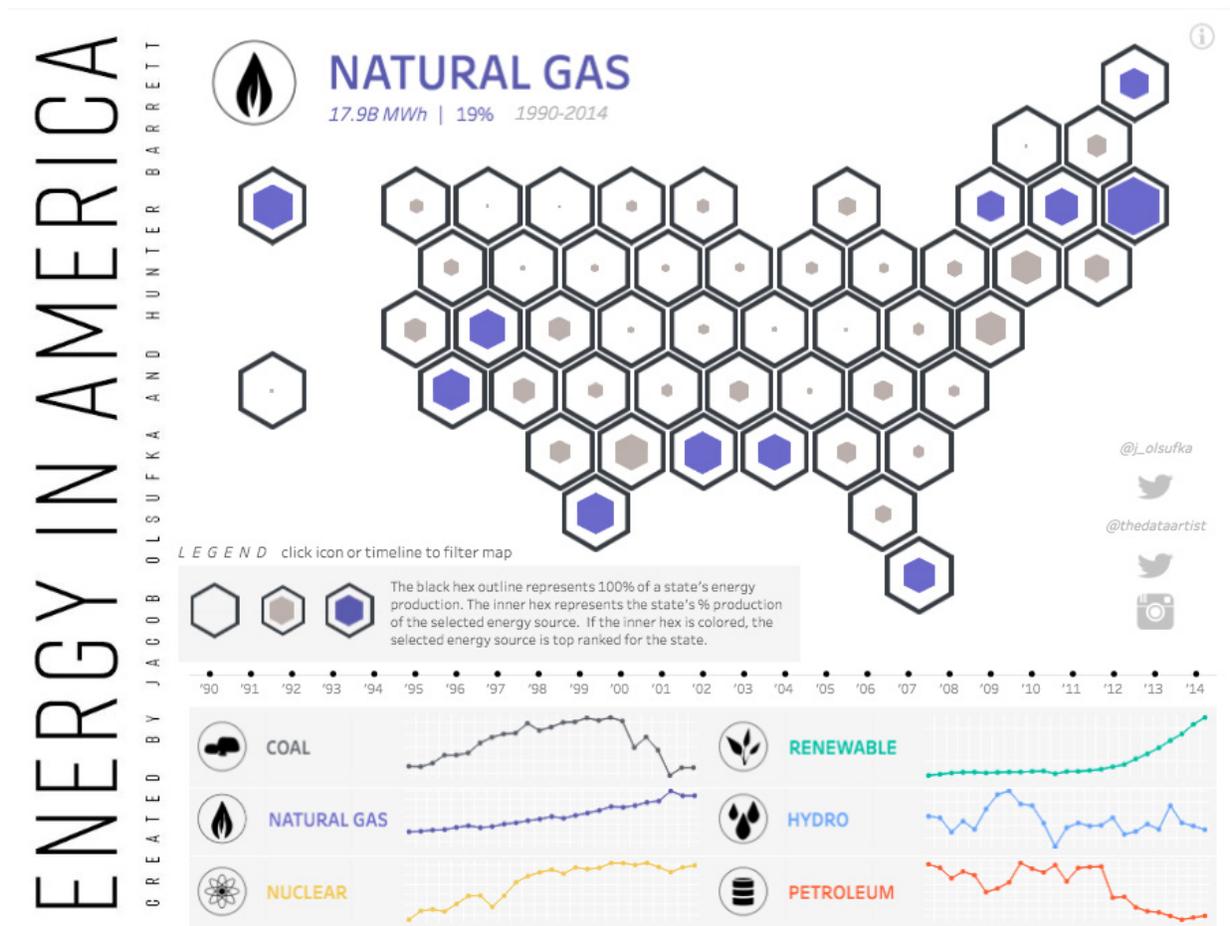
Jacob Olsufka grouped the hexes closely so we easily perceive the map of the United States. He also gave the legend and supporting text a common background, and grouped the social icons using proximity.

Most viewers scan web content starting at the top left of a web page. Once you know your dashboard's main purpose, be sure to place your most important view so that it occupies or spans the upper-left corner of your dashboard. In the dashboard above, the author decided that the header and the map view hold the key messages.

5. Limit the number of views and colors

It's easy to get excited and want to cram your dashboard with every relevant view. But if you add too many, you'll sacrifice the big picture. In general, stick to two or three views. If you find that the scope needs to grow beyond that, create more dashboards or use a story—a sequence of visualizations that work together to guide the viewer through information.

