ActivityInfo

# Data visualization for M&E practitioners

**Starting shortly, please wait!**

# Meet your instructor

**Eliza Avgeropoulou**

Senior Monitoring and Evaluation Implementation Specialist

BeDataDriven

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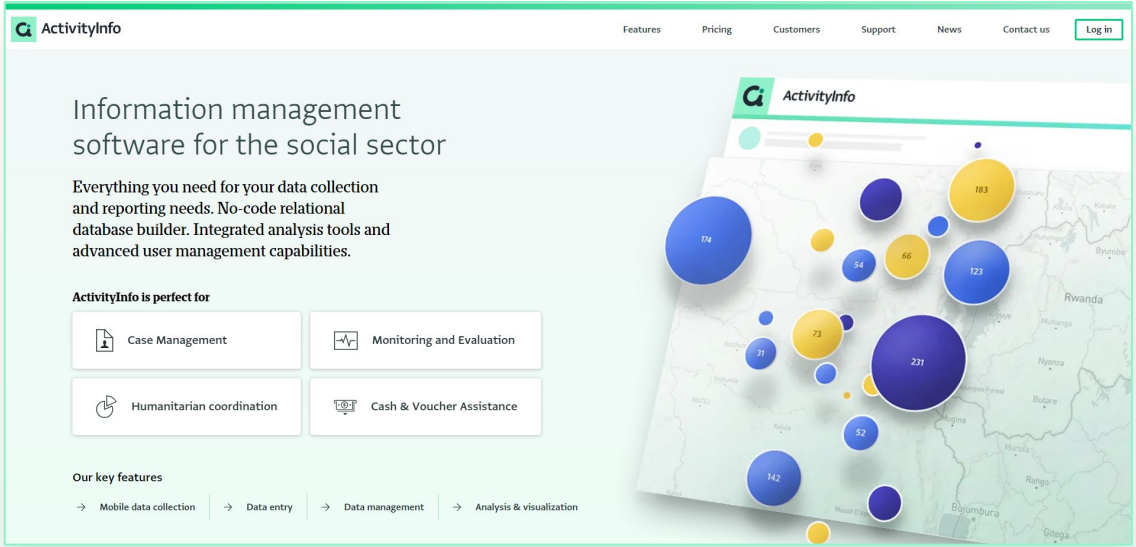
# Presented by the ActivityInfo Team

All in one information management software for humanitarian and development operations.

- Track activities, outcomes
- Beneficiary management
- Surveys
- Work offline/online



# BeDataDriven Mission


Provide the UN and NGOs with a standard, easy-to-use and comprehensive data management platform so that as many organizations as possible can become data-driven to achieve better outcomes for rights holders worldwide.

BeDataDriven pursues this mission by building and helping organizations implement ActivityInfo.

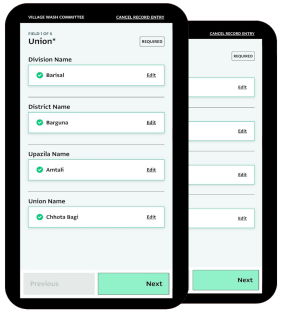
ActivityInfo

# ActivityInfo

An end-to-end solution for M&E data management

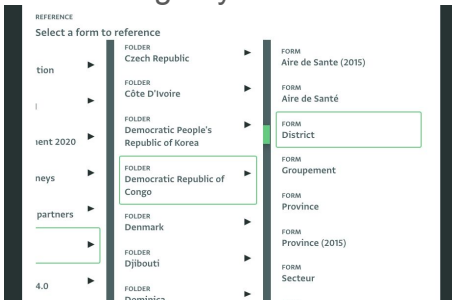
## Data collection

Easily collect the data you need from anywhere




## Data management

Organize your information according to your workflow




## Data analysis

Generate actionable insights in real-time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*....built on a relational data model*

ActivityInfo is your **integrated** solution for managing your data across the data lifecycle.


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Diagram adapted from Harvard Business Review

# ActivityInfo Users












Aga Khan Agency for Habitat


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# Outline

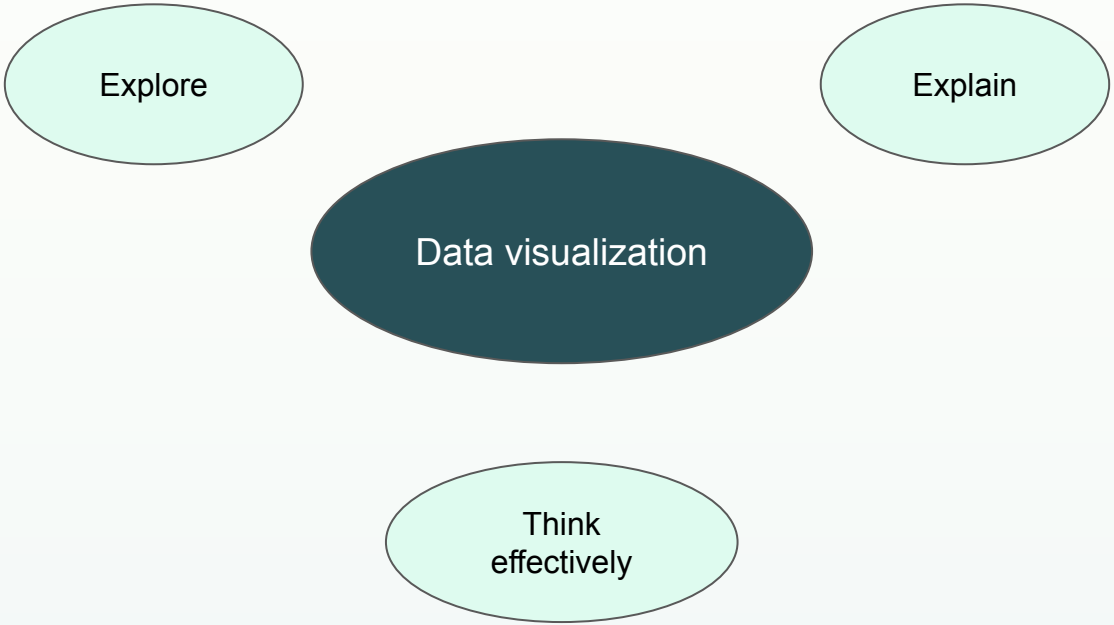
- Introduction
  - Importance of data visualization
- Principles of good data visualization
  - Understanding your target audience and the purpose
  - Choosing the right chart
  - Best practices for clarity and consistency
  - Identifying good vs. bad visualizations
- Data visualization examples
  - Analyzing real-world data visualization examples
- QandAs

# Introduction

# Introduction

**"The profile of a curve reveals in a flash a whole situation — the life history of an epidemic, a panic, or an era of prosperity. The curve informs the mind, awakens the imagination, convinces."**
**-** Henry D. Hubbard, National Bureau of Standards

