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Employees recognizing data in the workplace as an **asset**



Employees **trust** their decisions more when based on data



Employees are **confident** in their data literacy skills



Source: *The Human Impact of Data Literacy – 2020* – Qlik, Accenture, Data Literacy Project. N=9.000

The ability to **read**, **work** with, **analyze**, and **argue** with data

Source: Raul Bhargava and Catherine D'Ignazio from MIT and Emerson College



Read
data



Work
with data



Analyze
data

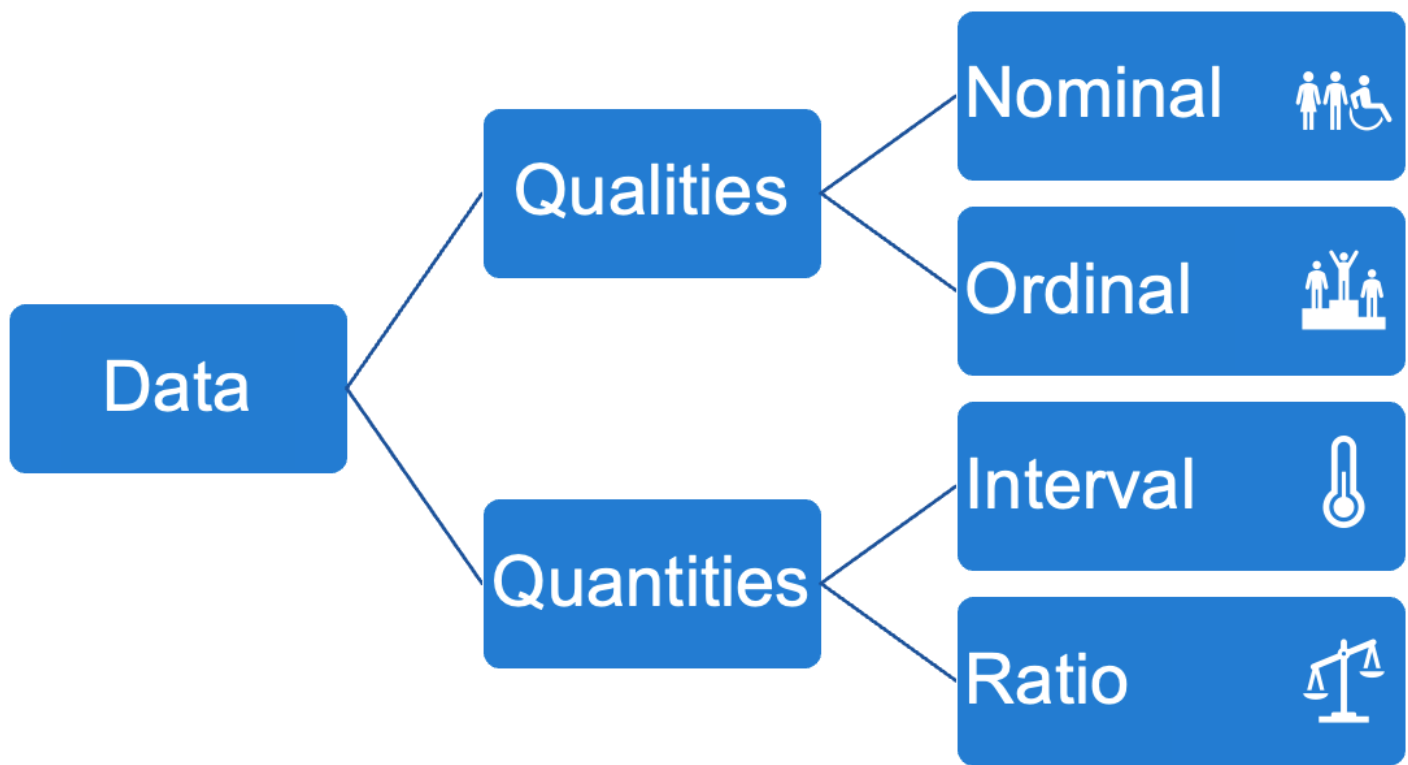


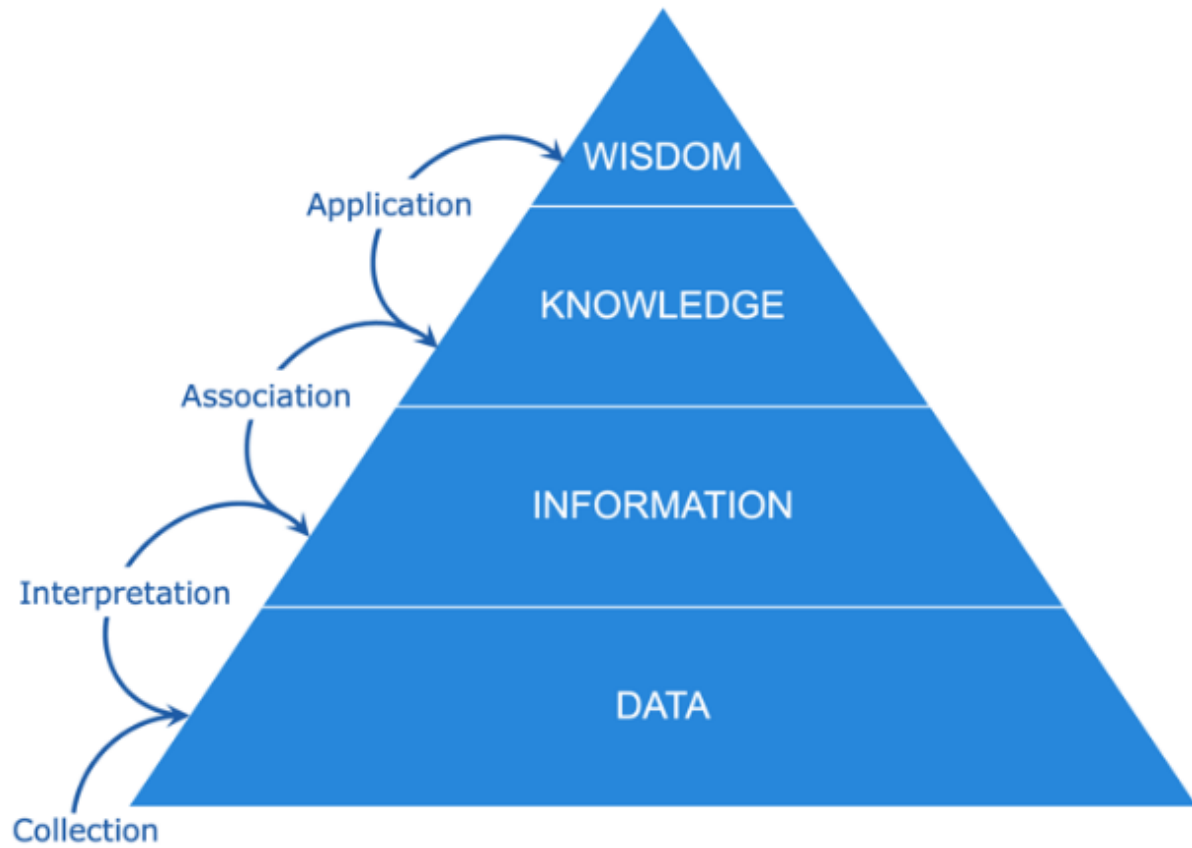
Argue
with data



Describes a **quality** or **quantity**
of some **object** or **event**.

