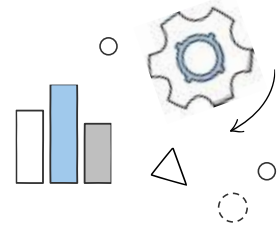




# Data Visualization Guide

Tips and best practices for how to  
choose the right data visualizations  
for your dashboard

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# Data Visualization Guide

Tips and best practices for how to choose the right data visualizations for your dashboard

## Introduction

Nearly all modern organizations today use data visualizations in their practice. Data visualizations, such as charts, graphs, and heat maps, are commonly used in business intelligence (BI) and data analytics dashboards, and you also often see them in company presentations, reports, and marketing collateral. Using data visualizations makes data easier to understand and, if used correctly, enables organizations to tell their data story, uncover insights, see trends and patterns, identify areas for improvement, and make informed, data-driven decisions.

There is no doubt that using data visualizations yields many benefits, however, with so many data visualization options available, selecting the right ones can be tricky.

This guide provides practical advice, tips, and best practices on how to choose the right data visualizations for your dashboard, so that you could facilitate better data understanding and effectively communicate your data story.

Let's start with the basics.

# What is data visualization?

Data visualization is the representation of information and data through the use of graphical elements such as charts, graphs, plots, histograms, risk heat maps, and others. Data visualization is a key component in data analytics as it simplifies the task of reviewing large amounts of complex data and enables users to extract actionable insights needed to achieve their goals.

## What is the purpose of data visualization?

The purpose of data visualization is to present data in a way that is quick and easy to understand.

In most organizations data comes unstructured from various sources and in various formats. Data visualization is a great tool to create order out of this chaos. It enables organizations to present insights from vast amounts of complex data in a clear way and use them to guide informed decision-making.

Data visualizations are commonly used on dashboards to visualize trends and comparisons, monitor the status of KPIs and projects, and understand outliers and patterns in data.



# Why is data visualization important?

Data visualization is important because it allows us to comprehend large amounts of data and make faster, data-driven decisions. With data visualization, you can efficiently explore your data, understand what your data is telling you, and quickly identify trends, patterns, and relationships. Data visualization also helps us uncover insights that would otherwise be difficult to spot in a raw data set.

Consider the example below:

	A	B	C	D	E
1	Month	Actual	Target		
2	Jan	€ 604,589	€ 542,603		
3	Feb	€ 630,125	€ 462,314		
4	Mar	€ 601,235	€ 542,369		
5	Apr	€ 548,569	€ 458,213		
6	May	€ 369,523	€ 214,896		
7	Jun	€ 425,689	€ 253,624		
8	Jul	€ 542,178	€ 425,869		
9	Aug	€ 822,356	€ 748,695		
10	Sep	€ 758,452	€ 689,523		
11	Oct	€ 702,145	€ 625,314		
12	Nov	€ 623,256	€ 665,847		
13	Dec	€ 523,642	€ 471,236		

Image 1 – data spreadsheet

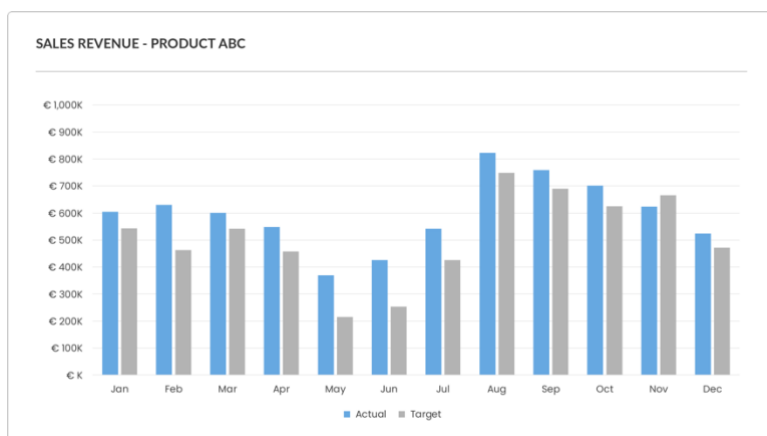
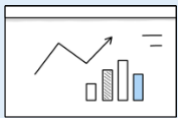
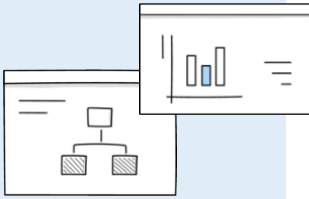


Image 2 – data visualization

Both images present the same set of data, however, in comparison, data visualization (image 2) makes it faster and easier to understand the whole picture – overall performance throughout the year and comparison of actual vs. target for each month.

# What are the benefits of data visualization?



There are numerous benefits to using data visualizations. To name a few:

## 1. Make data easy to understand

Sifting through spreadsheets to find insights can be time-consuming and inefficient. Data visualizations help summarize large amounts of data and present it in a format that is easy to understand for technical and non-technical users.

## 2. Unlock key values

Trying to find meaning in endless rows and columns of data can feel overwhelming even for a trained data analyst. Presenting analyzed data as data visualizations makes it easy to identify key values, pinpoint opportunities, diagnose issues, and uncover areas for improvement.

## 3. Enable faster decision-making

Data visualization enables faster decision-making. As a matter of fact, our brain processes visuals 60,000 times faster than text. When data is properly visualized, it makes it easy for decision-makers to quickly spot trends, patterns, and outliers, and make faster decisions.

## 4. Display complex relationships

Big data often comes from multiple sources and in various formats. Data visualizations, such as scatter plots, make it possible to visualize large volumes of complex data, which enables you to understand relationships and correlations between different data points.

## 5. Make data more engaging

People are visual creatures. For most of us, data visualizations such as charts, graphs, maps, or infographics are far more engaging, memorable, and enjoyable to look at than plain numbers and text. Data visualizations enable you to visualize your data alongside context and tell your data story in the most compelling way.