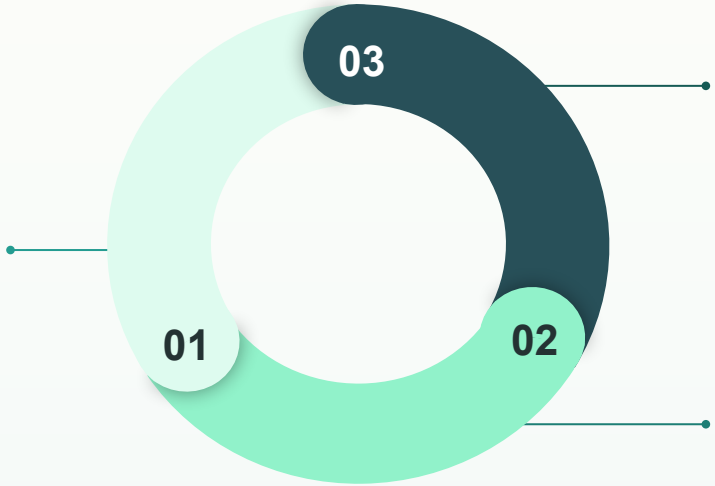
# Importance



# The starting point

**Who**

Understand target audience




**How**

Which is the appropriate visual?

**What**

Are you trying to communicate?

# Starting point

## M&E plan

- ✓ Identification of data needs
- ✓ Identification of analysis
- ✓ Identification of reports needed

***Identification of the correct questions that we need to ask!***

## Data Model

Visual representation of:

- ✓ Information flows from data collection to data use
- ✓ Association amongst the various data sources

**Consistency across data sources and higher data quality**

**Effective data visualization**

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# Example

## M&E plan

***Indicator: Number of registered participants***

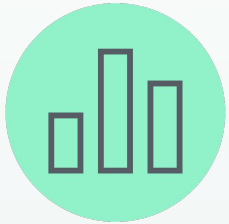
- ✓ We collect daily
- ✓ We analyze monthly
- ✓ Program teams needs the per month calculation. We disaggregate internally per partner
- ✓ Donor needs the quarter calculation.

## Data Model

- ✓ Avoid double counting
- ✓ Data source beneficiary registration
- ✓ Structure your data into usable formats

## Program team report

## Donor report



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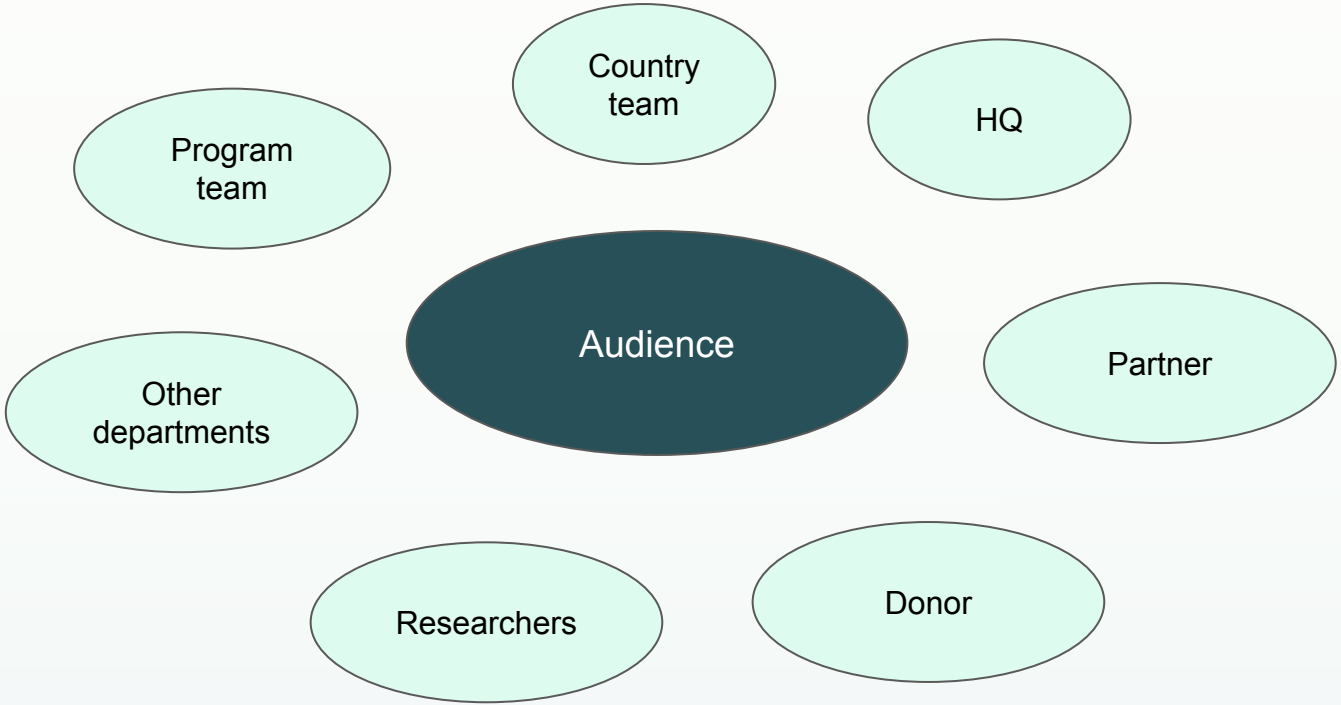
# Principles of good data visualization

# Understand the audience and purpose

# Understanding the target audience and purpose




Match your visualization to their needs and understanding

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# Understanding the target audience and purpose

Audience level of understanding



Purpose

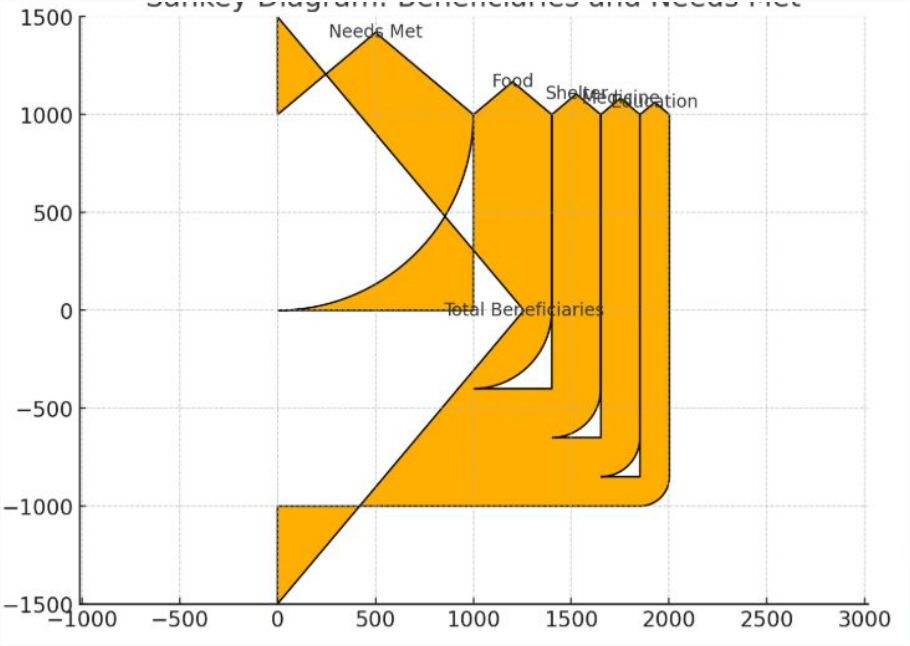
- Which stakeholders need to have timely information?Who are the stakeholders?
- Do I need different reports depending on the audience?
- Why am I designing the report? (quarterly progress to donor? Yearly progress to HQ? Monthly monitoring for field supervisors?)