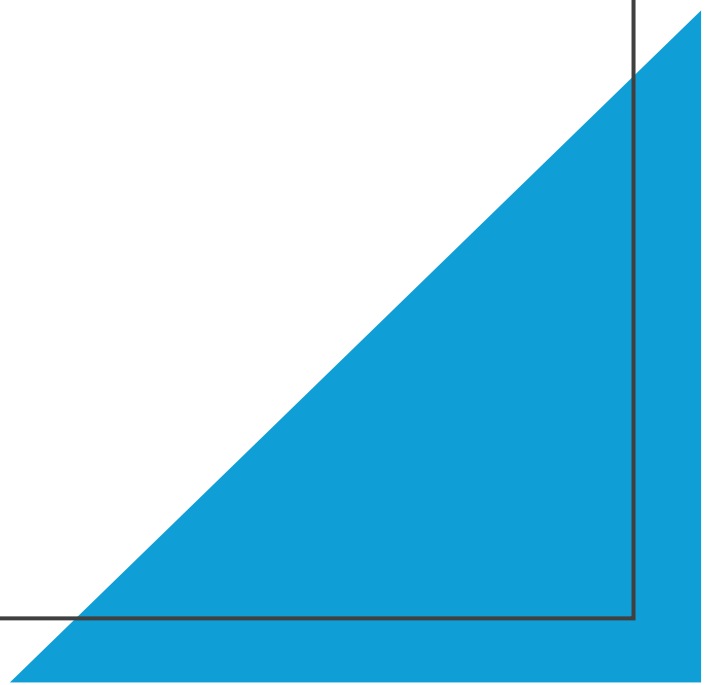
Source: unknown





Source: Jones, Ben. *Data Literacy Fundamentals: Understanding the Power & Value of Data*