# How to choose the right data visualization for your dashboard?

With so many data visualization options available, choosing the right ones for your dashboard may seem tricky. To take the complexity out of the selection process, consider this 2-step approach:

## 1. Determine the purpose

To choose the right data visualization, you must be clear about its purpose. If your data visualization serves no purpose, it only clutters your dashboard.

To kickstart the data visualization selection process, ask yourself:

*“What would you like to see?”*

To help guide your answer, consider these common data visualization functions:

- **Value** – E.g., I want to see a number of open support tickets.
- **Status** – E.g., I want to see the status of our KPIs.
- **Comparison** – E.g., I want to see comparison of quarterly sales by region.
- **Composition** – E.g., I want to see composition of our staff.
- **Trend** – E.g., I want to see trend of units sold by month.
- **Progress** – E.g., I want to see progress of our strategic initiatives.
- **Distribution** – E.g., I want to see possible correlation between variables A and B.
- **Deviation** – E.g., I want to see if there are any outliers from our norms.
- **Relationship** – E.g., I want to see the relationship of our key value drivers.
- **Risk** – E.g., I want to see which risks need immediate action.

Don't worry if your data visualization needs to serve more than one purpose. As you will see in the section below, there are several types of data visualizations that are suitable to serve multiple functions at once.

Once you are clear on “What would you like to see?” use the table below to select data the visualization that best fits your purpose.

# What would you like to see?

*I want to see...*

Value	Status	Trend	Comparison	Composition
<p>To show value, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Single value chart</li> <li>• Table chart</li> </ul>	<p>To show status, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Single value chart</li> <li>• Table chart</li> <li>+ Status light</li> <li>+ Gauge</li> </ul>	<p>To show trend, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Line chart</li> <li>• Sparkline</li> <li>• Area chart</li> <li>+ Trend arrow</li> </ul>	<p>To show comparison, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Column chart</li> <li>• Bar chart</li> <li>• Line chart</li> <li>• Stacked column chart</li> <li>• Stacked bar chart</li> <li>• Stacked area chart</li> </ul>	<p>To show composition, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Pie chart</li> <li>• Doughnut chart</li> <li>• Stacked 100% column chart</li> <li>• Stacked 100% bar chart</li> <li>• Stacked 100% area chart</li> </ul>
<p><b>Example use cases:</b></p> <ul style="list-style-type: none"> <li>• Number of tasks in progress</li> <li>• Number of new issues</li> <li>• Lists of Initiatives</li> <li>• List of control measures</li> <li>• Risk register</li> <li>• Perspectives of Balanced Scorecard</li> </ul>	<p><b>Example use cases:</b></p> <ul style="list-style-type: none"> <li>• Status of KPIs</li> <li>• Status of KRIs</li> <li>• Status of projects</li> <li>• Status of initiatives</li> <li>• Status of audit process</li> <li>• Status of a corrective action</li> </ul>	<p><b>Example use cases:</b></p> <ul style="list-style-type: none"> <li>• Trend of sales performance for one entity over time</li> <li>• Trend of cash flow for multiple entities over time</li> <li>• Trend of policy breaches over time</li> </ul>	<p><b>Example use cases:</b></p> <ul style="list-style-type: none"> <li>• Sales comparison for one entity MOM</li> <li>• Sales comparison for multiple entities MOM</li> <li>• Sales comparison YOY – target vs. actual</li> <li>• Cost vs. revenue comparison</li> </ul>	<p><b>Example use cases:</b></p> <ul style="list-style-type: none"> <li>• Revenue contribution by different regions</li> <li>• Market share</li> <li>• Percent of budget spent</li> <li>• Breakdown of expenses</li> <li>• Breakdown of profits by source</li> <li>• Survey results</li> </ul>
Progress	Distribution	Deviation	Relationship	Risk
<p>To show progress, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Progress bar</li> <li>• Gantt chart</li> </ul>	<p>To show distribution, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Bar histogram</li> </ul>	<p>To show deviation, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Column chart</li> <li>• Bar chart</li> </ul>	<p>To show relationship, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Value driver tree</li> <li>• Org chart</li> <li>• Scatter plot</li> <li>• Bubble chart</li> </ul>	<p>To show risk, use the following data visualizations:</p> <ul style="list-style-type: none"> <li>• Risk heat map</li> </ul>
<p><b>Example use cases:</b></p> <ul style="list-style-type: none"> <li>• Progress of projects</li> <li>• Progress of initiatives</li> <li>• Progress of a risk treatment</li> <li>• Progress of an onboarding process</li> <li>• Progress of compliance audit</li> <li>• Progress of recertification process</li> </ul>	<p><b>Example use cases:</b></p> <ul style="list-style-type: none"> <li>• Distribution of errors found during 2-week software testing phase</li> <li>• Distribution of research data to see possible correlation between variables A and B (e.g., correlation between age and height)</li> </ul>	<p><b>Example use cases:</b></p> <p>Deviations from a norm or target, e.g.:</p> <ul style="list-style-type: none"> <li>• Deviation from target churn rate</li> <li>• Deviation from a standard number of products produced per month</li> <li>• Deviation from standard sales (\$) generated by a business unit</li> </ul>	<p><b>Example use cases:</b></p> <ul style="list-style-type: none"> <li>• Organization's value drivers</li> <li>• Corporate structure and reporting hierarchy</li> <li>• Relationship between marketing spend (\$) and items sold (#)</li> <li>• Relationship between cost (\$), number of orders (#), and profits (\$)</li> </ul>	<p><b>Example use cases:</b></p> <ul style="list-style-type: none"> <li>• Top 10 risks for an entire organization</li> <li>• Aggregated risk view based on impact and likelihood</li> <li>• Inherent risk and residual risk levels for a particular point in time</li> <li>• Range of risks in a specific business area or department (e.g., finance)</li> </ul>

**Note:** The data visualization options noted in the table above are merely suggestions. They are by no means exhaustive of every data visualization option available.



