DATA JEDI

Data Visualisation Training

Data Jedi Academy

Recommendations for charting

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- **Begin with a goal**. The designer is tasked with conveying the right visualisation in line with a defined goal; whether the goal is prompting a decision or action, or displaying new insights.
- **Put your audience first.** Data visualization is rarely one size fits all, visualisation needs to be customised to suit it's audience.
- **Choose the right chart**. Understand the strengths and limitations of each chart type and align with this to achieve your goal.
- **Use labels wisely.** Labels give context to your visualisation. Provide axes labels, titles, legends and data labels to help the audience understand the message.
- **Less is more** – A chart shouldn't communicate multiple messages. Communicating multiple concepts usually results in trade-offs in clarity.
- **Use colours strategically** - Use colour intentionally and not for decorative purposes. Maintain a colour scheme and use fewer colours as this is typically better.
- **Eliminate chart Junk** - Non essential information added to a chart can be referred to as chart junk. Remove unnecessary grid lines and any other chart components which add no value.

Case Study 1 – Bar Chart

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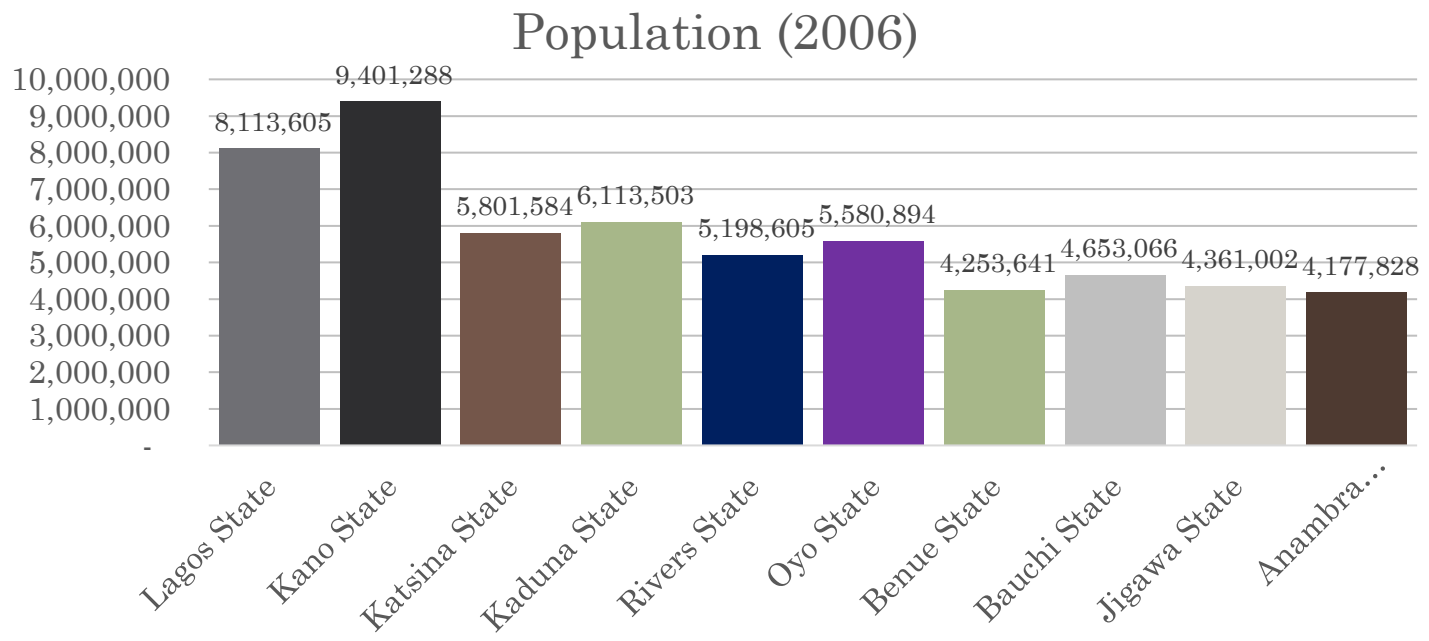
The chart below is for the population of Nigeria and should communicate that Lagos was the second most populous state in the country in 2006.
Does it do that?