Just like you can have too many views, you can also have too many colors. Color used correctly enhances analysis. Too many colors creates visual overload for your audience, slowing analysis and sometimes preventing it.
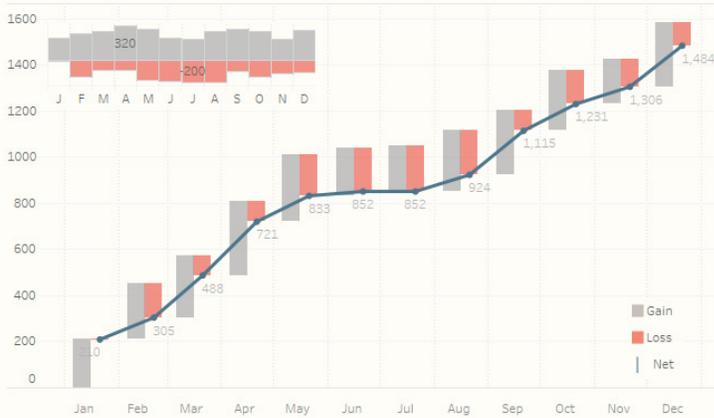
Here's a before-and-after for a dashboard about subscriber churn.

This "before" version uses harsh, more saturated colors and inconsistent shading, making it much harder for the viewer to see the relationship between the charts.
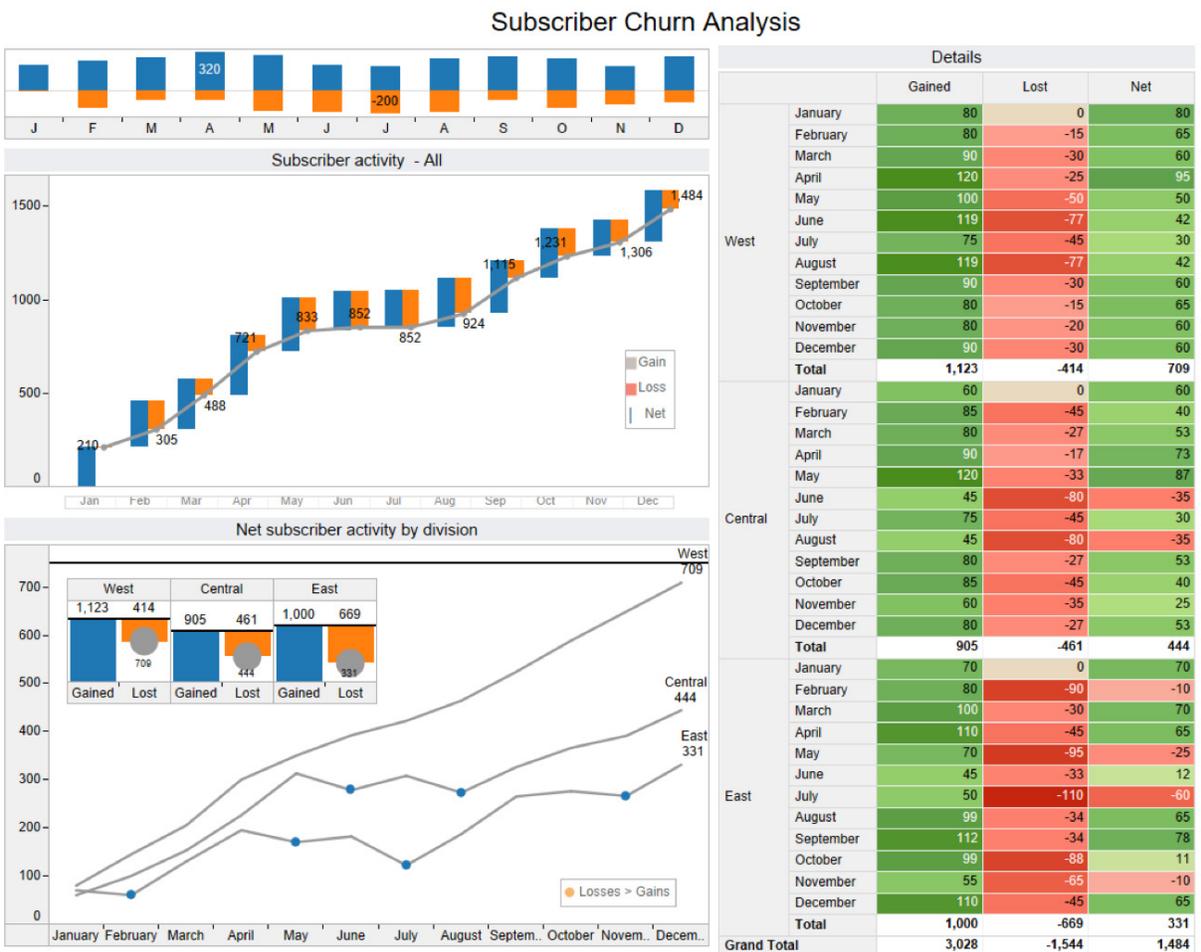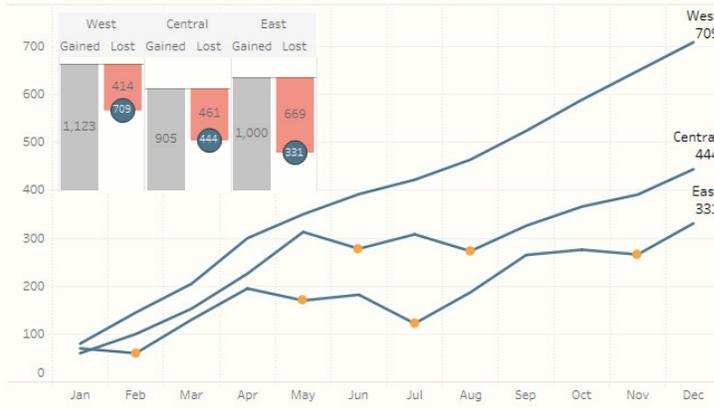
Subscriber Churn Analysis