## 2. Ensure your data story

Once you select your data visualization, it is time to ensure that it is in fact the right data visualization for your dashboard. To do so, look at your data visualization and ask:

*“What story does your data tell?”*

Correctly selected data visualization should make your data story apparent – it should make it quick and easy for users to understand what the data is telling them and whether action is needed. If your selected data visualization does not present your data story clearly, you may want to add more context or explore other data visualization options.

See the next page for a quick overview of data storytelling, its importance, and best practices.

**Pro Tip:** Beware of clutter. While context is necessary to tell your data story, too much context may turn into clutter and cloud your information. To keep your audience focused on the most important parts of your data, ensure that your data visualization provides just enough context needed for decision making and eliminate the rest.



# Data Storytelling

– Quick Overview & Best Practices –

## What is data storytelling?

Data storytelling is the ability to effectively communicate data insights as a compelling narrative, tailored to a specific audience. Data storytelling combines data visualizations with context to tell a story in which data insights are the heroes. A good data story presents a clear data picture and why it matters.

## Why is data storytelling important?

Data storytelling helps ensure that data insights are presented in a way that is meaningful, engaging, and relevant to the audience. Data stories enable organizations to communicate data insights in a compelling way that drives action.

## How to ensure that your data tells a story?

For data to tell a story, it needs to be displayed in a business context – alongside relevant data, comparisons, trends, and other key information. For instance, if your dashboard shows that you sold 200 units of your product – what does it really mean? Is 200 too many or too few? To understand what this data is telling you, show how it compares to the units sold in the previous months. You may also want to know where the sales came from – was the sale generated by a single team or by multiple teams? And how does this compare to your targets?

## Data Storytelling Best Practices

- Understand what context your audience needs based on their role and select your data visualization accordingly
- Keep in mind that:
  - **Different roles have different needs.** For instance, the executive leadership team may require high level context, while department heads may require more information to make decisions.
  - **Different types of data visualization provide different levels of context.** For instance, tables and column charts may communicate a lot more context than a pie chart.
- Use language, terminology, and acronyms familiar to your audience
- Eliminate clutter to keep your audience's focus on what is important
- Utilize design concepts to draw attention to key information
- Title your charts, label your axes, and include legends where needed
- Ensure that all text is legible



Data without context is meaningless.

Data with context is value.



# What types of data visualization are commonly used in dashboards?

There are many different types of data visualizations and many different types of dashboards. Business Intelligence (BI) dashboards can be categorized as strategic, operational, analytical, and tactical. Dashboards can however be also categorized by their purpose – e.g., executive dashboards, management KPI dashboards, IT project management dashboards, HR dashboards, marketing dashboards, etc. Without getting into the weeds of dashboard categorization, in general, the most common types of data visualization used in dashboards are listed on the following pages.

They are organized by function as follows:

- Data visualizations for showing value
- Data visualizations for showing status
- Data visualizations for showing trend
- Data visualizations for showing comparison
- Data visualizations for showing composition
- Data visualizations for showing progress
- Data visualizations for showing distribution
- Data visualizations for showing deviation
- Data visualizations for showing relationship
- Data visualizations for showing risk

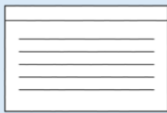


## Data visualizations for showing value

A light blue square containing the number 12 in a large, bold, black font.

### Single value chart

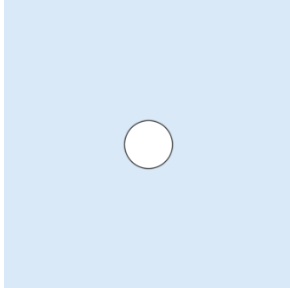
A single value chart is a simple chart used to display a single numeric value. E.g., a number of projects in progress, a number of initiatives behind schedule, a number of new risks, a number of pending support tickets, etc. Sometimes displaying a single value is all that is needed to get your message across.



### Table chart

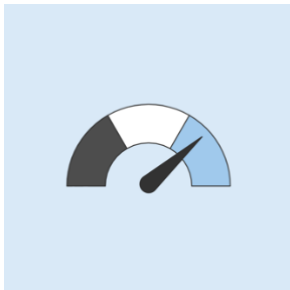
A table chart, or simply a table, is a data visualization that displays data values in rows and columns. Tables are great for presenting data in a structured, organized way. They also make it easy to sort, filter, and compare large amounts of data. Tables are especially beneficial to use when your data story requires lots of details – e.g., when you want to show who, what, where, when (start date and end date), progress, priority, status, etc. in a single view.

## Data visualizations for showing status



### Status light

A status light is a data visualization for showing a status of data (e.g., KPI, initiative, risk, etc.). Status lights are typically used inside tables or single value charts, and they typically follow the traditional “traffic lights” color scheme where green means good (e.g., on track, on budget, etc.), yellow means attention (e.g., possible issues, expired certification, etc.), and red means danger (e.g., behind schedule, below threshold, etc.) – this enables users to quickly identify which items on their dashboard need attention. Status lights are commonly used to communicate status, but they may also be used to convey priority and categories.



### Gauge

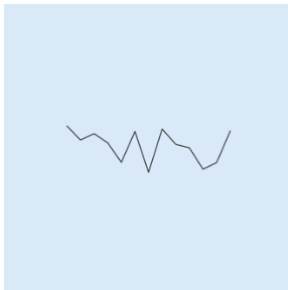
A gauge chart, or simply a gauge, is a data visualization that maps a single value (often a summary of other values) against a range of colors – usually red to green, or green to red. Gauges typically resemble a rating meter (a semi-circle with a pointer in the middle), a speedometer (a radial gauge), or a thermometer (filler gauge and marker gauge); other variations exist. Gauges are useful because they enable users to quickly understand a status of a metric against a set target.