Spot some of the issues with this chart.

Case Study 1 – Bar Chart

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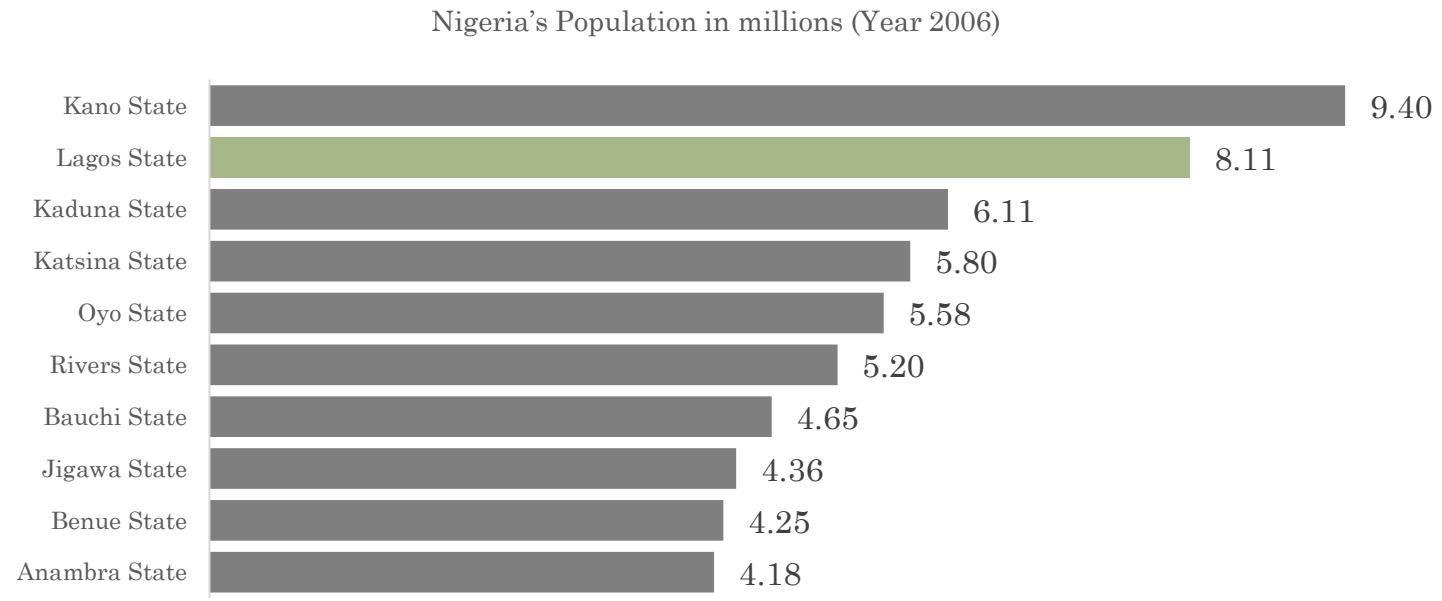
Lagos was the second most populous state in the country in 2006.



Key changes made to the previous chart

- Well defined title
- Horizontal bar chart is used to improve readability since the state names are long
- Color deliberately isolates Lagos for the audience attention
- Logical order is used to arrange the population (Descending order)
- Grid is taken out since it is chart junk
- Data labels are formatted, and description of units added to title
- Values in the axis are removed since the data labels make them redundant.

Case Study 2 - Table

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State	Capital	Population (2006)	Land Mass km²
Katsina State	Katsina	5,801,584	24,192
Lagos State	Ikeja	8,113,605	3,345
Kano State	Kano	9,401,288	20,131
Kaduna State	Kaduna	6,113,503	46,053
Oyo State	Ibadan	5,580,894	28,454
Rivers State	Port Harcourt	5,198,605	11,077
Bauchi State	Bauchi	4,653,066	49,119

Spot some of the issues with this table.

