



# Getting Value from Visualization

Visualizing data is a key step in analyzing data. Representing the data graphically allows you to identify trends, isolate outliers, and understand the data in a way that tables and summary statistics simply can't match.

That's why visualization is a core part of Looker's Data Platform.

As users are exploring data with Looker, we want it to be easy for them to see that data visualized in many different ways and seamless for them to share their visualizations with others.



## Architecture

Looker's visualizations are built using D3, a Javascript library that has quickly become the industry standard for building beautiful, interactive visualizations on the web. Looker's D3 visualizations provide enormous flexibility to users to customize their charts and graphs so they look just the way they want them to.

Looker also makes it easy to schedule and send visualizations wherever they need to go. No special setup or coding is needed to incorporate a visualization into a dashboard, schedule it to send periodically, or download it as an image or PDF.

Because Looker understands industry-standard Javascript visualization libraries, customers can easily go beyond the library of visualizations offered natively in Looker. They can leverage the D3, underscore (\_) and jQuery libraries to build out any specialized, [custom visualization](#) that they need.

## Mobile

Looker is a responsive web application written using Javascript HTML5. This means that Looker just works, no matter what screen size you're on. You don't need to build specialized apps for iOS and Android. The same Looker you access in your desktop web browser is the one that works beautifully on mobile.

Looker automatically detects when users are on a mobile or other touchscreen device and the application changes functionality to recognize taps, swipes, and pinches properly. Dashboards automatically reformat to a mobile-friendly version when you're on a smaller screen.



# Interactivity

While visualization is often a great place to surface interesting datapoints, the ability to drill further is a crucial feature for providing real business value. Visualizations are great at showing you what is happening, but if you can't easily ask why something is happening, visualizations end up hindering exploration.

That's why Looker visualizations are interactive, clickable, and drillable.



Because Looker charts are web-native, they retain their interactivity no matter where you access them--in Looker's BI tool, on your mobile device, or embedded in 3rd-party tools. And, by virtue of being on the web, Looker's charts can easily link to other charts, other dashboards, or even outside sites in dynamic ways.

This lets you easily construct drill paths that, for instance, let you start from a high-level chart, drill into one account manager's accounts, link from there to an account overview dashboard focused on one of those accounts, and then go to that account's page in your CRM, all with a couple of clicks.

# Chart Types

Many Looker users implement one of the [funnel Looker Blocks](#), which use column charts to demonstrate how users move through a series of actions. Showing percentage of previous is as easy as clicking a button in Looker, to see how each step of the funnel is converting.

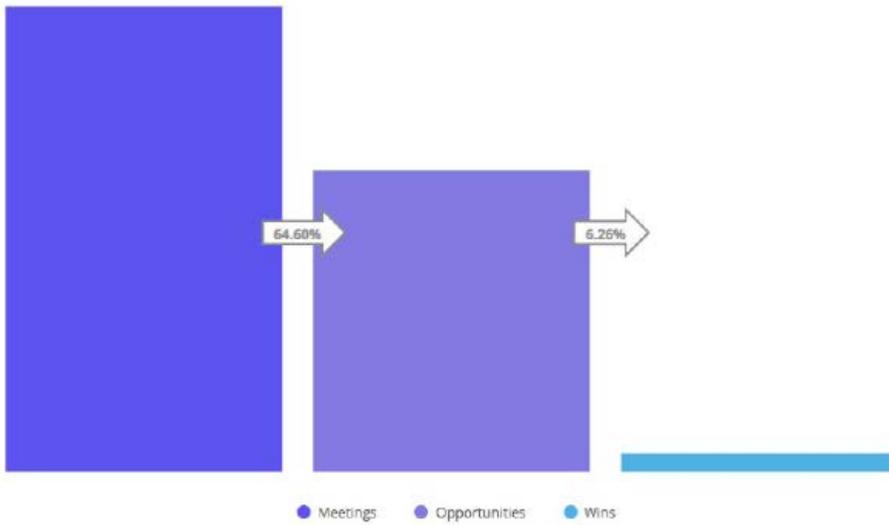
## Column Charts

Column charts are one of the most common chart types. Looker gives users a wide range of customization options, allowing users full control over axis scaling, colors, spacing, labeling, and much more.