Subscriber activity - All


Net subscriber activity by division

Details

		Gained	Lost	Net	Runn
West	January	80	0	80	
	February	80	-15	65	
	March	90	-30	60	
	April	120	-25	95	
	May	100	-50	50	
	June	119	-77	42	
	July	75	-45	30	
	August	119	-77	42	
	September	90	-30	60	
	October	80	-15	65	
	November	80	-20	60	
	December	90	-30	60	
	Total	**1,123**	**-414**	**709**	
Central	January	60	0	60	
	February	85	-45	40	
	March	80	-27	53	
	April	90	-17	73	
	May	120	-33	87	
	June	45	-80	-35	
	July	75	-45	30	
	August	45	-80	-35	
	September	80	-27	53	
	October	85	-45	40	
	November	60	-35	25	
	December	80	-27	53	
	Total	**905**	**-461**	**444**	
East	January	70	0	70	
	February	80	-90	-10	
	March	100	-30	70	
	April	110	-45	65	
	May	70	-95	-25	
	June	45	-33	12	
	July	50	-110	-60	
	August	99	-34	65	
	September	112	-34	78	
	October	99	-88	11	
	November	55	-65	-10	
	December	110	-45	65	
	Total	**1,000**	**-669**	**331**	
Grand Total		**3,028**	**-1,544**	**1,484**	

This revised version of the same dashboard has a modern design with minimal colors, creating a gentle formatting.
Subscriber Churn, The Big Book of Dashboards

As addicting as it is to customize dashboards, avoid adding unnecessary objects that get in the way of your dashboard's capacity to quickly inform your audience.