Case Study 2 - Table

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Key changes made to the previous table

- Banded rows or columns allow for easier distinction when matching and reading across information.
- Cell padding or adding a slight margin and evenly distributing columns when appropriate creates more space for the reader and enhances readability.
- Where appropriate round to allow for easier comparison

Charting Pitfalls to avoid

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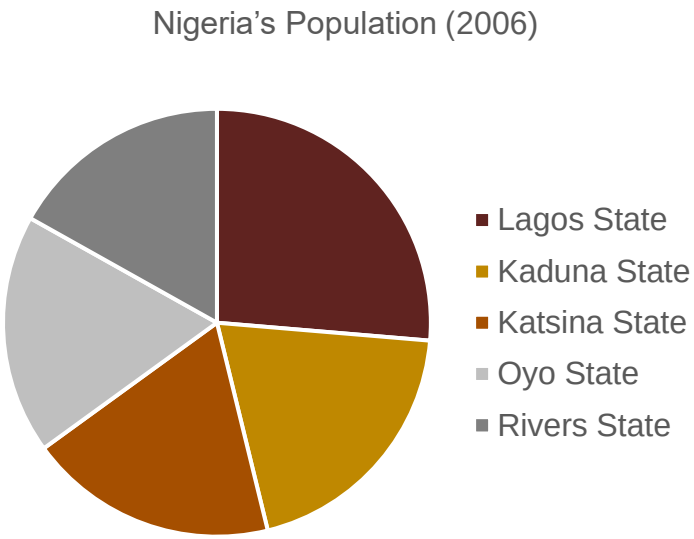
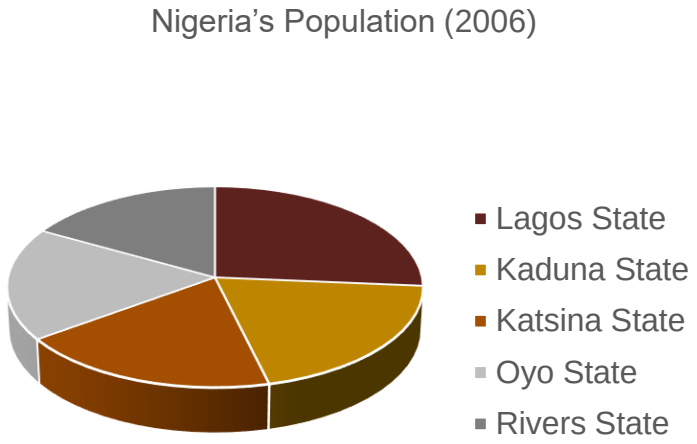


- Avoid using a pie chart when the data points are very similar. It is difficult to draw a conclusion from a pie chart with many slices as we cannot easily understand the variability.



- Avoid charts with a third dimension because they can skew the perception of viewer, which should not be your intention.

