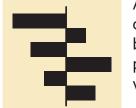
Deviation

Emphasise variations (+/-) from a fixed reference point. Typically the reference point is zero but it can also be a target or a long-term average. Can also be used to show sentiment (positive/neutral/negative).

Example FT uses Trade surplus/deficit, climate change

Diverging bar



A simple standard bar chart that can handle both negative and positive magnitude

Diverging stacked bar









The shaded area of these charts allows a balance to be shown either against a baseline or between two series.

Visual

Designing with data

vocabulary

There are so many ways to visualise data - how do we

know which one to pick? Use the categories across the

top to decide which data relationship is most important

within the category to form some initial ideas about what

FT graphic: Alan Smith; Chris Campbell; Ian Bott; Liz Faunce; Graham Parrish; Billy Ehrenberg-Shannon; Paul McCallum; Martin Stabe

might work best. This list is not meant to be exhaustive,

in your story, then look at the different types of chart

nor a wizard, but is a useful starting point for making

informative and meaningful data visualisations.

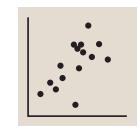
Inspired by the Graphic Continuum by Jon Schwabish and Severino Ribecca

Correlation

Show the relationship between two or more variables. Be mindful that, unless you tell them otherwise, many readers will assume the relationships you show them to be causal (i.e. one causes the

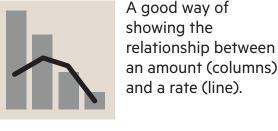
Example FT uses Inflation and unemployment, income and life expectancy

Scatterplot



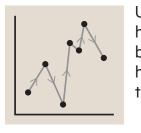
The standard way to show the relationship between two continuous variables, each of which

Column + line timeline

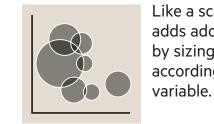


an amount (columns) and a rate (line).

Connected scatterplot

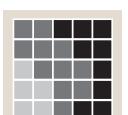


Usually used to show how the relationship between 2 variables has changed over time.



Like a scatterplot, but adds additional detail by sizing the circles according to a third

XY heatmap



A good way of showing the patterns between 2 categories of data, less effective at showing fine differences in amounts.

Use where an item's position in an ordered list is more important than its absolute or relative value. Don't be afraid to highlight the points of interest.

> Example FT uses Wealth, deprivation, league tables constituency election results

Ranking

Ordered bar

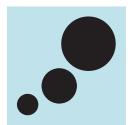


Standard bar charts display the ranks of values much more easily when sorted into order.

Ordered column

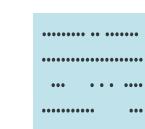
See above.

Ordered proportional symbol

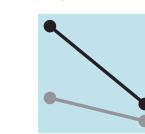


Use when there are big variations between values and/or seeing fine differences between data is not so

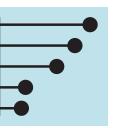
Dot strip plot



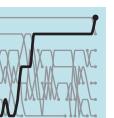
Dots placed in order on a strip are a space-efficient method of laying out ranks across multiple categories.



Perfect for showing how ranks have changed over time or vary between categories.



Lollipops draw more attention to the data value than standard bar/column and can also show rank and value effectively.



Effective for showing changing rankings across multiple dates. For large datasets, consider grouping lines using colour.

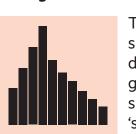
Distribution

Show values in a dataset and how often they occur. The shape (or 'skew') of a distribution can be a memorable way of highlighting the lack of uniformity or equality in the data.

Example FT uses Income distribution, population (age/sex) distribution, revealing

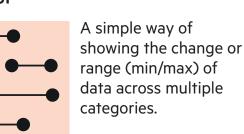
Histogram

inequality

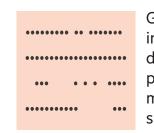


The standard way to show a statistical distribution - keep the gaps between columns small to highlight the shape' of the data.

Dot plot



Dot strip plot



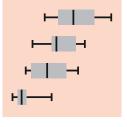
Good for showing individual values in a distribution, can be a problem when too many dots have the same value.

Barcode plot



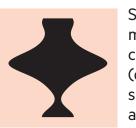
Like dot strip plots, good for displaying all the data in a table, they work best when highlighting individual

Boxplot



distributions by showing the median (centre) and range of the data

Summarise multiple



Similar to a box plot but more effective with complex distributions (data that cannot be summarised with simple average).