# 6. Add interactivity to encourage exploration

The power of dashboards lies in the author's ability to queue up specific views for side-by-side analysis. Filters super-charge that analysis and engage your audience. For example, you can have one view—your most important one—act as a filter on the other views in the dashboard. To do this, select Use as Filter from the view's shortcut menu.
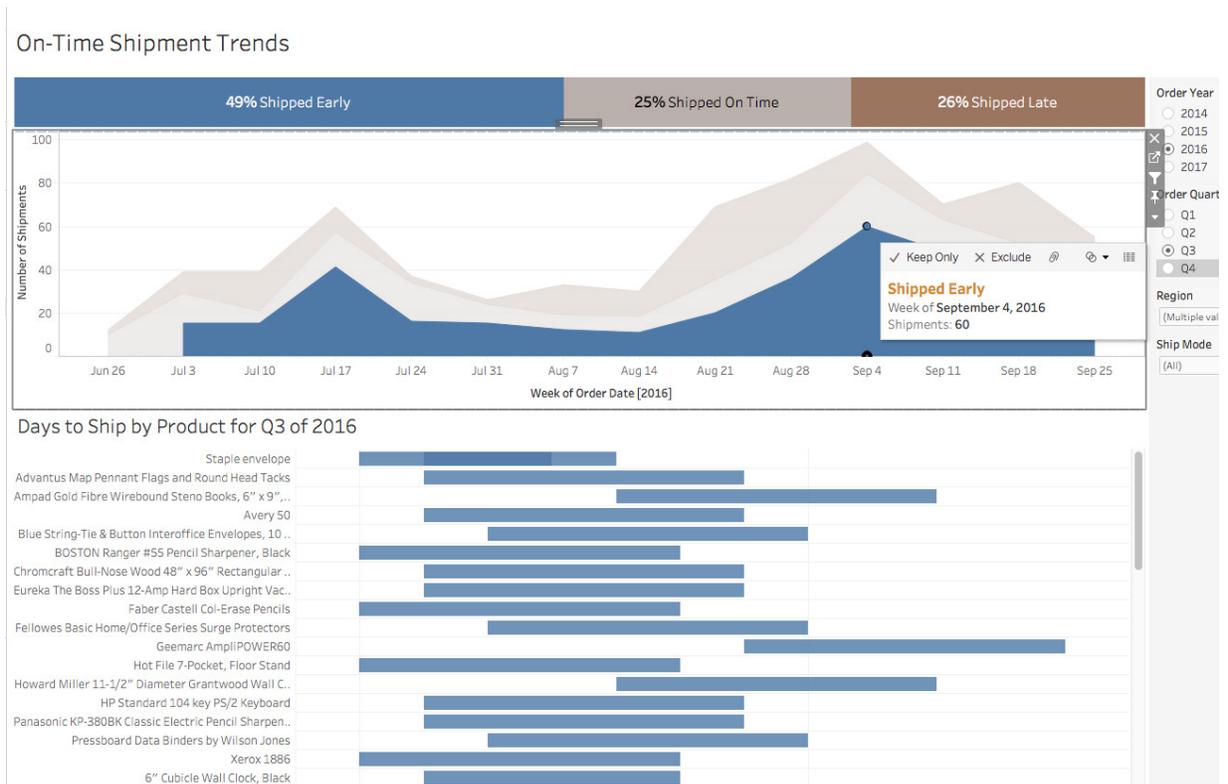
This dashboard uses the area chart as a filter. When you click on the area chart, the bar chart below filters to only show the data classified as "Shipped Early," allowing the audience to dig into the data that is relevant to them.

You can also display filter cards for different types of data. For example, show filters as multi-select checkboxes, single select radio buttons, drop-down lists, etc. You can include a search box and edit the title of your filter to give your viewers clear instructions for interacting with the data.