Charting Pitfalls to avoid

DATA JEDI

State	Population
Lagos State	8,113,605
Kaduna State	6,113,503
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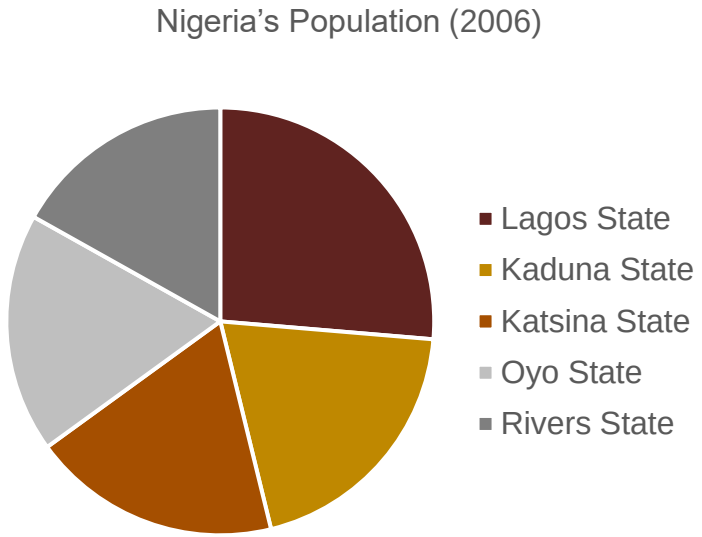
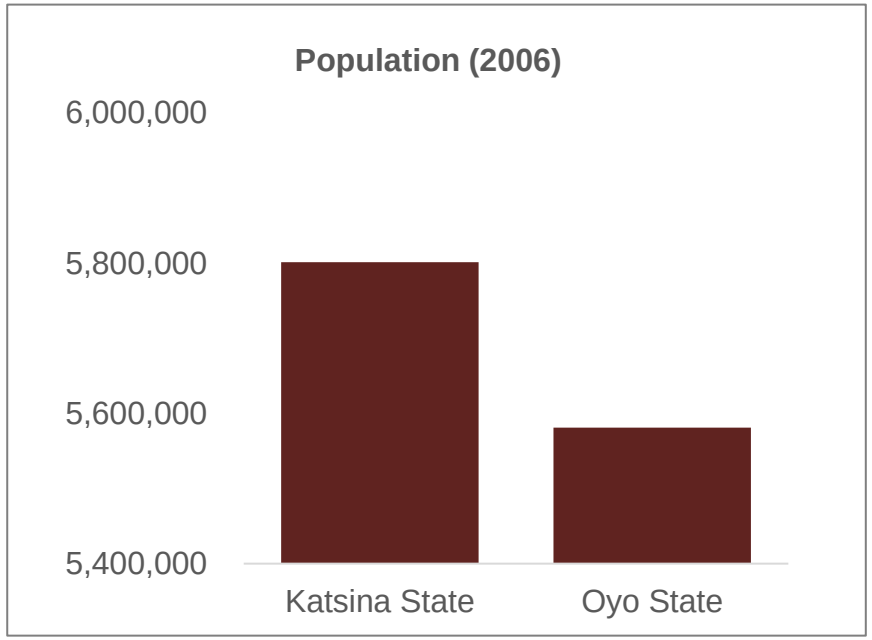


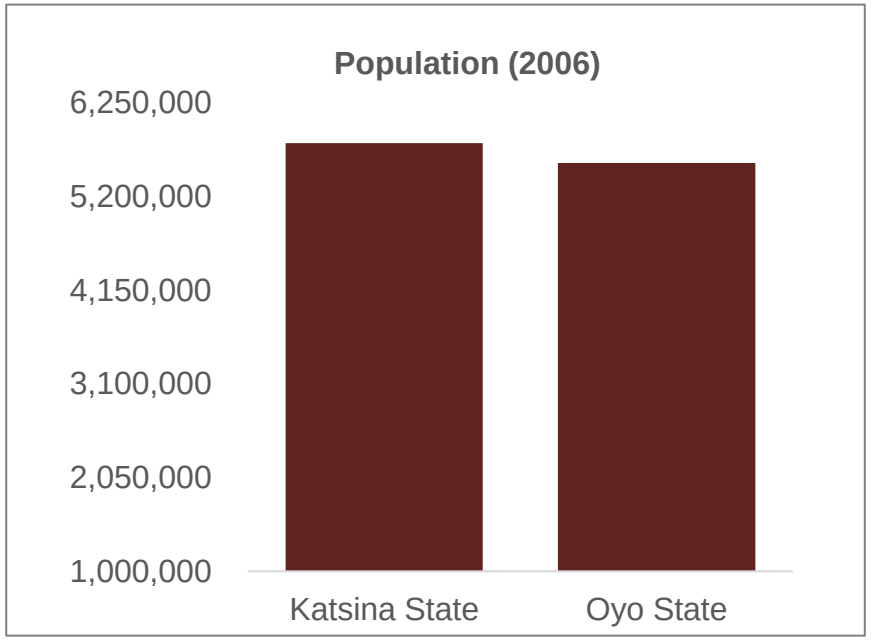
Often times pie charts do not convey conclusions which cannot be effectively drawn from a table.