## Data visualizations for showing trend



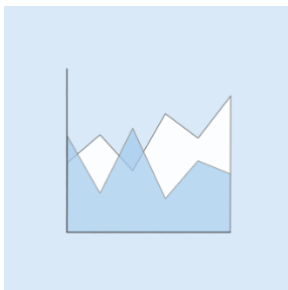
### Line chart

Line chart is the most common chart type for showing trends. Line charts can be used to show trends and changes over time for one or multiple variables (e.g., sales over time for one or multiple regions). They can also be used to show comparison (e.g., target vs. actual for one business unit, sales comparison for multiple business units).



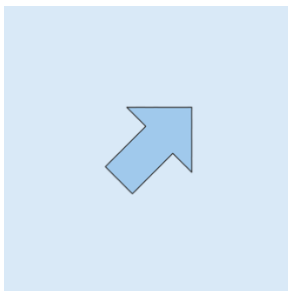
### Sparkline

A sparkline is a miniature line chart typically used in tables to provide at-a-glance historical context. Sparklines are intentionally very simple. They are not meant to provide precise measures, but rather a snapshot overview of the historical trend leading up to the present value



### Area chart

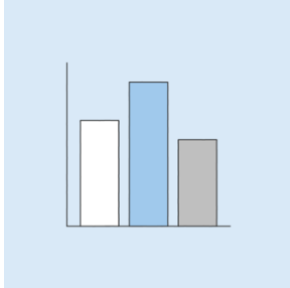
An area chart, aka area graph, is an extension of a line chart. Area charts are commonly used to present trend and accumulative value changes over time, often in comparison with other values. Area charts use shading between the y-axis and the baseline to represent an area and emphasize data trends. When two or more values are displayed (aka overlapping area chart), the shading should be transparent for clarity.



### Trend arrow

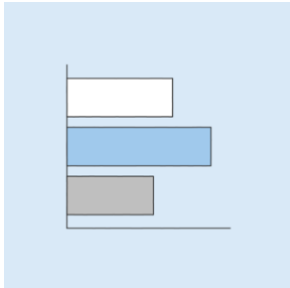
Trend arrows are visual indicators of a trend of a metric. Trend arrows are supplemental data visualizations often used inside single value charts and tables. Trend arrows are useful because they enable users to quickly understand how things are going. Typically, a green upward trend arrow indicates a positive trend, a yellow rightward/leftward trend arrow indicates no or neutral changes, and a red downward arrow indicates a negative trend.

## Data visualizations for showing comparison



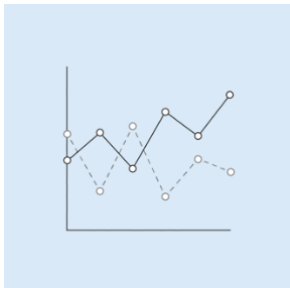
### Column chart

A column chart is a data visualization that uses columns with heights proportional to the values they represent. Column charts are most often used to compare values for different categories or compare value changes over a period of time for a single category. In a typical column chart, categories are displayed on X-axis (horizontal line) and values are displayed on Y-axis (vertical line). To prevent misinterpretation, the numerical axis should always start at zero.



### Bar chart

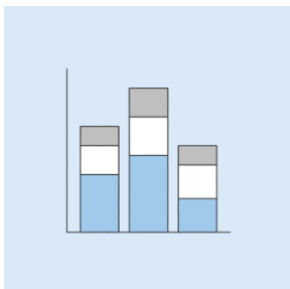
Bar charts are essentially horizontal column charts, and they serve the same purpose – they visualize comparison for one or more variables. In a typical bar chart, categories are displayed on Y-axis (vertical line) and values are displayed on X-axis (horizontal line). When your category labels run long, it is often better to use a bar chart, instead of column chart, because it offers more room for your category labels.



### Line chart

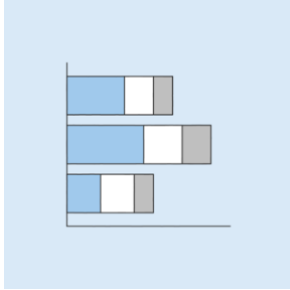
Line charts may be used to visualize comparison of different data sets over time. They may also be used in combination with column charts to visualize comparison together with trend.

For more info on line charts, see [Data visualization for showing trend](#).



### Stacked column chart

A stacked column chart is a column chart where each column is divided into multiple parts to show comparison between categories over time. Stacked column charts can also be used to show a part-to-whole composition where the parts in each column add up to 100%.



## Stacked bar chart

A stacked bar chart is a bar chart where each bar is divided into multiple parts to show comparison between categories over time. Stacked column charts can also be used to show a part-to-whole composition where the parts in each bar add up to 100%.

**Pro Tip:** When comparing data for a single variable over time, typically, column charts make it easier to compare data than line charts. However, when small changes exist, it is better to use (or add) a line chart because it makes it easier to see whether a value has gone up or down.



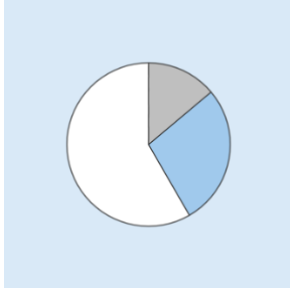
## Stacked area chart

A stacked area chart is an area chart that shows multiple data series stacked on top of another. Stacked area charts are appropriate to use for showing the evolution of the whole and the relative proportions of each group. Unlike in traditional (overlapping) area charts, in stacked area charts the values are stacked on top of another. Areas do not overlap, they are stacked. Because of that, stacked area charts can often be difficult to interpret (i.e., the area on top could be mistakenly perceived as being the largest). Therefore, stacked area charts need to be used with care.

**Pro Tip:** When used to show comparison, stacked area charts are the clearest to interpret when there are big differences in the values of data. When only small changes exist, stacked area charts might be difficult to understand.