A standard way for

breakdown of a

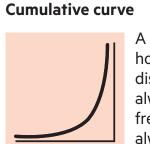
showing the age and sex

population distribution;

effectively, back to back

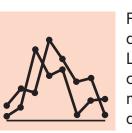
Population pyramid





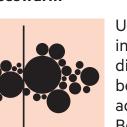
A good way of showing how unequal a distribution is: y axis is always cumulative frequency, x axis is always a measure.

Frequency polygons



For displaying multiple distributions of data. Like a regular mile chart, best limited to a maximum of 3 or 4 datasets.

Beeswarm



Use to emphasise individual points in a distribution. Points can be sized to an additional variable. Best with mediumsized datasets

Change over Time

Give emphasis to changing trends These can be short (intra-day) movements or extended series traversing decades or centuries: Choosing the correct time period is important to provide suitable context

Example FT uses Share price movements, economic time

series, sectoral changes in a market

for the reader.



The standard way to show a changing time series. If data are irregular, consider markers to represent

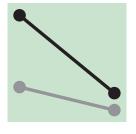
Column

Columns work well for showing change over time - but usually best with only one series of

Column + line timeline



A good way of showing the relationship over time between an amount (columns) and a rate



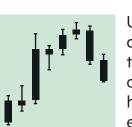
Good for showing changing data as long as the data can be simplified into 2 or 3 points without missing a key part of story.

Area chart



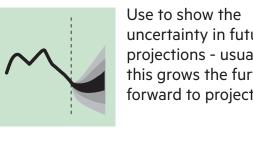
Use with care – these are good at showing changes to total, but seeing change in components can be very difficult.

Candlestick



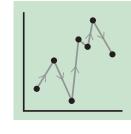
Usually focused on day-to-day activity, these charts show opening/closing and high/low points of each day.

Fan chart (projections)



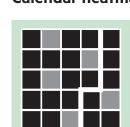
uncertainty in future projections - usually this grows the further forward to projection.

Connected scatterplot



A good way of showing changing data for two variables whenever there is a relatively clear pattern of _____ progression.

Calendar heatmap



A great way of showing temporal patterns (daily, weekly, monthly) – at the expense of showing precision in

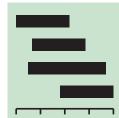
Great when date and

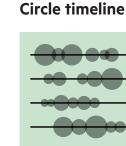
elements of the story

duration are key

in the data.

Priestley timeline





Good for showing discrete values of varying size across multiple categories (eg earthquakes by continent).

axis. Good for

displaying detailed

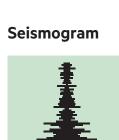
time series that work

especially well when

scrolling on mobile.

Presents time on the Y

Vertical timeline



Another alternative to the circle timeline for showing series where there are big variations in the data.

A type of area chart;

Streamgraph



use when seeing changes in proportions over time is more important than individual values

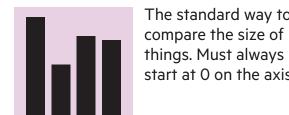
Magnitude

Show size comparisons. These can be relative (just being able to see larger/bigger) or absolute (need to see fine differences). Usually these show a 'counted' number (for example, barrels dollars or people) rather than a

Example FT uses Commodity production, market capitalisation, volumes in general

calculated rate or per cent.

Column



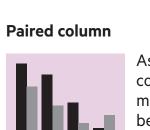
compare the size of things. Must always start at 0 on the axis.

See above. Good when

the data are not time

series and labels have

long category names.



As per standard column but allows for multiple series. Can become tricky to read with more than 2

See above.

Paired bar



Marimekko

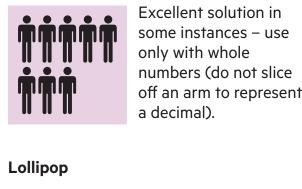
A good way of showing the size and proportion of data at the same time – as long as the data are not too complicated

Proportional symbol



Use when there are big variations between values and/or seeing fine differences between data is not so important.

Isotype (pictogram)



numbers (do not slice off an arm to represent a decimal). Lollipop charts draw

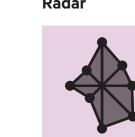
more attention to the

standard bar/column -

zero (but preferable).

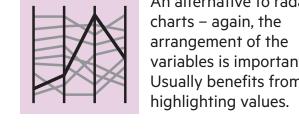
does not have to start a

data value than



A space-efficient way of showing value of multiple variables- but make sure they are organised in a way that makes sense to reader.