# Example

We created a report for the ***field coordinators*** based on a survey that answers the question:

"*How many beneficiaries had their basic need met as a results of a cash distribution project?*"

The visual that I choose needs to match my audience level of understanding - do not complicate it!



# Example

SUDAN - Multi purpose cash assistance

Audience needs to understand quickly rather than spending too much time!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# Choosing the right graph

# Choosing the right graph

Before we can create an effective visualization, we need to define what we're trying to understand

What is the main question that you want to answer?

**Choose a graph that matches your question!**

# Choosing the right chart

**Main question**

**Relationship**

- Comparison per category?
- Track over time?
- Correlate two or more variables?
- Data distribution?
- Compare a subset of data to a whole amount?
- Examine deviation?
- Rank variable?

**Data type**

- Data that can be counted or measured?
  - A range value?
  - Finite number of options?
- Data can be grouped per category?

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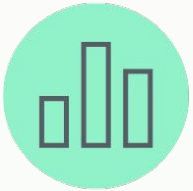
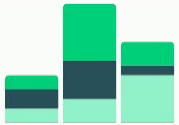
# Common chart types

**Proportions and categories**



Barplot



Stacked Barplot

Pie

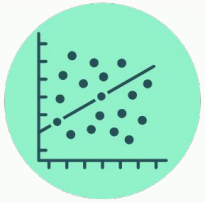
**Over time**

Line plot

**Distribution**

Histogram

**Two or more variables**



Scatter plot

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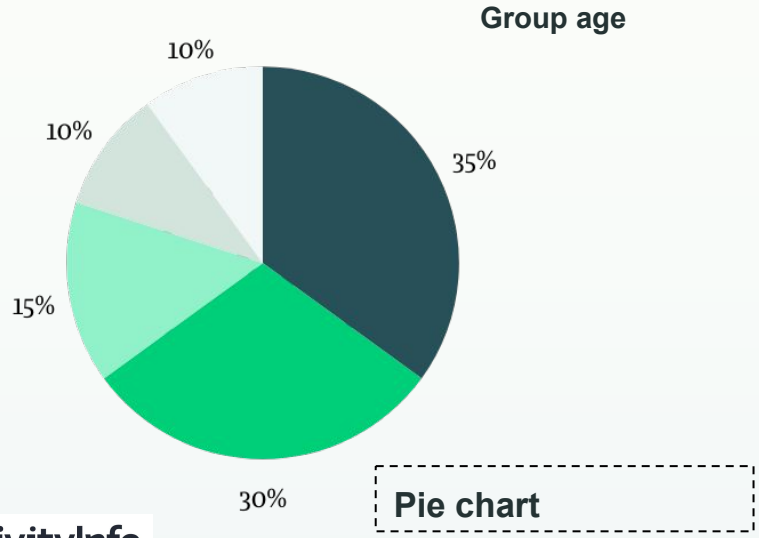
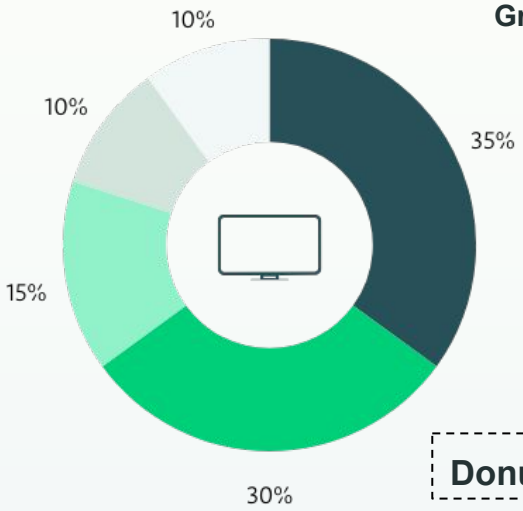
# Pie charts

Pie charts work well for questions about proportions. They work best when all your categories sum to a meaningful whole 100%
**E.g.** What proportion of the total does each category represent?



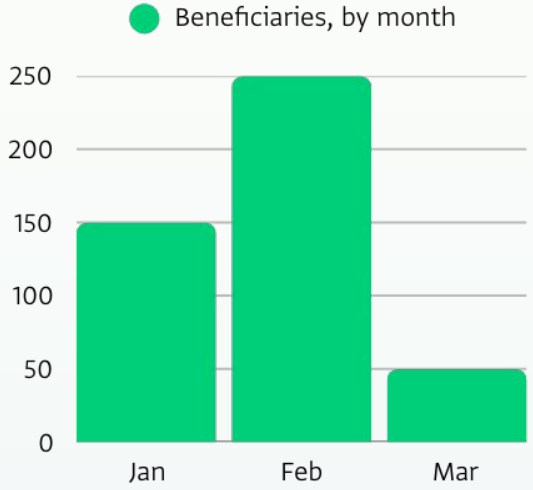

Pie chart

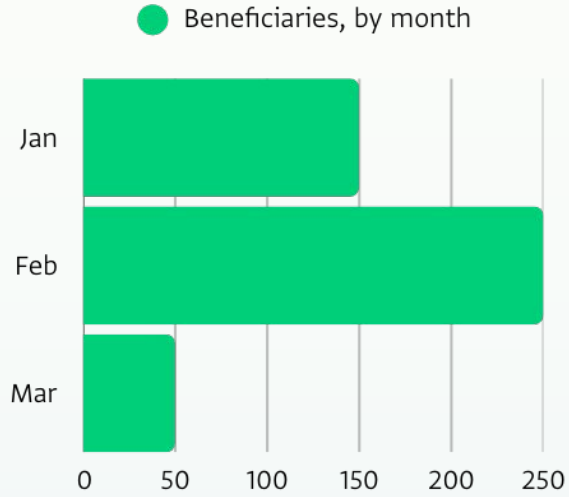



Donut chart

# Bar charts

When our data question is about comparing discrete categories (distinct groups or types), a bar chart is often the best choice - **no more than 15 categories**
**E.g.** How do different categories of X compare in terms of a value?