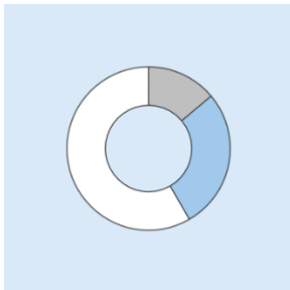


## Data visualizations for showing composition



### Pie chart

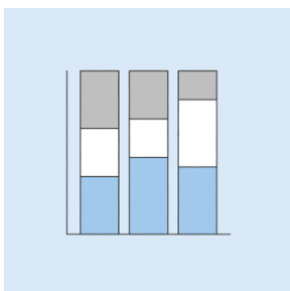
A pie chart is a data visualization that displays data in a circular graph. The pieces (slices) of the graph are proportional to the count or the percentage that they represent. Pie charts are best used to show a composition of a whole or a percent complete. Pie charts do not show changes over time, and they should not be used to visualize trends, comparison, or distribution.



### Doughnut chart

Doughnut chart is a pie chart with a whole in the middle. Pie charts and doughnut charts serve the same purpose and may be used interchangeably. From a design point of view, doughnut charts look lighter and more elegant. They also provide a space in a middle that may be used for a value that communicates a percent complete.

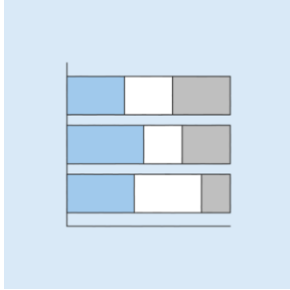
**Pro Tip:** Pie charts and doughnut charts are the most frequently misused charts. They can be confusing and misleading if used incorrectly. To ensure clarity when using pie charts or doughnut charts, ensure that all parts add up to a clearly stated whole, ideally 100%. Also, they are best used when the number of variables to display is five or less.



### Stacked 100% column chart

When using a stacked column chart to show composition, the sum of all parts in each column should add up 100%.

For more info on stacked column charts, see [Data visualization for showing comparison](#).



### Stacked 100% bar chart

When using a stacked bar chart to show composition, the sum of all parts in each bar should add up 100%.

For more info on stacked bar charts, see [Data visualization for showing comparison](#).



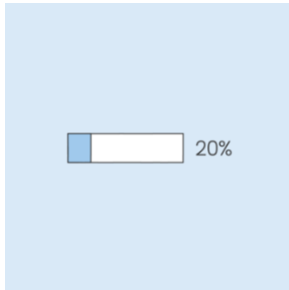
### Stacked 100% area chart

When using a stacked area chart to show composition, the sum of all parts in each period should add up 100%.

For more info on stacked area charts, see [Data visualization for showing comparison](#).

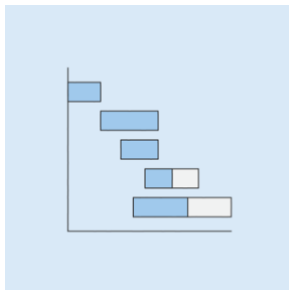
**Pro Tip:** Stacked areas are the clearest to interpret when they are used to show composition when the values for each time period add up to 100%.

## Data visualizations for showing progress



### Progress bar

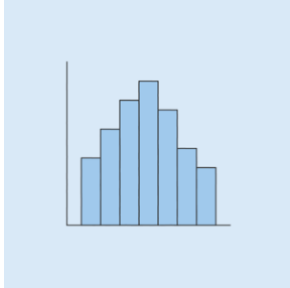
A progress bar is a type of bar chart that shows a progress of a task, project, initiative, process, etc. towards a goal. A progress bar is typically represented as a horizontal bar with a numerical percentage to the far right of the bar. Progress bars enable users to have an at-a-glance understanding of a progress made so far.



### Gantt chart

A Gantt chart is a type of bar chart that illustrates a project schedule. Gantt charts are typically used by project managers to outline project tasks, visualize dependencies between tasks, assign resources, communicate milestones, manage change, and track the project's progress from start to finish.

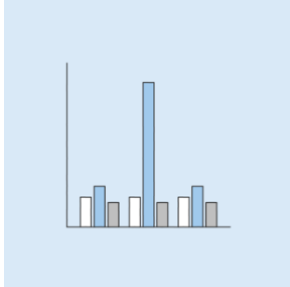
## Data visualizations for showing distribution



### Bar histogram

A histogram is a chart type that is used to visualize a distribution of a dataset – how often values fall into specified ranges or bins. Histograms display data in columns, however, unlike column charts, histograms typically have no gaps between the columns to emphasize the variable's continuous nature.

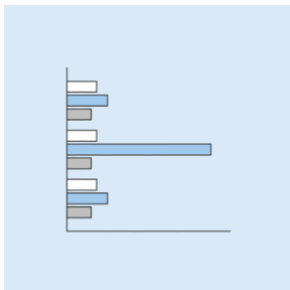
## Data visualizations for showing deviation



### Column chart

Column charts may be used to spot deviations from norms. Column charts make it easy to spot, for instance, if a number of units produced per month deviates from the norm.

For more info on column charts, see [Data visualization for showing comparison](#).

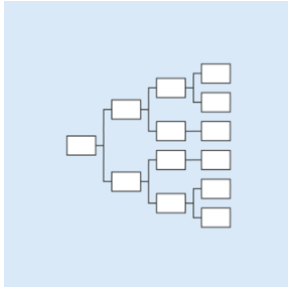


### Bar chart

Similarly to column charts, bar charts may be used to spot deviations from norms. Bar charts make it easy to spot, for instance, if a number of returned orders deviates from the norm.

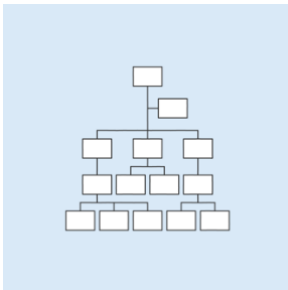
For more info on bar charts, see [Data visualization for showing comparison](#).