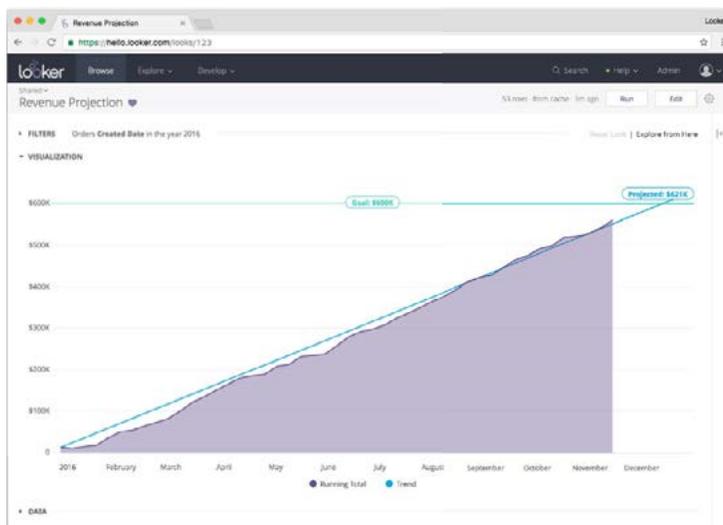


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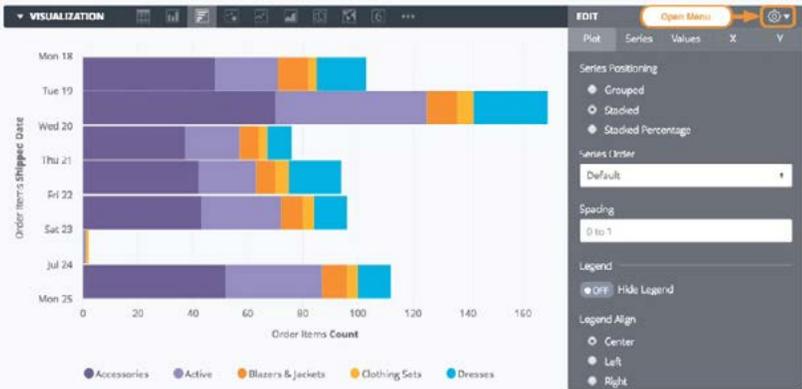
Users can also add trendlines to column charts in Looker to understand exactly how the data is changing. And using dimension fill, users can extend trendlines out to project the trajectory of the data in the future.



# Chart Types

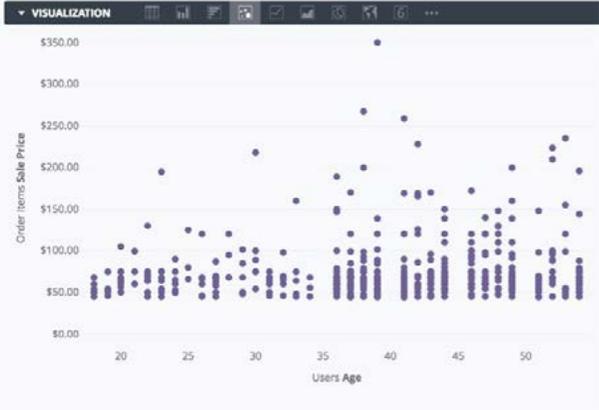
## Bar Charts

Bar charts are another popular way to visualize data, especially for results with a large number of categorical dimensions. Looker provides all the same customization options for bar charts as for column charts.



## Scatter Charts

Scatterplots are great for understanding how a large group of data points are distributed. Looker’s scatterplots make it easy to customize the look, distribution and labeling of points, and upcoming releases will allow users to plot many dimensions simultaneously by mapping points’ size, color, and shape to different dimensions.

