

Specialty

Data visualization

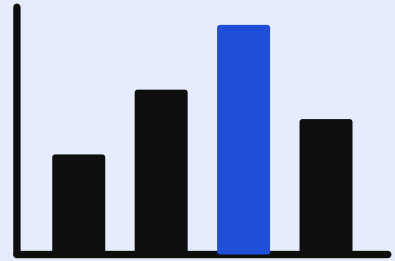
Represents data with shapes, positions, and colors so they can be compared, explored, and understood.

In Spanish

Visualización de datos

Origin

Modern foundations: Tufte (1983); Cleveland and McGill (1984)



What problem it addresses

Not all charts are read equally well: comparing angles or areas is much harder than comparing positions.

Principles

Position

What compares best: values on a common axis.

Length and angle

Read less accurately than position.

Area and color

The least accurate for comparing quantities.

Applications in design

✓ Use it like this

To compare quantities, use bars aligned on a common axis.

✗ Avoid

Pie charts with many similar slices.

👁 Don't fall for it

Start bars at zero: otherwise you exaggerate the differences.

Connections

Builds on

■ Cognitive load

Related to

■ Data storytelling

Authors and works

1983	Edward R. Tufte	Argued for devoting a chart's ink to the data and removing what does not inform.
1984	William S. Cleveland and Robert McGill	Ranked, through experiments, which ways of representing values are read most accurately.

Sources

Original sources

- Tufte, E. R. (1983). The visual display of quantitative information. Graphics Press.
- Cleveland, W. S., & McGill, R. (1984). Graphical perception: Theory, experimentation, and application to the development of graphical methods. *Journal of the American Statistical Association*, 79(387), 531–554. [View source \(https://doi.org/10.1080/01621459.1984.10478080\)](https://doi.org/10.1080/01621459.1984.10478080)

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