Charting Pitfalls to avoid

DATA JEDI



Biased Scale



Unbiased Scale

In this example, we can see how the difference being called out is grossly exaggerated with the inaccurate scale on the left.

These two graphs show the same bars, but clearly biased representations of the data.

This is often referred to as the lie factor.

NB: It is important to remain consistent while you're using a scale.

Charting Pitfalls to avoid

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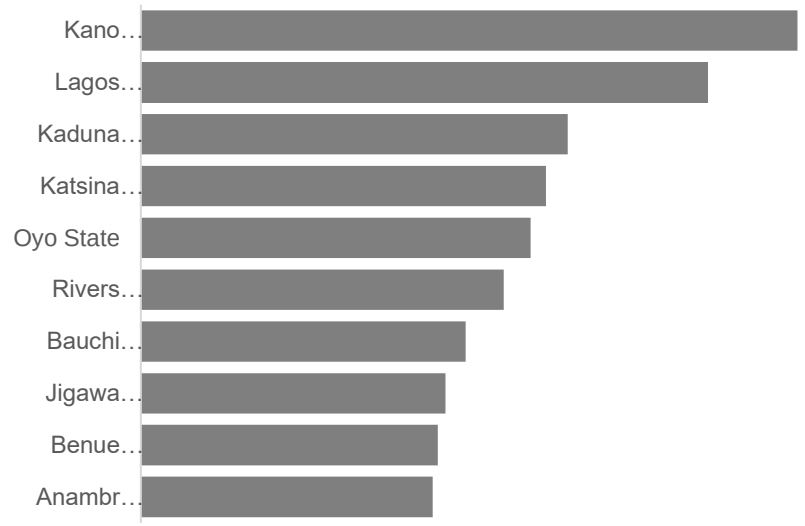
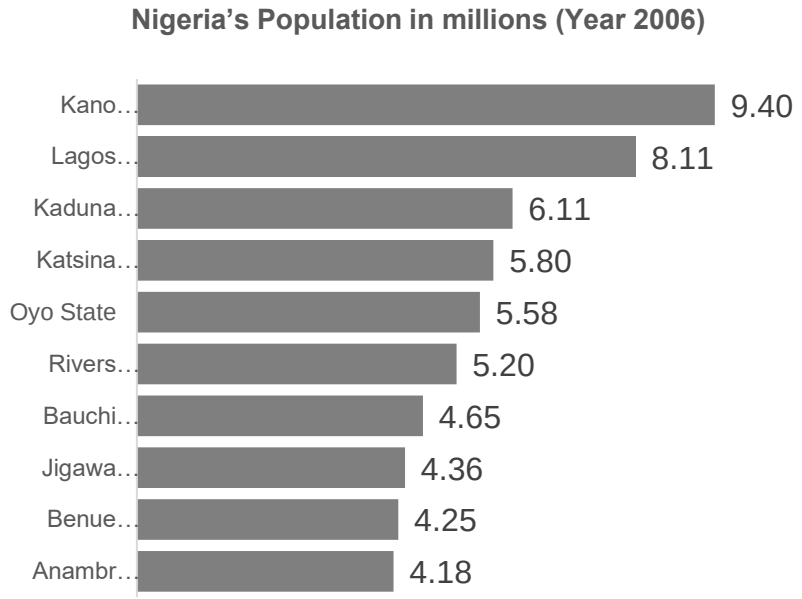


Without a proper title and labels/axes, this information the audience is forced to make assumptions, some of which maybe correct, some which maybe not.



Take the guessing out of it and use all necessary labels, placed ideally as close to the value they are associated to as possible.

This will also help ensure the reader is getting the message you are trying to convey without having to exert undue effort.