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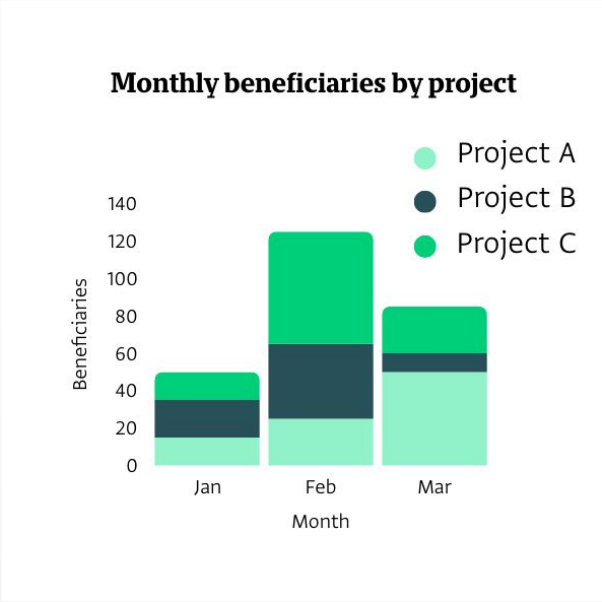
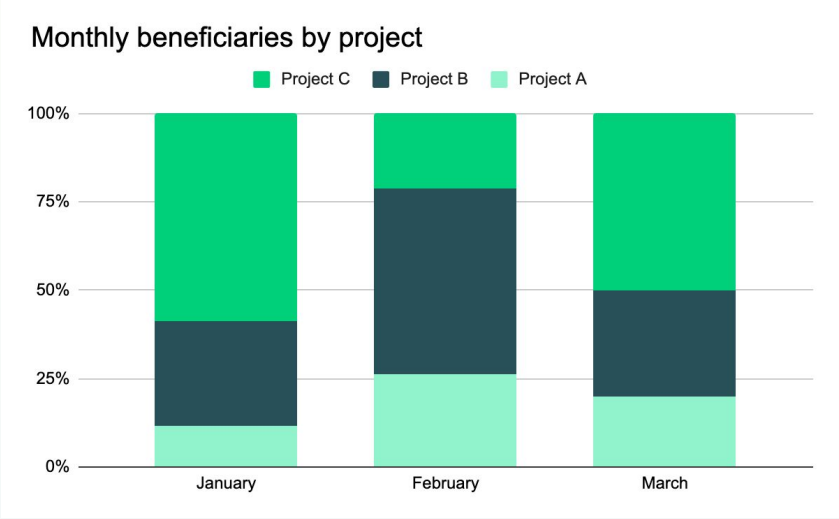
# Stacked bar charts

Stacked bar charts work well when you need to show how different subcategories contribute to a total. Each bar clearly represents the total value, with segments showing the contribution of each subcategory.
**E.g.** How do subcategories contribute to each category total?

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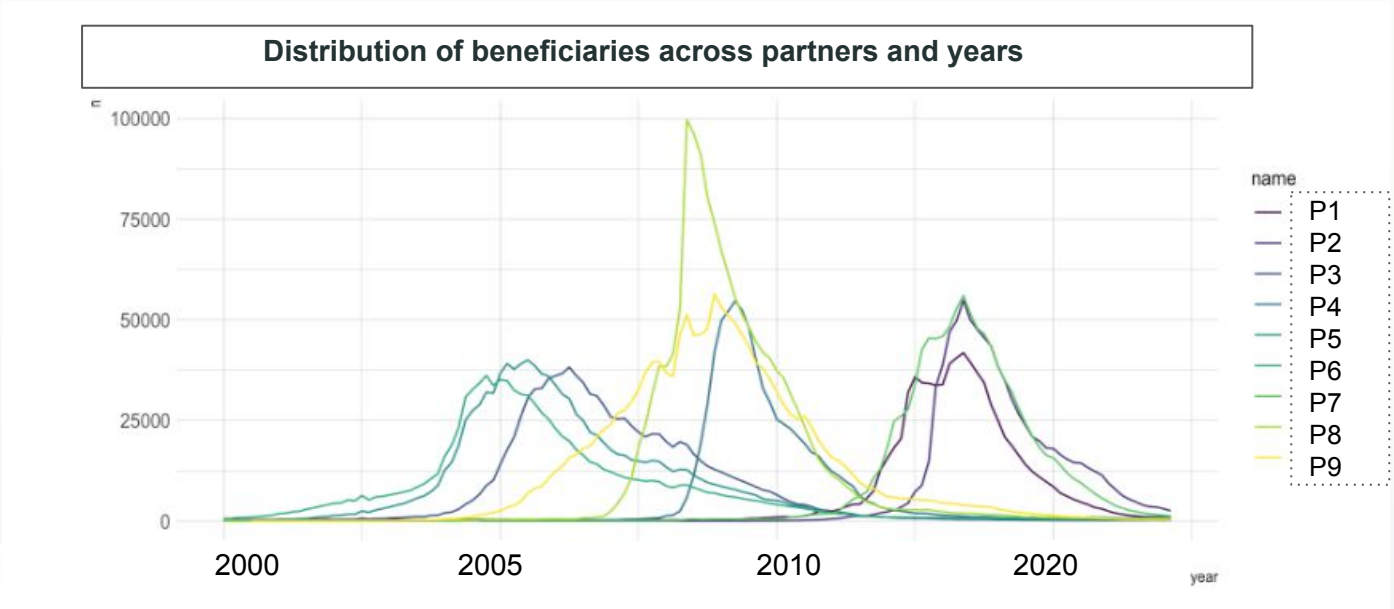
# Line plot

If a data question involves understanding how data changes over a continuous period, especially time, a line chart is a great visualization. Line charts illustrate trends, patterns, or fluctuations.
**E.g.** How has beneficiary number changed over the years?

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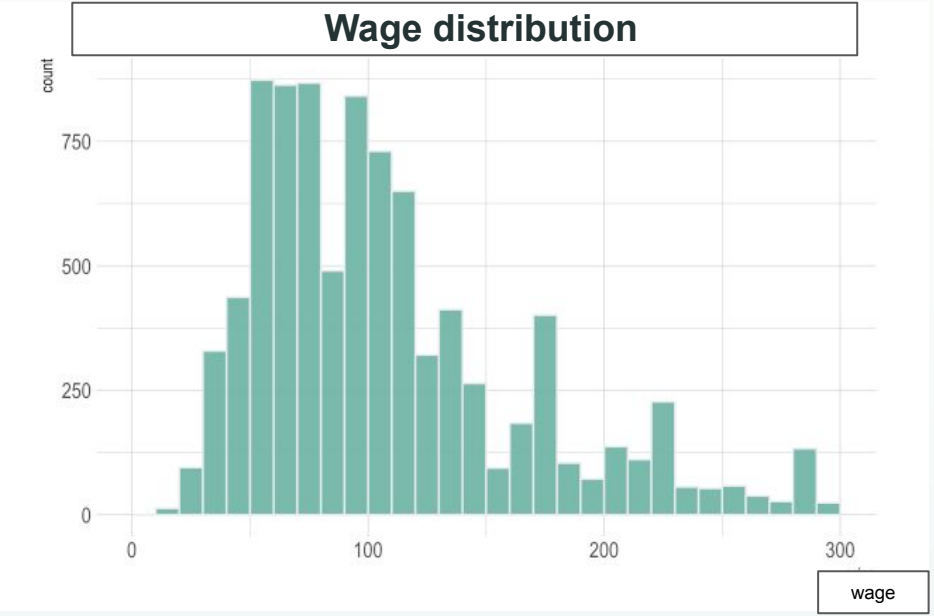
# Histogram

Histograms are a great choice when we're asking about the distribution or frequency of numerical data
**E.g.** What is the wage distribution amongst project participants?