Highlight actions are another powerful feature you can leverage, where a selection in one view highlights related data in the other views. For more advanced scenarios, you can use set actions or parameter actions to add deeper levels of interactivity.
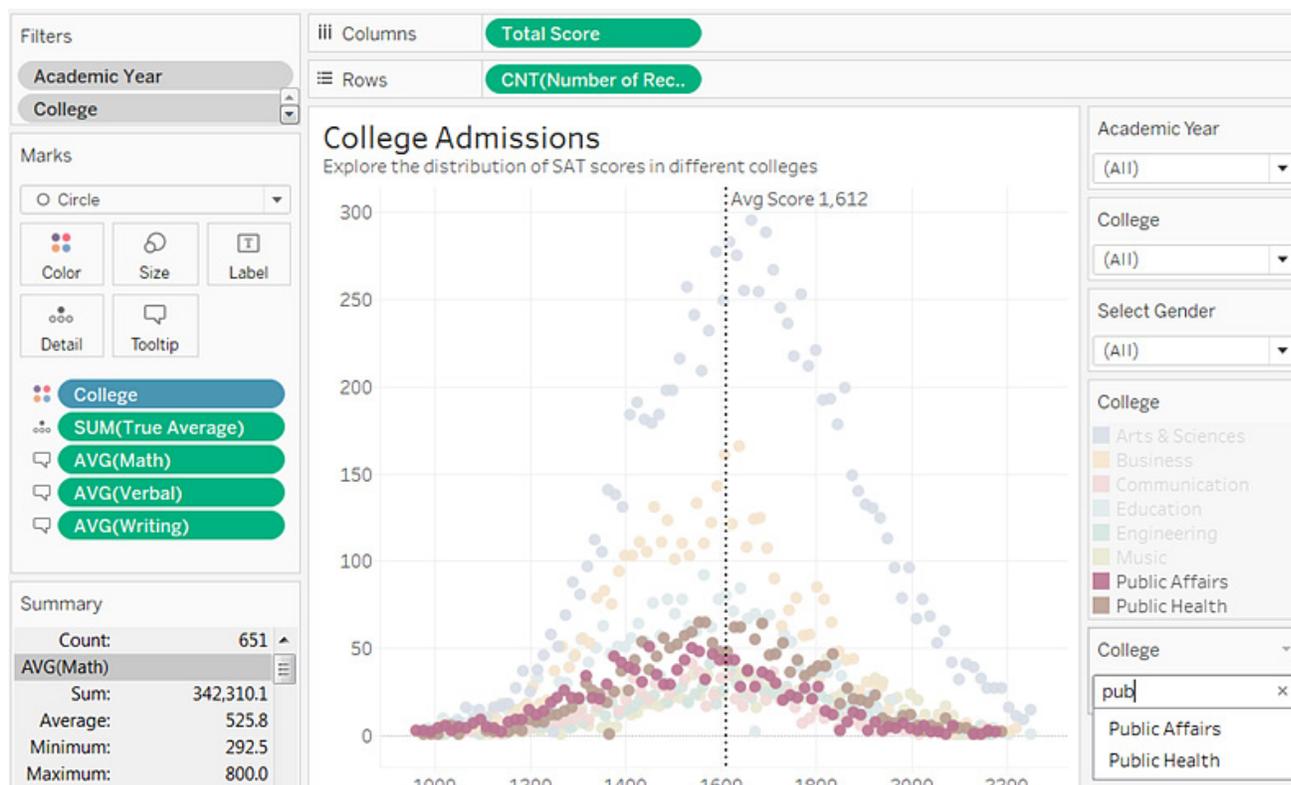
This visualization uses Highlight Actions to increase interactivity. Searching "public" in the wildcard filter highlights the categories of colleges—in this case, public affairs and public health.

7. Format from largest to smallest

As you change the look and feel of your work, use a "largest to smallest" workflow. This will help you work quickly and keep you from accidentally overwriting your changes.