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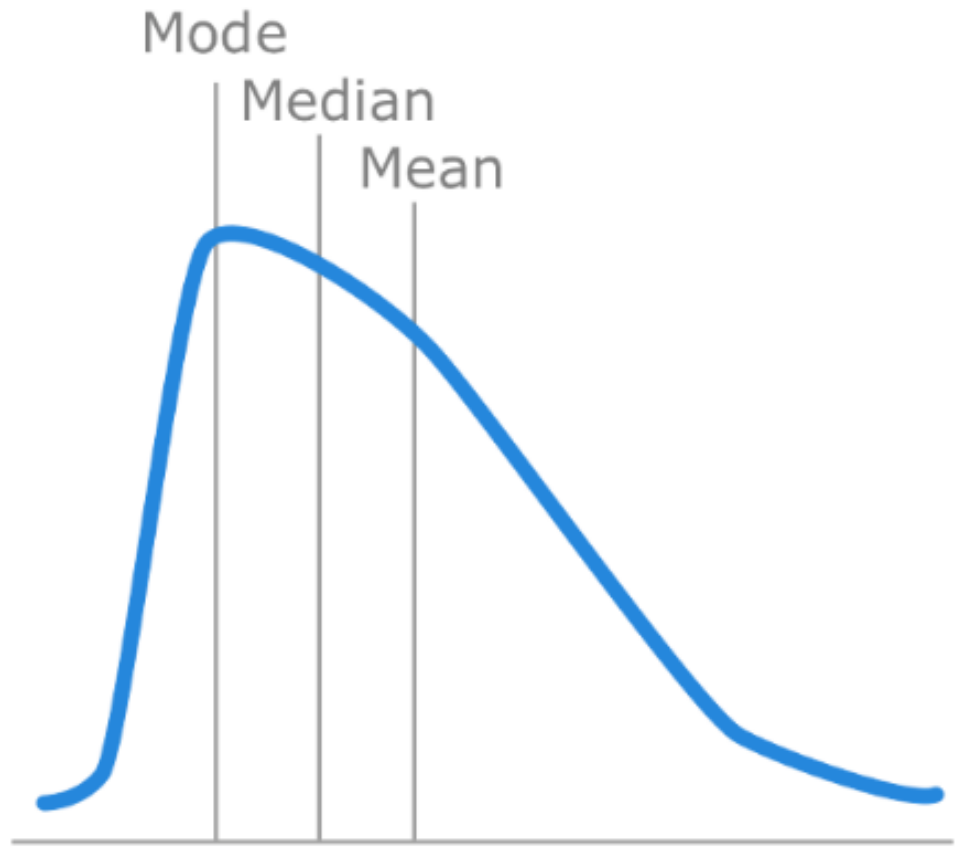
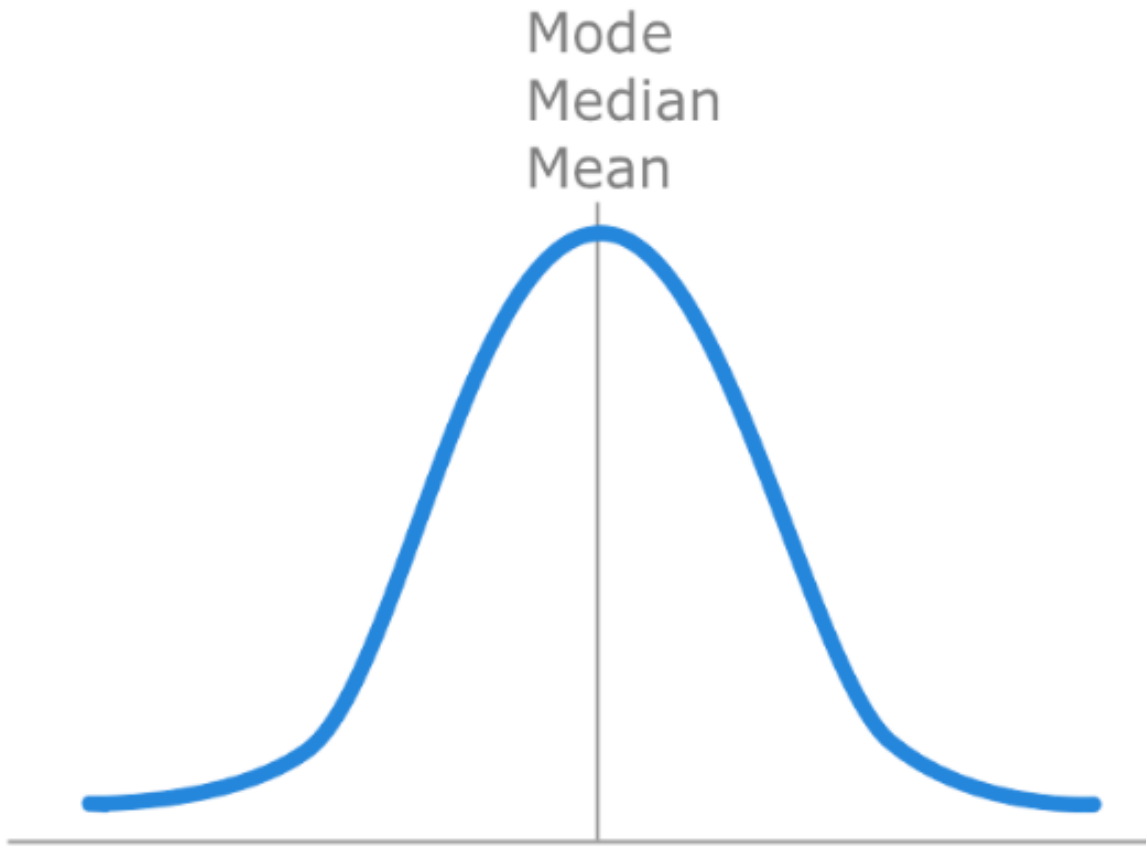
 **6,690 +3**
inhabitants