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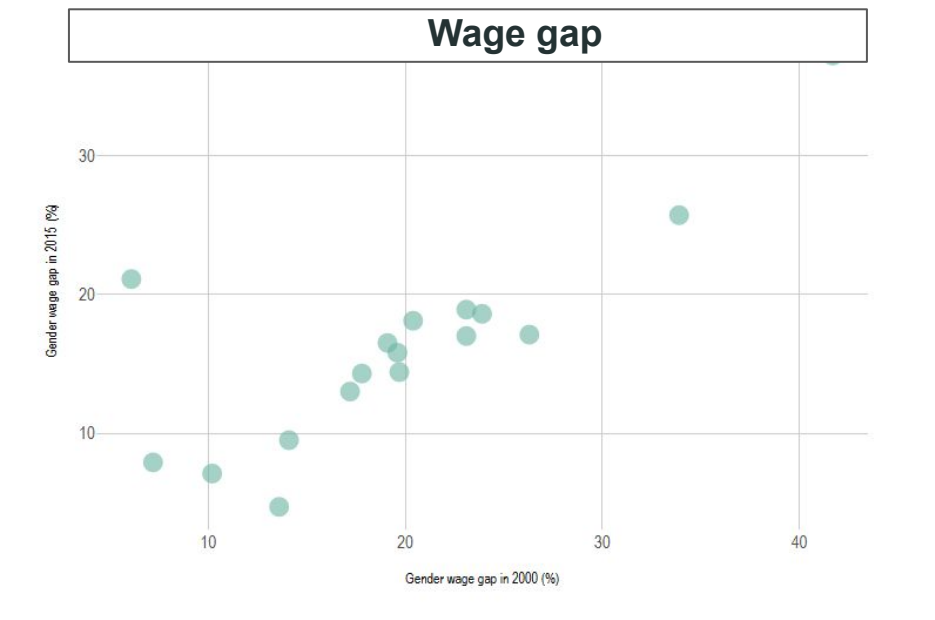
# Scatter plot

When we have a question about how two numeric variables relating to each other, we should immediately think of scatter plots.
**E.g.** How does [numeric variable A] relate to [numeric variable B]? value in the 20' compared to the 2015'?

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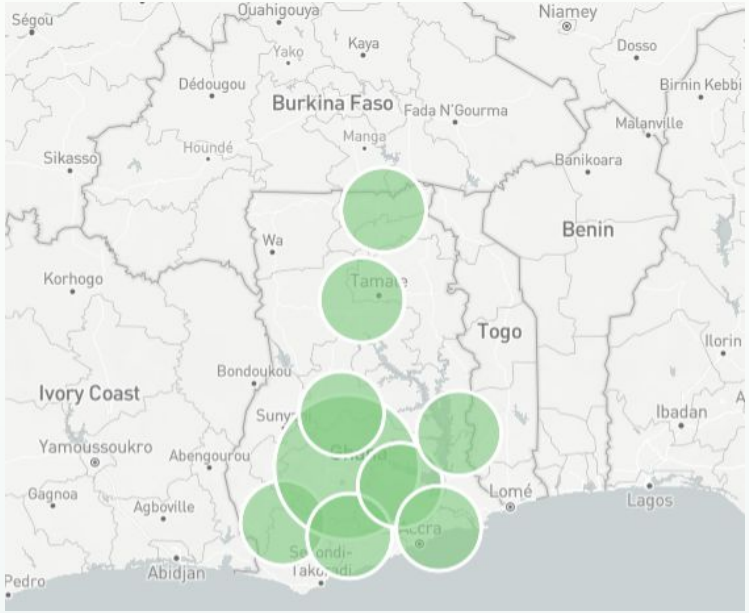
# Bubble map

When we have geographical information and we wish to showcase the variation of numeric values across regions
**E.g.** How does [numeric variable A] varies per region?



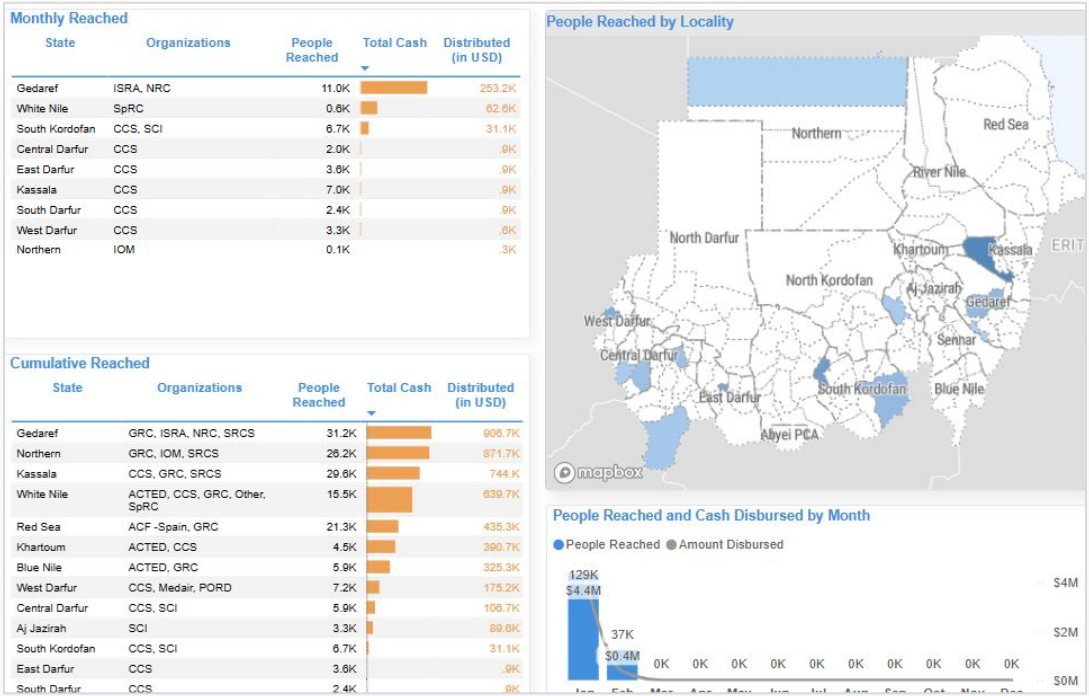

**Incidence of violation per province**

# Clarity and consistency

# Keep it clear and consistent

Carefully select only the data that will support your clarity of intent, so that your main message isn't lost.