Chart Selection Guide

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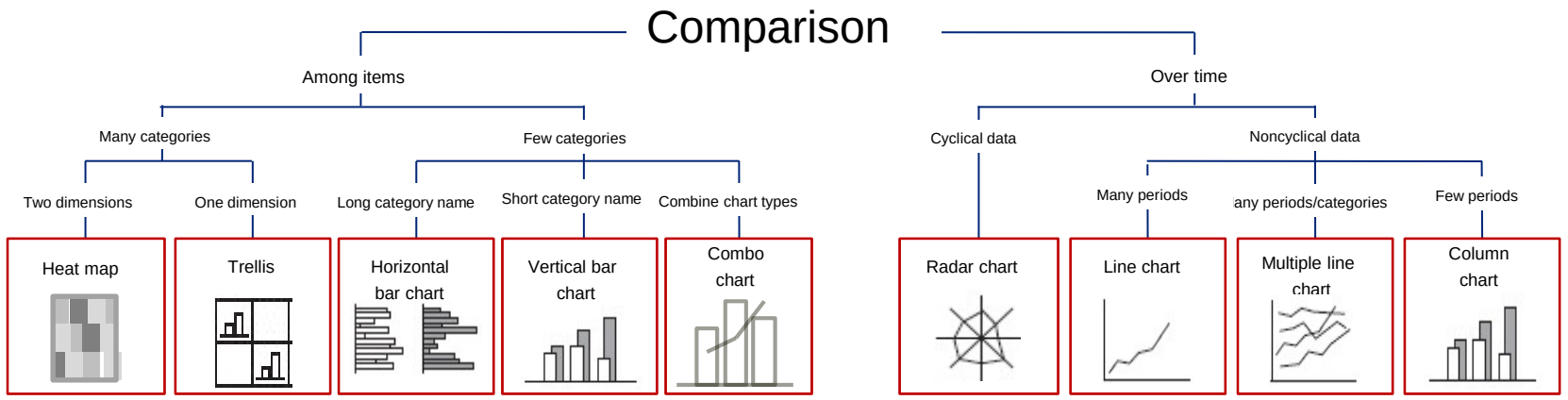
1. Comparison

Shown below are some common scenarios that determine the choice of charts for comparative analysis



Heat map — Communicate outcome of risk assessment classification broken down by department or areas of interest

Line chart — Display number of audit findings on an historical basis and monitor issues resolution

Vertical bar chart — Compare count of control lapses identified per business functions

Radar chart — Assess process gaps based on weaknesses observed during field work

Chart Selection Guide

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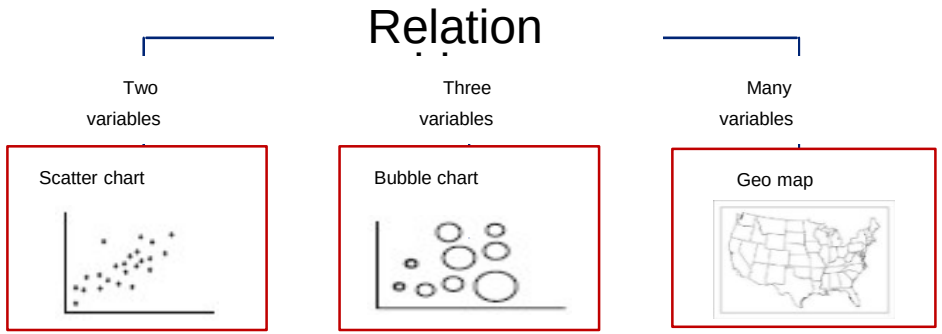
2. Relation

Shown below are some common scenarios that determine the choice of charts for relationship analysis



Scatter chart—
Depict depreciation cost against value of assets to detect any possible outliers

Bubble chart —
Profile total payroll cost per department over number of employees across each department. Use size of the bubbles to size of each department

Geo map —
Analyse risks and audit findings across all geographical locations of the company