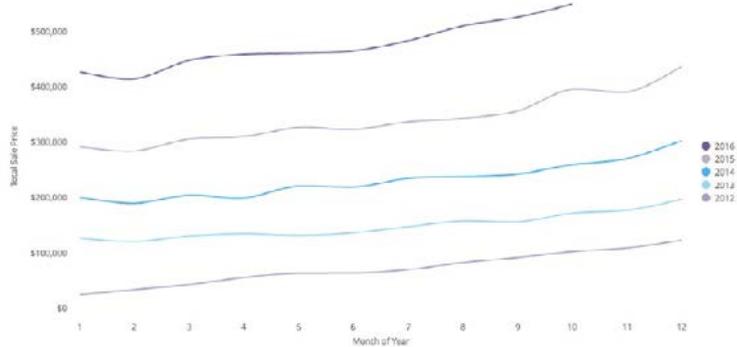


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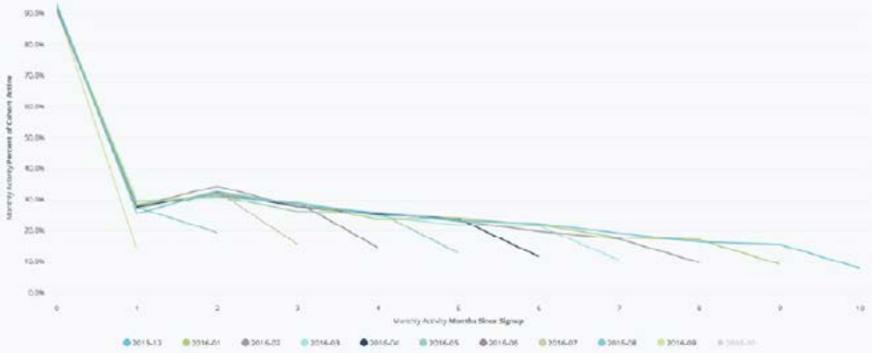
## Line and Area Charts

Line charts present all of the same customizability options as Looker’s other core chart types, as well as options on how lines are interpolated and what kinds of markers (if any) are used for the data.

Line charts present an ideal chart type for presenting multiple series and comparing them and are especially useful for demonstrating change over time.



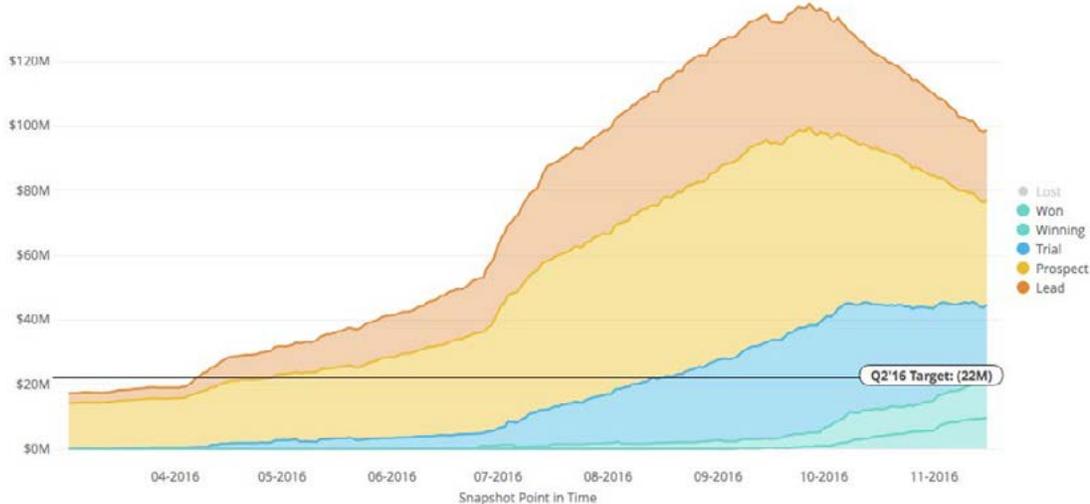
Line charts can also be used for analyzing how different cohorts perform against each other.



Like line charts, area charts can be used to show changes over time and can be customized to present data in a stacked or stacked percentage format. Adding reference lines, as in the example below, gives additional clarity to chart viewers.

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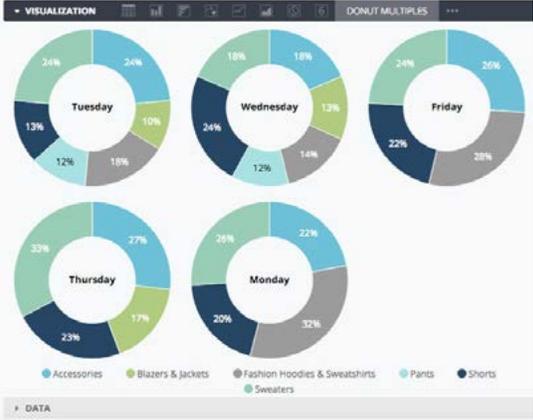
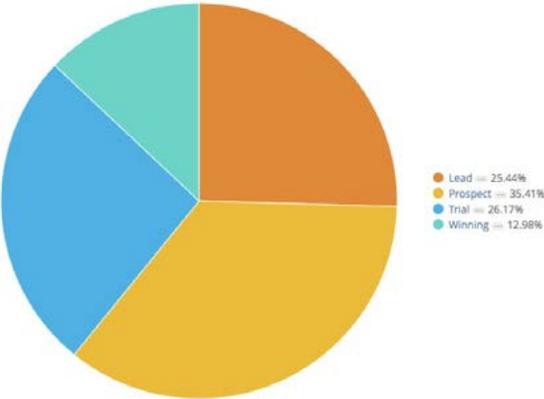
Looker also makes it easy to combine chart types for additional customization.