**Keep your designs simple and clear**



Monthly Reached

| State | Organizations | People Reached | Total Cash | Distributed (in USD) |
|---|---|---|---|---|
| Gedaref | ISRA, NRC | 11.0K | | 253.2K |
| White Nile | SpRC | 0.6K | | 62.6K |
| South Kordofan | CCS, SCI | 6.7K | | 31.1K |
| Central Darfur | CCS | 2.0K | | .9K |
| East Darfur | CCS | 3.6K | | .9K |
| Kassala | CCS | 7.0K | | .9K |
| South Darfur | CCS | 2.4K | | .9K |
| West Darfur | CCS | 3.3K | | .6K |
| Northern | IOM | 0.1K | | .3K |

Cumulative Reached

| State | Organizations | People Reached | Total Cash | Distributed (in USD) |
|---|---|---|---|---|
| Gedaref | GRC, ISRA, NRC, SRCS | 31.2K | | 906.7K |
| Northern | GRC, IOM, SRCS | 26.2K | | 871.7K |
| Kassala | CCS, GRC, SRCS | 29.6K | | 744.K |
| White Nile | ACTED, CCS, GRC, Other, SpRC | 15.5K | | 639.7K |
| Red Sea | ACF -Spain, GRC | 21.3K | | 435.3K |
| Khartoum | ACTED, CCS | 4.5K | | 390.7K |
| Blue Nile | ACTED, GRC | 5.9K | | 325.3K |
| West Darfur | CCS, Medair, PORD | 7.2K | | 175.2K |
| Central Darfur | CCS, SCI | 5.9K | | 106.7K |
| Aj Jazirah | SCI | 3.3K | | 89.6K |
| South Kordofan | CCS, SCI | 6.7K | | 31.1K |
| East Darfur | CCS | 3.6K | | .9K |
| South Darfur | CCS | 2.4K | | .9K |

People Reached by Locality



People Reached and Cash Disbursed by Month



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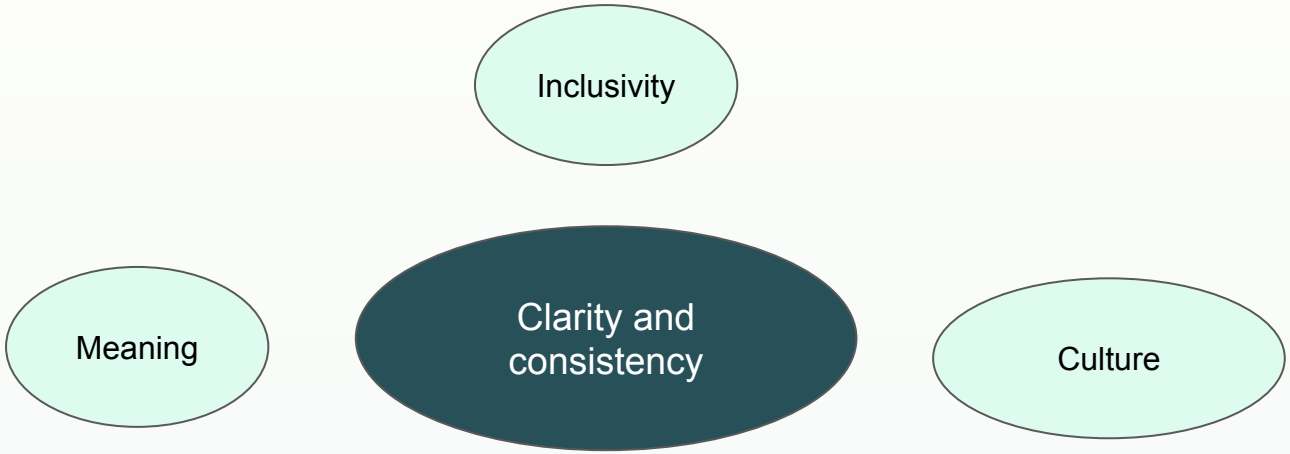
# Clarity and consistency

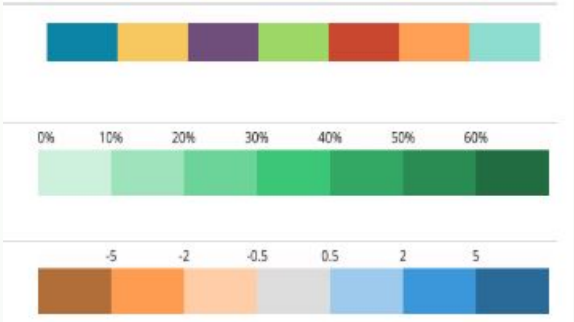


# Color choice

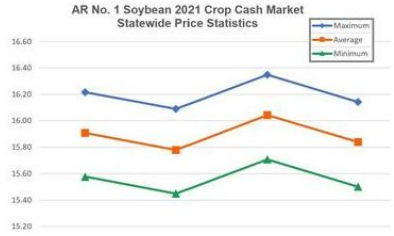
Sufficient contrast and separation between elements

| Sample Text | Sample Text (inverted) |
|---|---|
| Lorem ipsum | Lorem ipsum |
| Lorem ipsum | Lorem ipsum |

Color to convey meaning - inclusivity




The colored lines also have shape differences (diamond, square, triangle) to identify them.




Storytelling with data

Color in culture

**Pink:** Feminine in **West**
But in **Japan**: equally used for masculine and feminine

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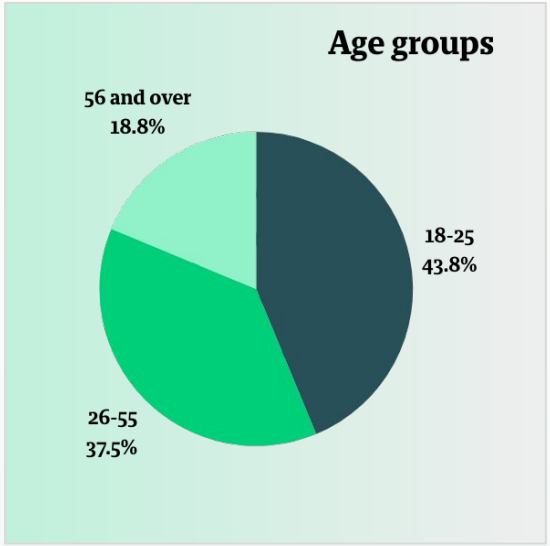
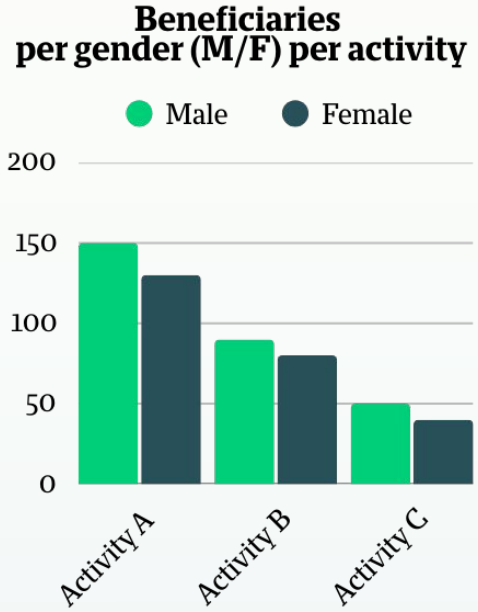
# Labels and descriptions