Chart Selection Guide

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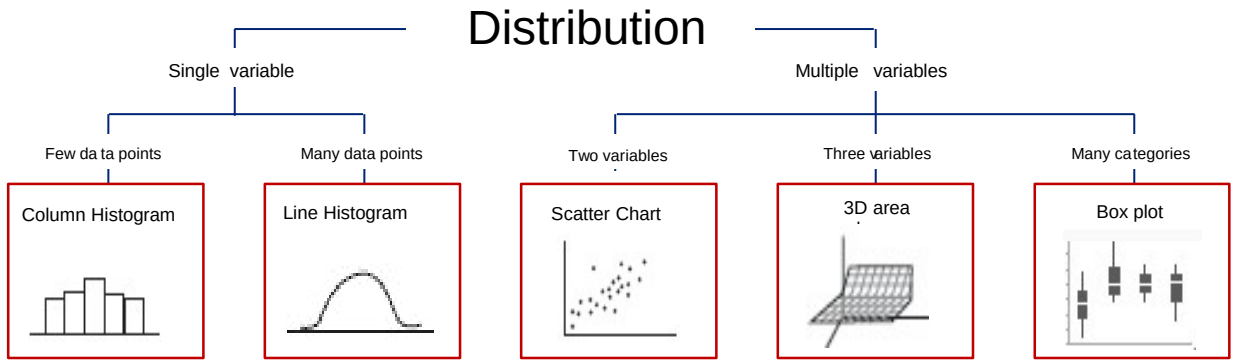
3. Distribution

Shown below are some common scenarios that determine the choice of charts for visualizing distribution



Column histogram — Highlight average distribution of aging inventory, i.e., 0–90 days, 91–180 days, 181–270 days, 271–360 days, and 360+ days

Line histogram —Gain insight into procurement decisions by depicting winning bids against bid quotes to identify exceptionally low bids

Chart Selection Guide

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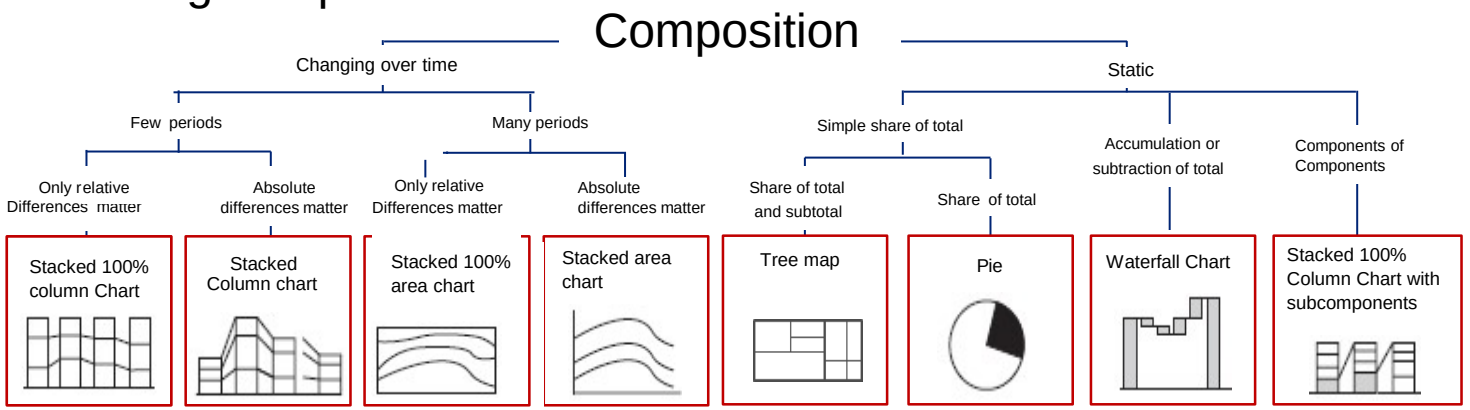
4. Composition

Shown below are some common scenarios that determine the choice of charts for visualizing composition



Stacked chart —
Provide a visual breakdown of risk classification areas or a segmentation of audit findings according to business areas

Tree map —
Gain insight into business segments with respect to controls strength and adherence

Pie chart —
Show a distribution of the level of response to historic audit findings