## Data visualizations for showing relationship



### Value Driver Tree

A Value Driver Tree is a hierarchical representation of relationships between data in a horizontal tree-like structure. A value driver tree is commonly used to visualize organization's value drivers, strategic objectives, and key performance indicators (KPIs). A traditional value driver tree is read left to right, where the main value driver is listed on the left and then branches into two or more value drivers, each of which branches into two or more supporting value drivers, and so on. The final value driver tree visualization resembles a tree with a trunk and multiple branches.



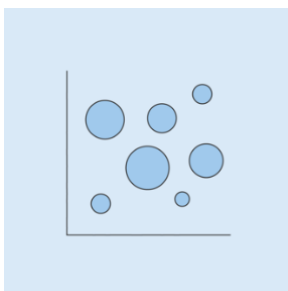
### Org chart

An organizational chart (org charts), also called an organogram or a hierarchy chart, is a diagram that shows hierarchical relationships between data. An org chart is commonly used to display corporate structure and reporting hierarchy. On dashboards, org charts may be used, for instance, to visualize a employees' roles alongside their certification status.



### Scatter plot

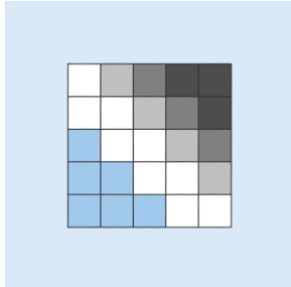
A scatter plot (aka scatter chart, scatter graph) is a chart type that is primarily used to observe a relationship between two numeric variables. Scatter plots use dots to represent values and help identify correlational relationships (positive, negative, moderate, linear, non-linear, etc.), which may not be clearly visible when looking at a raw data set. Scatter plots also make it easy to spot anomalies and outliers.



### Bubble chart

Bubble charts (aka bubble plots, bubble graphs) are extended scatter plots, where dots are replaced with bubbles to add a third dimension represented by a size of the bubble. You may also add a fourth dimension by using color. The size and color of the bubbles may be used to indicate additional information such as categorical or numeric data. Bubble charts are useful for observing relationships in data.

## Data visualizations for showing risk



### Risk heat map

A risk heat map is a data visualization tool used to present results of a risk assessment in a visual way. Risk heat maps are typically used in Enterprise Risk Management (ERM) to identify and prioritize business-related risks. The most common type of risk heat map is a 5x5 grid where green colored boxes indicate low risk – no action needed, and red colored boxes indicate high risk – immediate action needed. Based on qualitative and quantitative risk assessment, individual risks are plotted on the heat map based upon their potential impact and likelihood of occurring.

**Pro Tip:** *The better the quality of your risk assessment, the better the quality of the information presented in your risk heat map.*

# Data Visualization Dos and Don'ts

Good data visualization leads to good decisions. Poor data visualization may lead to poor decisions.

Here is a list of data visualization best practices and mistakes to avoid when choosing data visualization for your dashboard.

Dos Data visualization best practices	Don'ts Data visualization mistakes to avoid
<p>✓ <b>Do choose your data visualization with purpose</b></p> <ul style="list-style-type: none"><li>When deciding on which type of data visualization to use, have a goal in mind – know what you are trying to visualize (comparison, composition, trend, status, progress, deviation, etc.) and select your visualization accordingly.</li></ul>	<p>✗ <b>Don't choose your data visualization at random</b></p> <ul style="list-style-type: none"><li>Choosing data visualization at random without thought could make it difficult to get your data story across. For instance, choosing a pie chart to visualize trends would only confuse your audience. A line chart would be a better option.</li></ul>
<p>✓ <b>Do give just enough information</b></p> <ul style="list-style-type: none"><li>Data visualization is about telling your data story. To keep your data story crystal clear, give your audience just enough information to help them understand what the data is telling them.</li><li>Ensure that your charts are titled, your values and axes are labeled, and your legend is clearly displayed, as applicable.</li></ul>	<p>✗ <b>Don't give too much information</b></p> <ul style="list-style-type: none"><li>Avoid information overload. Including too many unnecessary or irrelevant details in your data visualization could clutter your data story – making it difficult for your audience to understand what they should focus on. Instead, identify what your audience needs to know and exclude everything else.</li></ul>
<p>✓ <b>Do choose your colors wisely</b></p> <ul style="list-style-type: none"><li>Always choose your colors deliberately. Ideally, you want to choose a set of distinct colors that are easy to tell apart and that help add meaning to your visualization. If applicable, you may draw inspiration from your brand colors.</li><li>If your data visualization will be used in a printed report, check how your colors look when printed out in grayscale. If your colors blend together, change them.</li></ul>	<p>✗ <b>Don't use troublesome colors</b></p> <ul style="list-style-type: none"><li>Avoid using colors that are too similar to one another as that could make it difficult for your audience to tell them apart.</li><li>Avoid using colors that are too bright and vibrant (e.g. electric yellow, neon pink) as those typically don't display well on screens.</li><li>Avoid using patterns, textures, and fancy shading as fills as those could make your data visualization look unnecessarily busy.</li></ul>







### Do follow known color conventions

Follow known color conventions such as:

- Green means positive, red means negative
- Red means hot, blue means cold



### Don't break known color conventions

Do not break known color conventions to convey opposite meanings. For instance:

- Don't use green to illustrate that things are negative / going badly
- Don't use red to illustrate that things are positive / going well



### Do keep the design simple

- Keep your data visualizations clean and simple. Remember, the goal of data visualization is to present information in a way that makes it easy to understand.
- Your audience will be able to understand your data faster if your data visualization is kept as simple as possible.



### Don't use 3D effects

- Don't use 3D graphics – they make data visualizations unnecessarily complicated, difficult to read, and often downright misleading.
- Don't use blow apart effects – they tend to reduce comprehension and show incorrect proportions.