From a formatting perspective, the hierarchy of a dashboard looks like this:

1. Theme

2. Workbook

3. Worksheet

Start by confirming that you're using the right theme (Tableau's latest and greatest is always called Default). Choose one by going to Format > Workbook Theme.

The next step is to format at the workbook level. Here, you can change fonts, titles, and lines across your entire workbook.
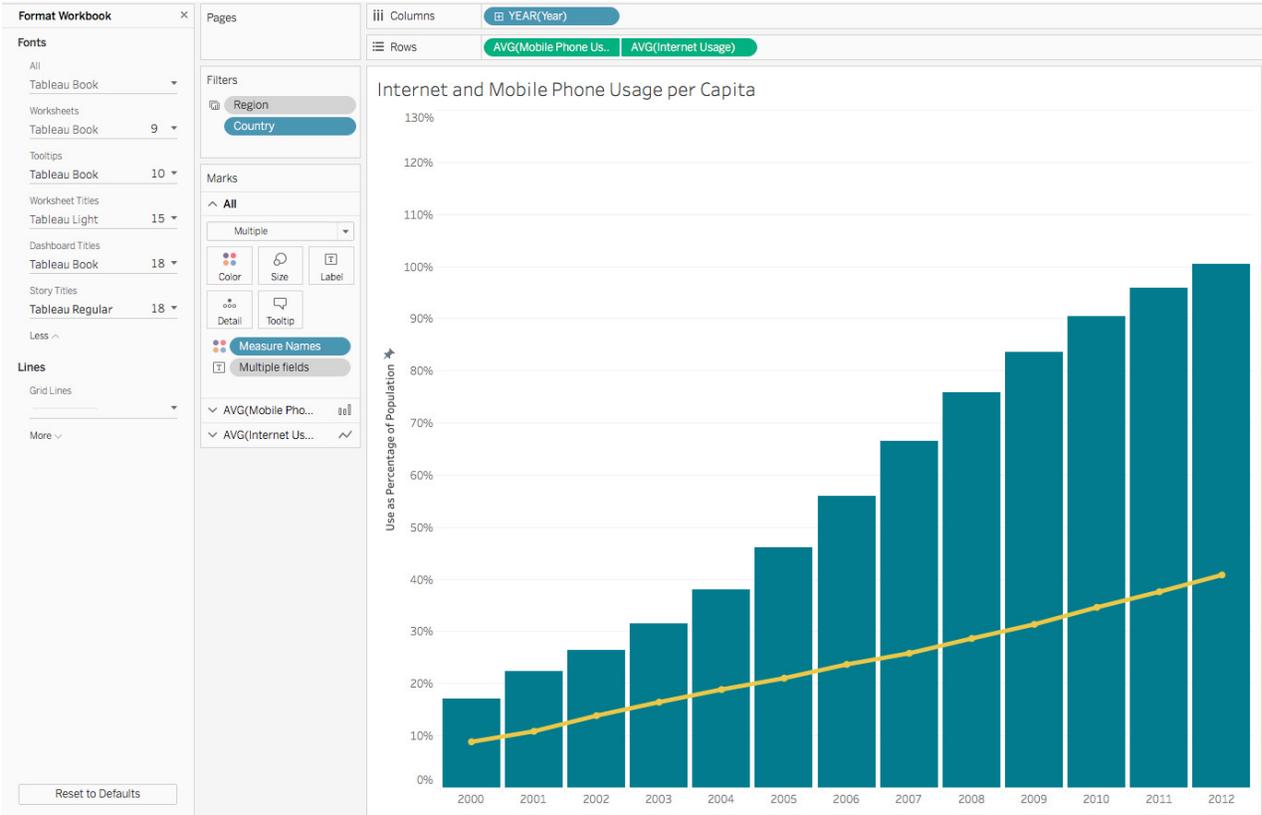
Create consistency with formatting. Select Format > Workbook in Tableau to adjust the formatting for your entire workbook