Smart Chart Choice

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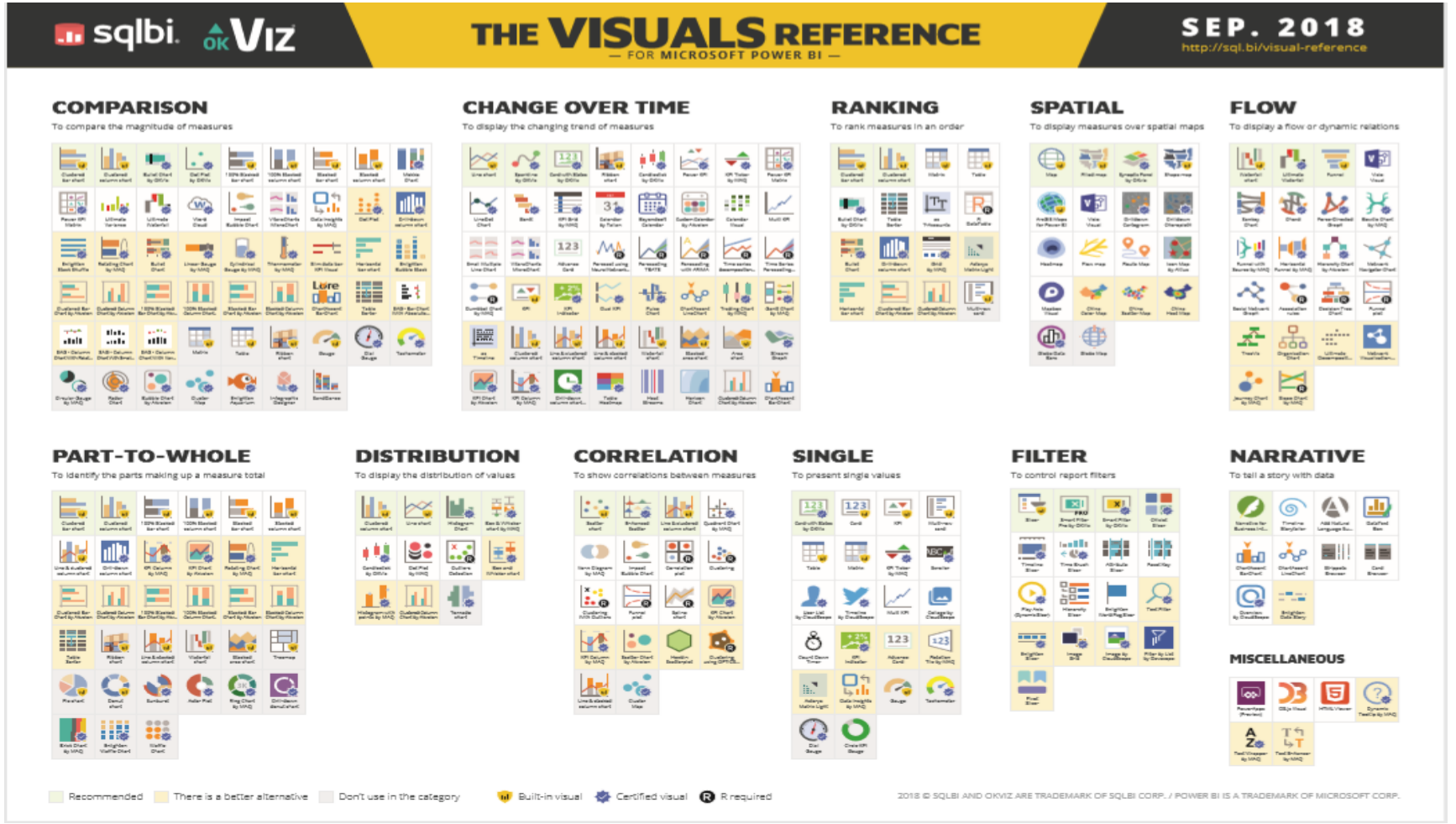

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