# Chart Types

## Pie Charts and Donut Multiples

When visualizing data that represents parts of a whole, pie charts are often the simplest way to show the data's constituent parts. Looker offers highly customizable, interactive pie charts to represent that data.

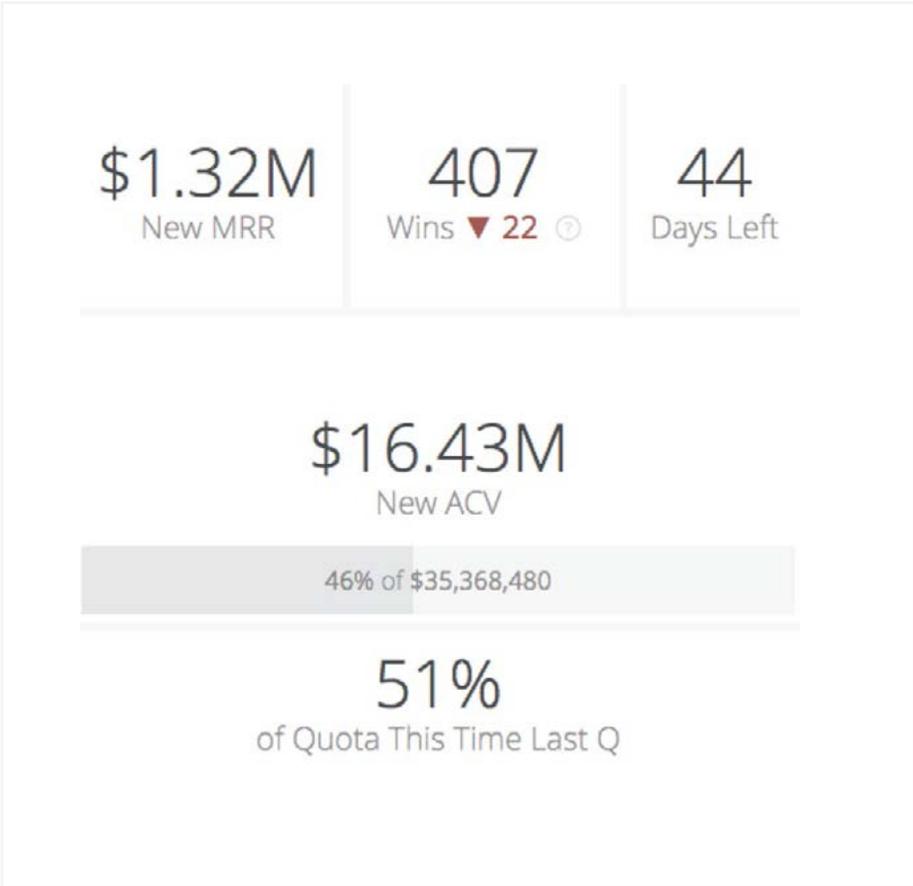


To add an additional dimension to pie charts, Looker gives users the ability to easily create donut multiples. As with all of Looker's charts, donut multiples are also customizable and interactive.