Parallel coordinates



arrangement of the variables is important. Usually benefits from highlighting values.

Good for showing a

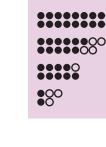
measurement against

the context of a target

or performance range

An alternative to radar

Grouped symbol



data or highlight individual elements is useful.

An alternative to

being able to count

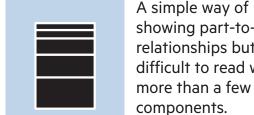
bar/column charts when

Part-to-whole

Show how a single entity can be broken down into its component elements. If the reader's interest is solely in the size of the components, consider a magnitude-type chart instead.

Example FT uses Fiscal budgets, company structures, national election results

Stacked column/bar

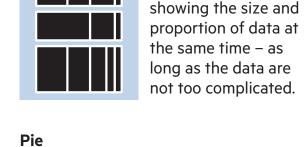


relationships but can be difficult to read with more than a few components.

A good way of

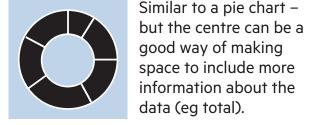
showing part-to-whole

Marimekko



A common way of showing part-to-whole data – but be aware that it's difficult to accurately compare the size of the

Donut



information about the data (eg total). Use for hierarchical part-to-whole

relationships; can be

difficult to read when

there are many small

good way of making

Treemap



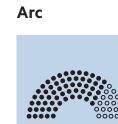
A way of turning points into areas – any point within each area is closer to the central point than any other

A hemicycle, often

Good for showing %

information, they work

used for visualising



parliamentary composition by number of seats.

work well in small

multiple layout form.

best when used on whole numbers and

Gridplot



Generally only used for schematic representation.

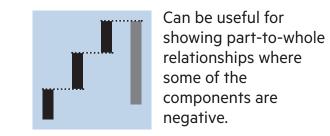
Can be useful for

some of the

negative.

relationships where

Waterfall

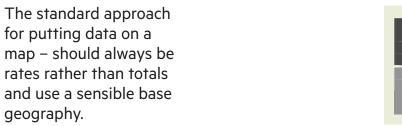


Spatial

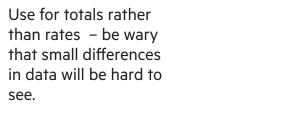
Aside from locator maps only used when precise locations or geographical patterns in data are more important to the reader than anything else.

Example FT uses Population density, natural resource locations, natural disaster risk/impact, catchment areas, variation in election

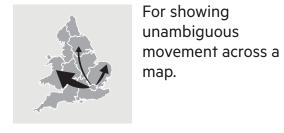
Basic choropleth (rate/ratio)



Proportional symbol (count/magnitude)



Flow map



Contour map



Equalised cartogram Converting each unit on a map to a regular and equally-sized shape –

good for representing

voting regions with

equal value.

For showing areas of

equal value on a map.

Can use deviation

colour schemes for

Scaled cartogram (value)



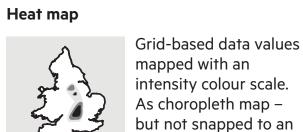
Dot density Used to show the location of individual events/locations make sure to annotate

any patterns the

reader should see.

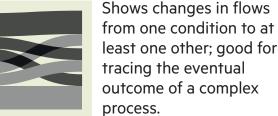
intensity colour scale.

admin/political unit.



Sankey

graphs.



Flow

Show the reader volumes or intensity of

movement between two or more states

or conditions. These might be logical

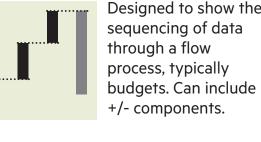
sequences or geographical locations.

Movement of funds, trade, migrants,

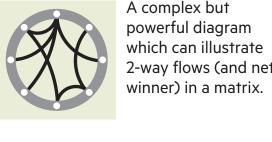
lawsuits, information; relationship

Example FT uses

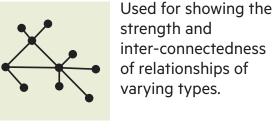
Waterfall

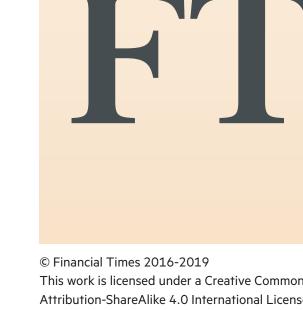






Network





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原源 ft.com/vocabulary