Each data point has the callout for the amount so a user doesn't have to guess or rely on color to identify different slices




Font size is important! Rule of thumb over 12

Clear text that labels the significant parts of the data

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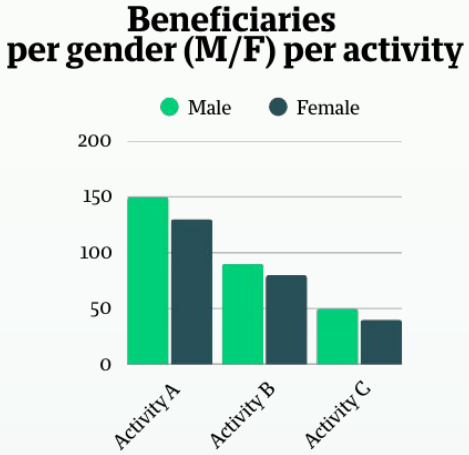
# Labels and descriptions

Consider Alt Text

Provide a chart description

Example 2

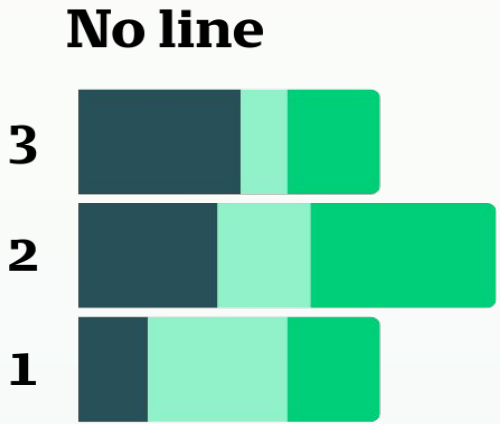

**Alt Text:** World Map of GDP per country in the Trillions. From most to least: US $20, China $13, Japan $5, Germany $4, India $2.80, UK $2.80, France $2.70, Brazil $2.10, Italy $2, and Canada $1.70.

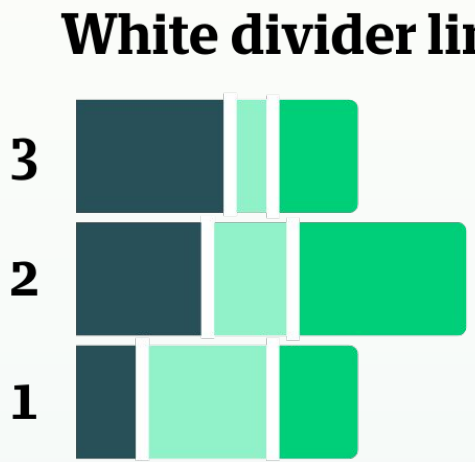



See Chart Description

# White divider

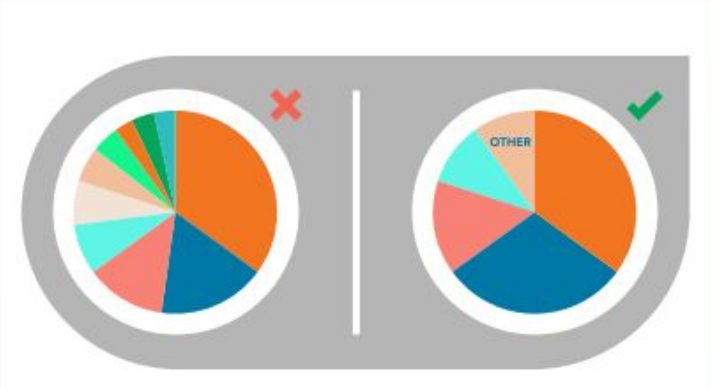
Consider white space



# Good Vs Bad visualization

# Examples - pie chart




Depicting too many slices decreases the impact of the visualization


Place the largest section at 12 o’clock, going clockwise. Place the second largest section at 12 o’clock, going counterclockwise or clockwise.

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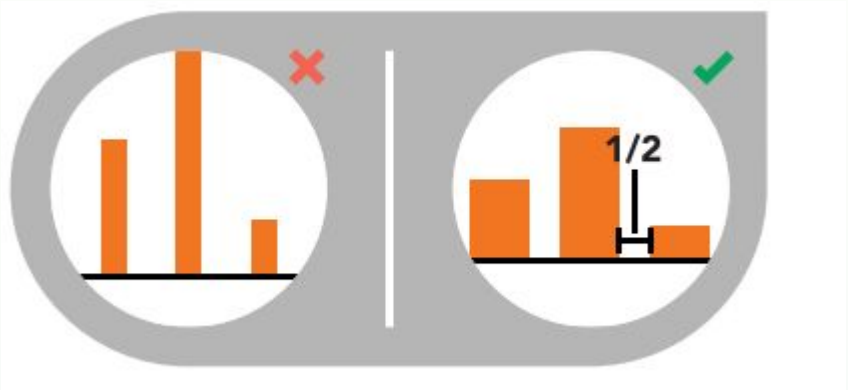
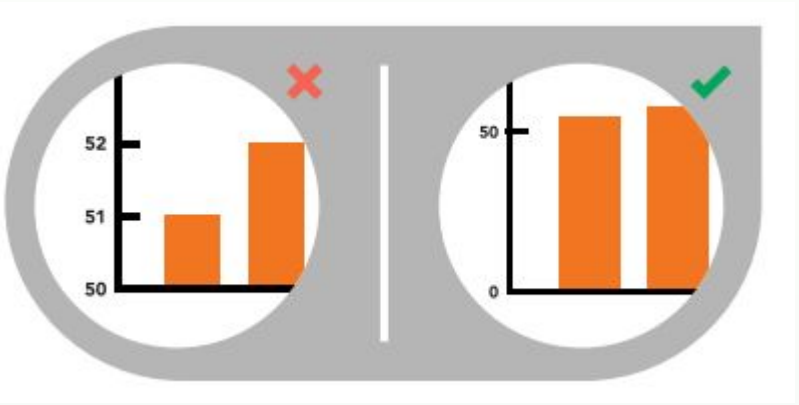
Data_Visualization_101_How_to_Design_Charts_and_Graphs

# Examples - bar chart




Space between bars should be ½ bar width when tools provide that option.




Starting at a value above zero truncates the bars and doesn't accurately reflect the full value.