### Do include a baseline

- When using column charts, your y-axis should always start at zero. Omitting the baseline (starting y-axis at a value above zero) results in a truncated chart, which may give a misleading impression of the presented data.



### Don't truncate axes

- Don't truncate the column chart's y-axis as that could distort the data representation and mislead your audience.

Exception: *For line charts showing trend, the Y-axis can be truncated to show trend clearly.*



### Do keep all text legible

- To keep your data visualizations easy to understand, ensure that all text is large enough to be legible.



### Don't make it an eye test

- Don't use font sizes and font styles that are too small or difficult to read.



### Do ask for feedback and optimize accordingly over time

- Once you select your data visualizations and add them to your dashboard (presentation, report, etc.), ask for feedback. Is your data story clear? Is everything clearly labeled? Is all text legible? Another set of eyes provides a fresh perspective and may bring out details you may have overlooked.



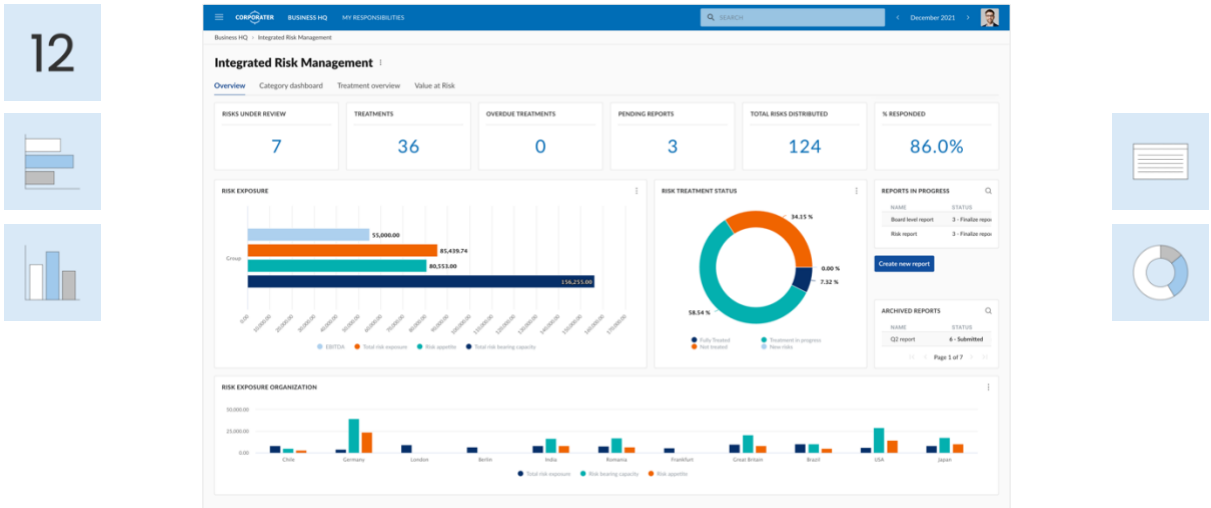
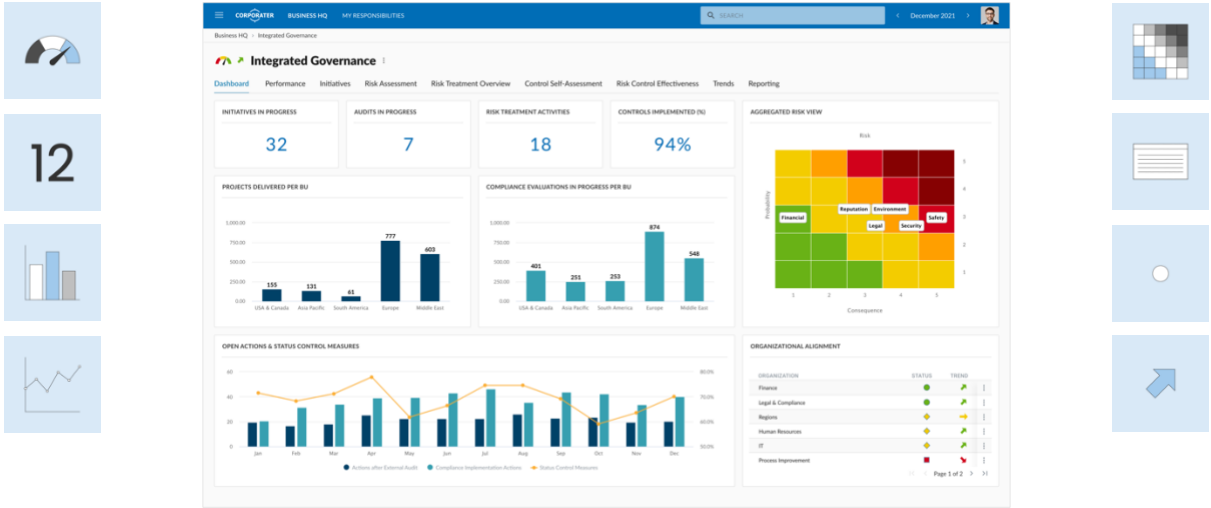
### Don't let your data visualizations go stale and dated

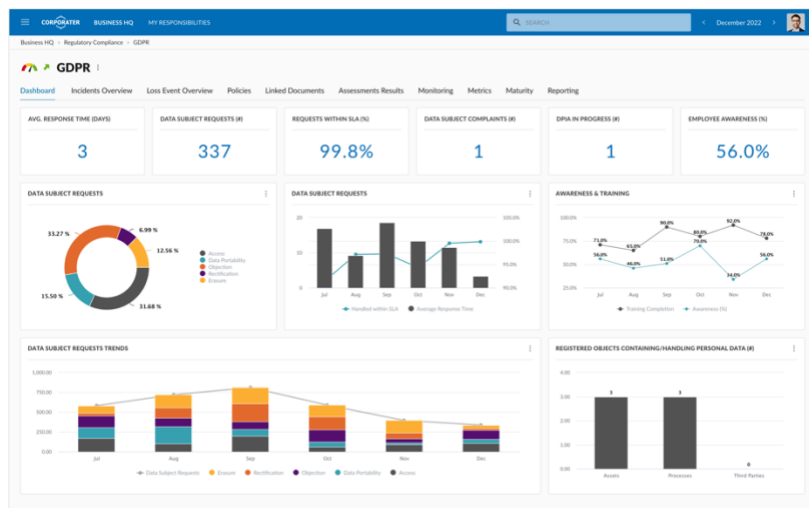
- The only constant in business is change. To ensure that your data visualizations continue to serve your users well, conduct a periodic design audit of your dashboards to assess whether your chosen data visualizations still provide value, or whether they should be optimized or eliminated.