Finally, move on to the worksheet level. For example, you might want to remove all the borders in a text table or add shading to every other column in a view. Save this step for last because when you make formatting changes at this level, they apply only to the view you're working on.

For tips on how to quickly give your dashboard a new look, including how to use your own custom fonts and colors, check out Rebrand a Dashboard in the Online Help.

Refining your dashboard

8. Leverage tooltips, the story within your story

Once you're done with the main design work, take a look at your tooltips. Tooltips are a fantastic opportunity to reinforce the story you're trying to tell with your dashboard. They also add helpful context to your view. Tableau populates a view's tooltips automatically, but you can easily customize them by clicking Worksheet > Tooltip.

Just like you want to put your most important view in the upper left of your dashboard, you want the most important elements of your tooltip to be at the top.

For example, let's say we're looking at a visualization showing international tourism by region and country.


At first glance, the tooltip on the left doesn't tell me what I need to know—what is the international tourism income for each country, related to its overall GDP?

When revised, this tooltip emphasizes the most important elements—the country, it's inbound and outbound tourism dollars, and the GDP of the country.

You can also use the Viz in Tooltip feature to augment your dashboards and stories with relevant data without introducing more clutter. With Viz in Tooltip, place visualizations of your own design into tooltips, revealing them on hover or selection of individual marks. The data in the viz is automatically filtered to the mark you hover on or select, giving you and your users precise views of the pertinent data. As always, make sure that the visualization is enhancing, not distracting from the contents of your dashboard. When in doubt, keep the rest of the dashboard simple and inform the user that they will get more context in the tooltip.
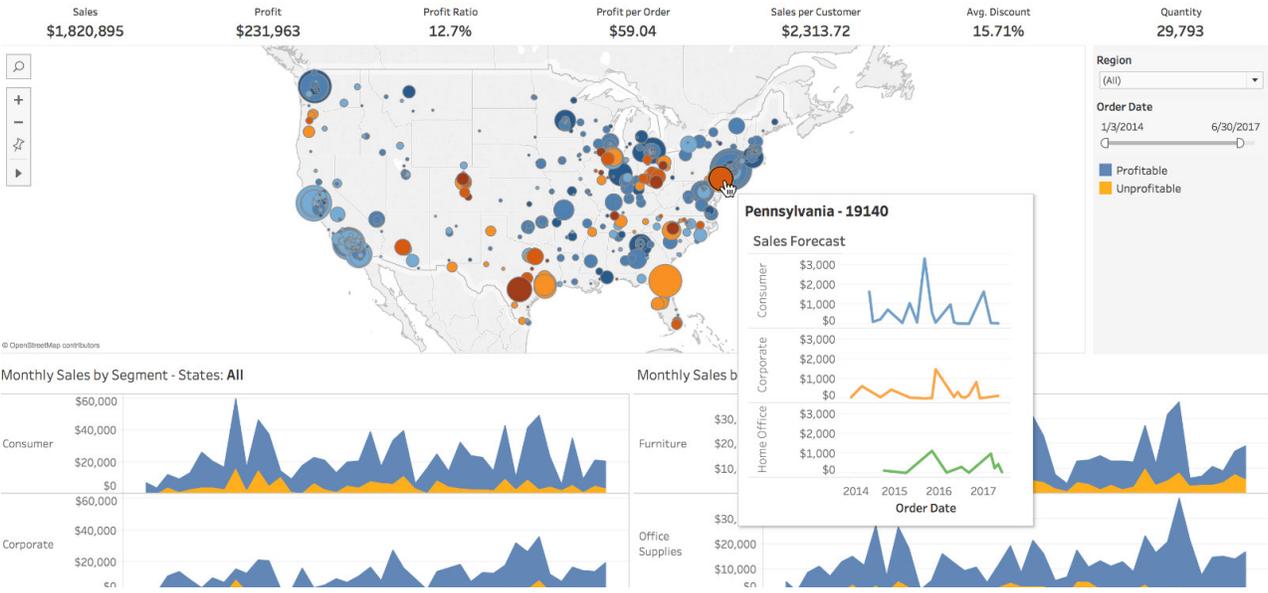
This dashboard leverages the Viz in Tooltip feature. When a user hovers over a mark on the map, the tooltip displays sales forecasts in each segment for that particular state. This adds context without crowding the dashboard.
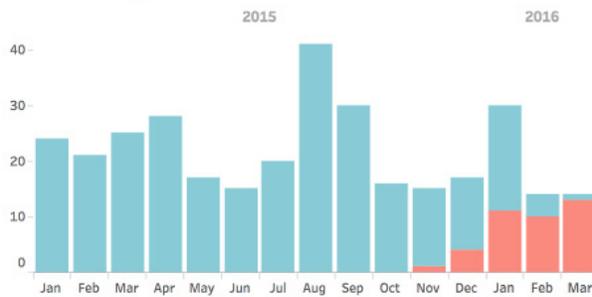
9. Eliminate clutter

Take a step back and consider your dashboard from the perspective of someone who's never seen it. Every element should serve a purpose. If a title, legend, or axis label isn't necessary, consider getting rid of it.

If your dashboard needs more white space, consider a floating layout. If you go this route, give your dashboard a specific, fixed size so that the item that you floated stays put if the window size changes.
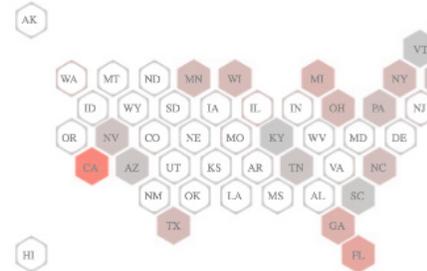

This dashboard is a good example of simple, clean design. When you eliminate clutter and simplify your colors and layout, it is much easier to find hidden insights because you aren't trying to sift through all of the individual elements. Complaints Dashboard, The Big Book of Dashboards.

Simplifying your dashboard design is often an iterative process, so keep going back to existing dashboards with fresh eyes. To start, look at the latest dashboard you created: does it have too much on it? Is there anything you can remove or rearrange to add clarity?

10. Test your dashboard for usability

An important element of dashboard design is user testing. After you build a prototype, ask your audience how they're using the dashboard and if it helps them answer their pressing questions. Have they created their own versions of the dashboard? Are they digging into certain views and ignoring others? Use this information to tweak the existing dashboard or develop new ones.

As with any successful project, good testing is key. Learning how your dashboards are received will help inform future designs and influence how data is leveraged within your organization.

About Tableau

Tableau helps people transform data into actionable insights that make an impact. Easily connect to data stored anywhere, in any format. Quickly perform ad-hoc analyses that reveal hidden opportunities. Drag and drop to create interactive dashboards with advanced visual analytics. Then share across your organization and empower teammates to explore their perspective on data. From global enterprises to early-stage startups and small businesses, people everywhere use Tableau's analytics platform to see and understand their data.

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