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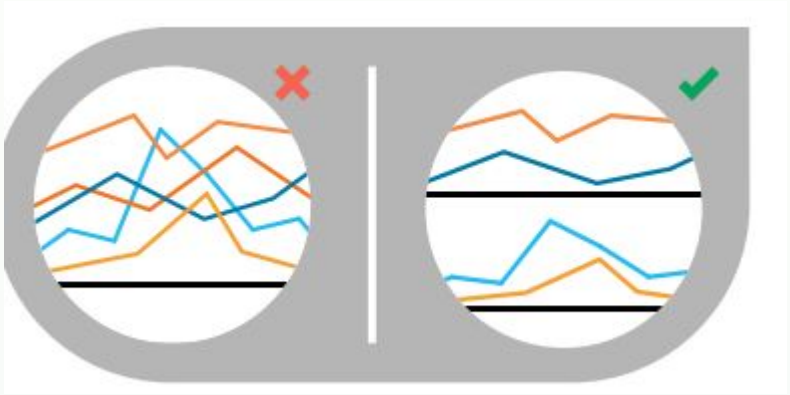
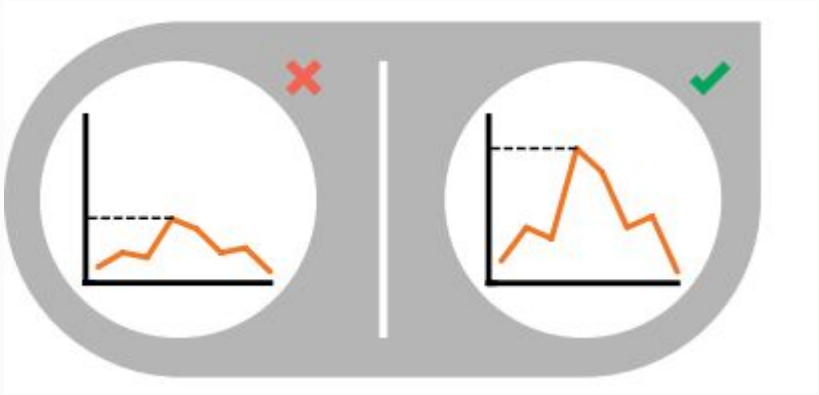
# Examples - line chart



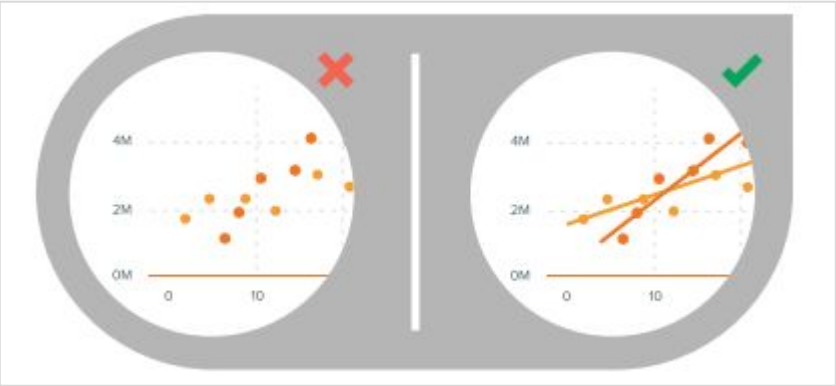
If you need to display more, break them out into separate charts for better comparison.



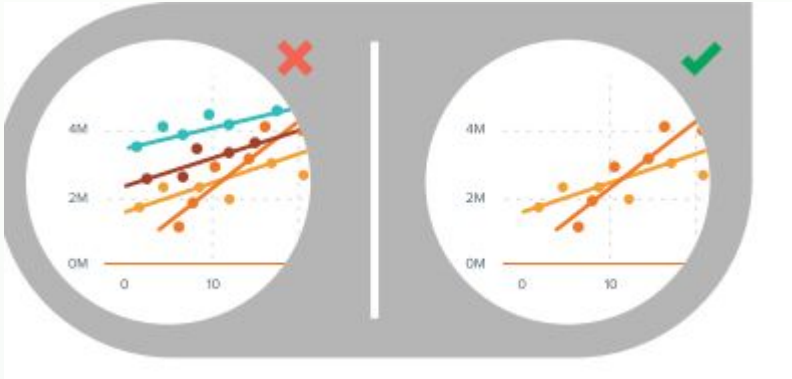
Plot all data points so that the line chart takes up approximately two-thirds of the y-axis' total scale.

Data_Visualization_101_How_to_Design_Charts_and_Graphs

# Examples - scatter plot




Use trend lines: These help draw correlation between the variables to show trends.




Too many lines make data difficult to interpret.

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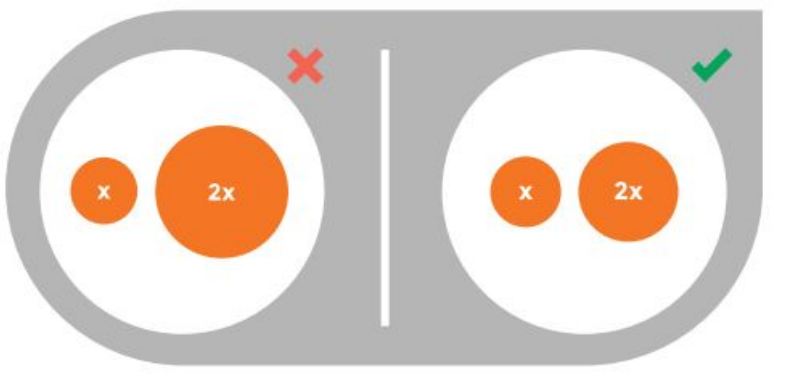
# Examples - bubble map



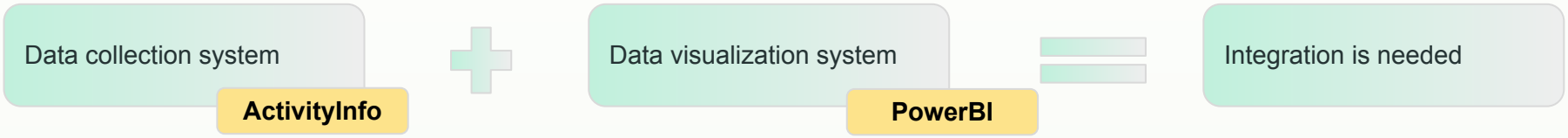

Bubbles should be scaled according to area, not diameter.


Avoid adding too much detail or using shapes that are not entirely circular; this can lead to inaccuracies.

Data_Visualization_101_How_to_Design_Charts_and_Graphs

# Data visualization examples

# Information management system and visualization




- Dedicated system for data visualization - more data visualization options
- More time in integration and higher level of capacity building is needed

# Information management system and visualization

Data collection system and data visualization in the same system

**ActivityInfo**

No Integration is needed

Less time, people and budget needed for integration

**Development assistance project**

**Cash based interventions**

**Feedback complaint and response mechanism**

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# Key messages

- Start always with who will read your report and what is the message that you want to convey!
- If you want to confirm the type of reports and audience look back at your M&E plan and your data model!
- The chart type depends on questions (i.e. relationships) and data type.
- Always consider font size, colors and text descriptions in your data visualizations.

# Resources

- Development assistance project
- Sudan - Multi purpose assistance
- Harvard University - Data accessibility
- Storytelling with data
- From data to viz
- Data_Visualization_101_How_to_Design_Charts_and_Graphs
- Contrast ratio
- Development assistance project
- Feedback complaint and response mechanism
- Cash based interventions

# Questions?

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