**Pro Tip:** Don't overdo it – don't overcramp your dashboards with too many data visualizations. A dashboard that looks cluttered only causes confusion. Keep your dashboard looking neat and organized by selecting your data visualizations with purpose and using a set color palette.

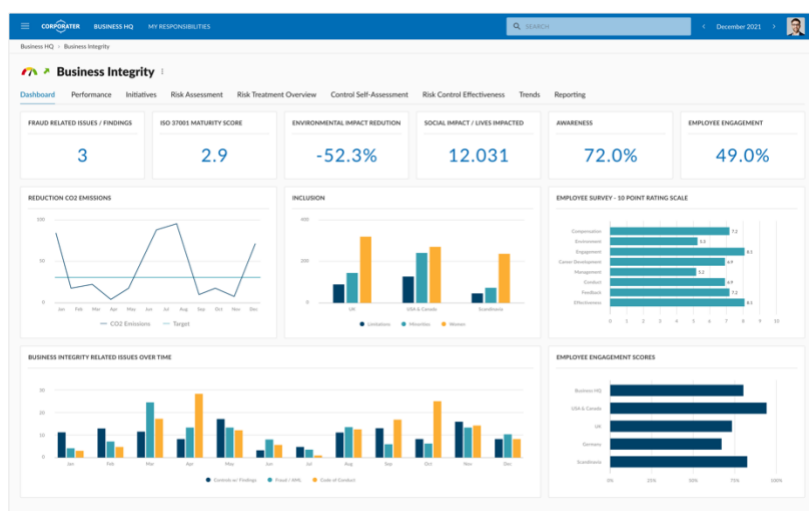
# Example Dashboard Layouts with Data Visualization

- Built in Corporater BMP -

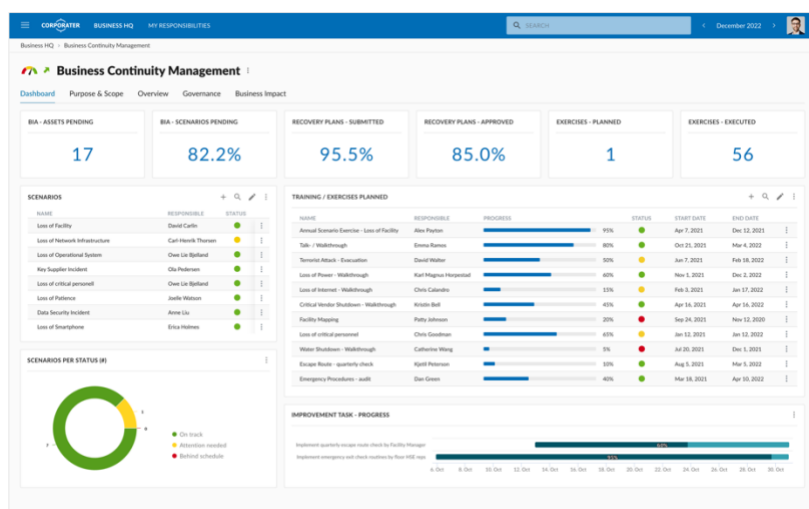
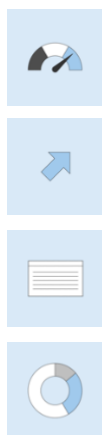




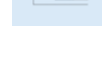
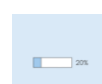
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# Final thoughts

In today's data-driven business environment, it is critical to cultivate a data-driven culture where decisions are made based on facts and insights. That begins with collecting quality data, extracting insights, and communicating those insights to those who need them, when they need them, and in a way that is easy to understand.

Dashboards with carefully selected data visualizations are a great tool to facilitate data access and understanding. They enable users to comprehend large data sets at a glance, visualize their data story, and make faster, data-driven decisions that drive value for their organization.

There are many different types of data visualization available, which can make the process of selecting the right ones for your dashboard feel overwhelming. To simplify the process, consider this 2-step approach:

- **Step 1: Determine the purpose** – Ask: *"What would you like to see?"* (status, trend, comparison, composition, distribution, etc.) and then select your data visualization accordingly.
- **Step 2: Ensure your data story** – Ask: *"What story does your data tell?"* and then optimize your data visualization accordingly. If your data visualization doesn't present your data story clearly at a glance, add more context or consider other data visualization options.

Choosing the right data visualization can greatly enhance your audience's understanding of the presented information. On the other hand, choosing a wrong one may leave them feeling confused and frustrated.

To ensure maximum comprehension, keep your data visualizations clean and simple, choose your colors wisely, label your variables, and ensure that all text is legible. Remember, the purpose of data visualization is to present data in a way that is easy to understand.

Lastly, who better to verify whether you selected the right data visualizations than the people using your dashboards? To ensure that your data visualizations continue to serve your organization well, ask your users for input and optimize your dashboards as needed. A good business management software will allow you to create custom dashboards, visualize your data in various ways, and make ongoing updates as your business needs change.

Happy visualizing!



## About the Author



**Emma Ramos** is a brand specialist, copywriter, and UI/UX designer. She develops marketing strategies and content that enable organizations to create meaningful relationships with their customers.

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