# Chart Types

## Single-Value Visualizations

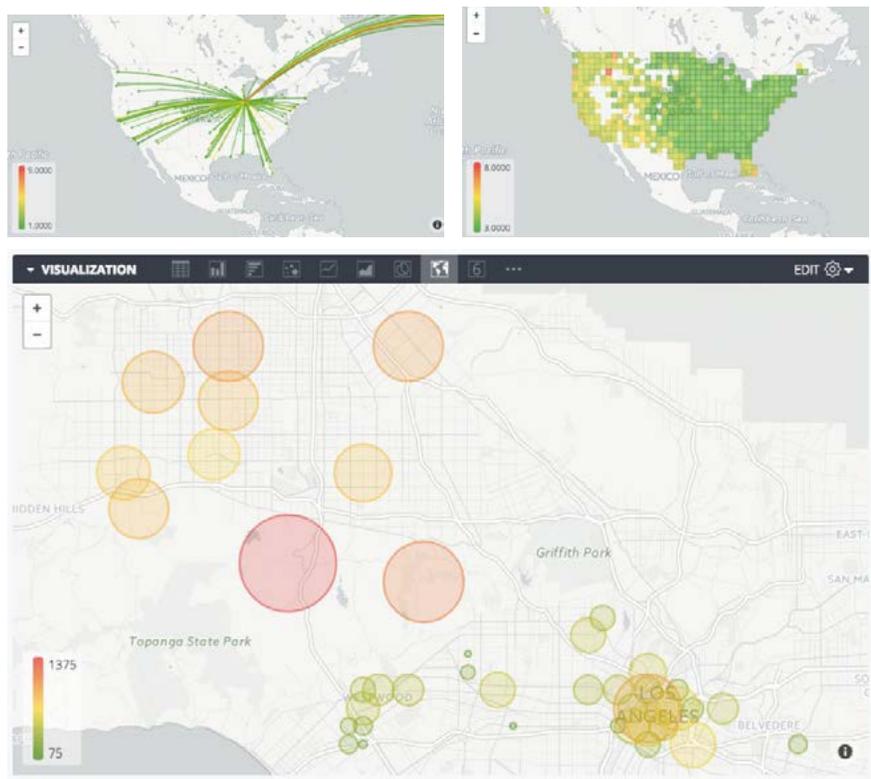
Sometimes, the most effective way to visualize data isn't a chart at all. Many Looker users make use of single-value visualizations in their dashboards to highlight the most important statistics. Looker makes it easy to present those critical numbers as a value, but also as a percentage change from the previous value, or as progress toward a goal.



# Chart Types

## Maps

For geographic data, Looker provides a multitude of mapping capabilities. Users can choose to represent data on maps with lines, points, or areas, making it simple to create choropleth and dot maps. Looker uses OpenStreetMap and supports detail down to the street level.



And because Looker uses TopoJSON to represent geographic data, customers can import any custom map layer they need. So if you need to map an athletic stadium, or a warehouse, or even a circuit board, as long as you can represent it as TopoJSON, you can map it in Looker.

And once you load a custom map into Looker, all of the standard features you expect--native calculations of distance, heatmaps, and any geospatial calculation capabilities of the customer's datastore--can be used seamlessly on the custom maps.

# Chart Types

## Tables

Looker also gives users many options for customizing the formatting of tables in visualizations. This makes it easy to create beautiful tables that visually highlight the data, but also gives users options for building highly functional table visualizations.

Using Looker’s native drilling capabilities along with Liquid, users can add images, links, and custom formatting into table cells, making tables not just beautiful, but also interactive.

Retained Users by Cohort

Mos Since Signup >	0	1	2	3	4	5	6	7	8	9	10	11
Signup Month ^												
2015-01	45.6%	62.0%	61.2%	41.9%	36.4%	34.1%	29.5%	27.1%	20.2%	20.2%	14.7%	17.1%
2015-02	42.8%	71.6%	54.6%	45.0%	40.6%	36.2%	25.1%	29.5%	17.0%	14.0%	15.5%	
2015-03	41.6%	62.7%	53.3%	36.9%	40.0%	29.8%	29.0%	25.1%	20.4%	18.0%		
2015-04	34.2%	70.0%	51.2%	55.9%	46.5%	31.0%	32.3%	23.6%	22.9%			
2015-05	38.3%	73.8%	52.3%	43.7%	35.8%	33.7%	29.4%	28.7%				
2015-06	45.2%	70.8%	59.2%	48.3%	42.2%	34.0%	34.0%					
2015-07	44.9%	81.1%	54.1%	44.8%	32.7%	26.3%						
2015-08	48.5%	65.5%	53.1%	49.5%	38.6%							
2015-09	39.1%	72.0%	54.5%	45.1%								
2015-10	50.2%	75.0%	61.3%									
2015-11	45.4%	79.5%										
2015-12	48.3%											

## Join the Data Disruptors

Looker enables businesses to centralize their data. It also provides them the flexibility they need to define success criteria specific to their own business needs and the needs of their customers. Maybe most importantly, Looker enables businesses to turn analysis into action. And that is a story that everyone is ready to hear.