 **16.9 km²**
surface

 **18.5 K\$**
average income

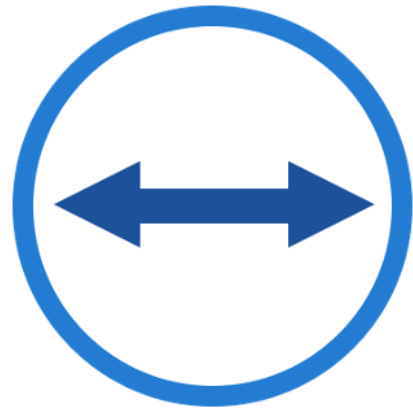
 **37.4 K\$**
average income







**Central
Tendency**



Spread



Shape

System 1

Fast 

Unconscious 

Automated 

Everyday
decisions 


Error prone 

System 2

Slow 

Conscious 

Effortful 

Complex
decisions 

Reliable 

Source: Daniel Kahneman - 2011 - Thinking, Fast and Slow




Categorical

Comparing categories and distributions of quantitative values

Revealing part-to-whole relationships and hierarchies



Hierarchical




Relational

Exploring correlations and connections

Plotting trends and intervals over time




Temporal



Tabular

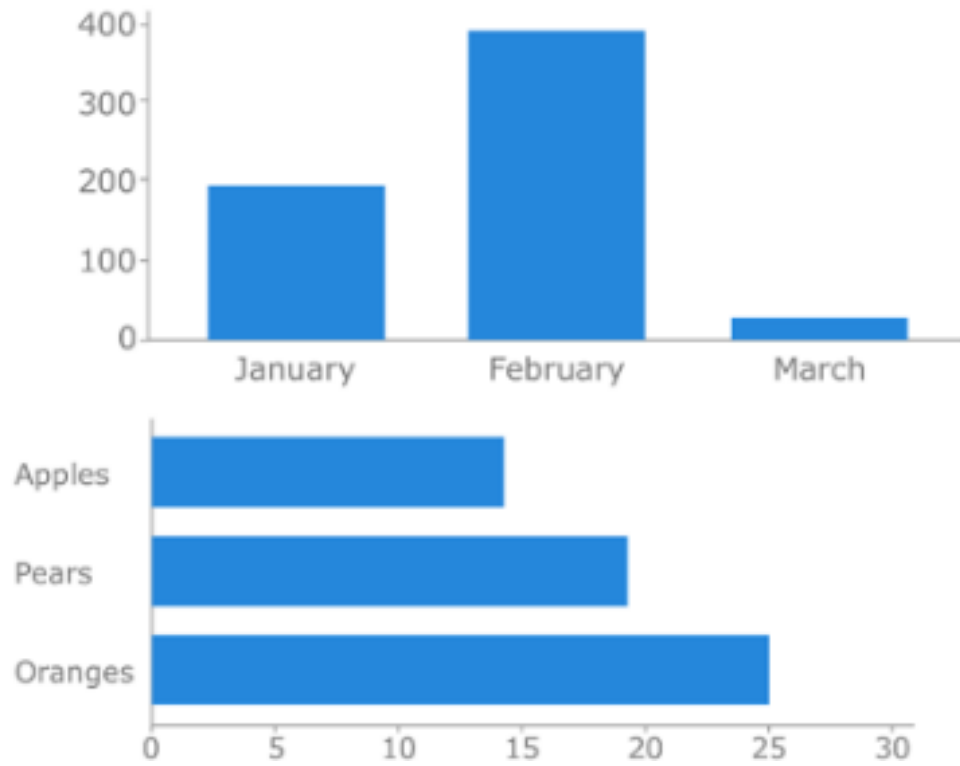
Organizing observations by variable to allow precise comparison

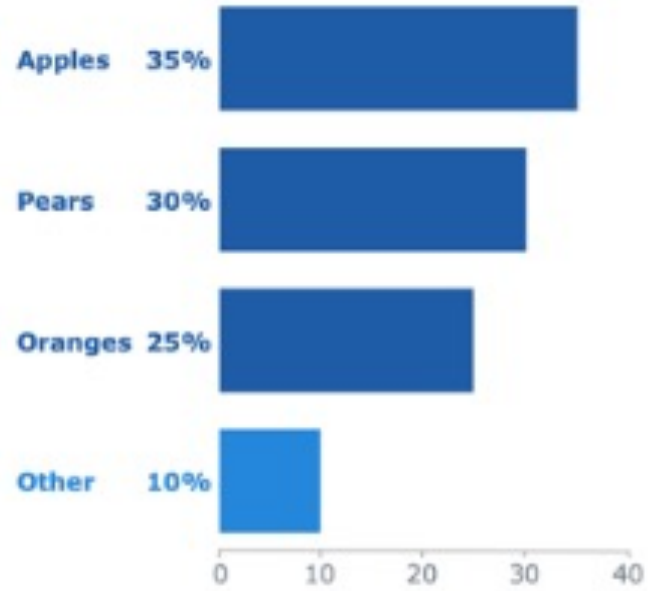
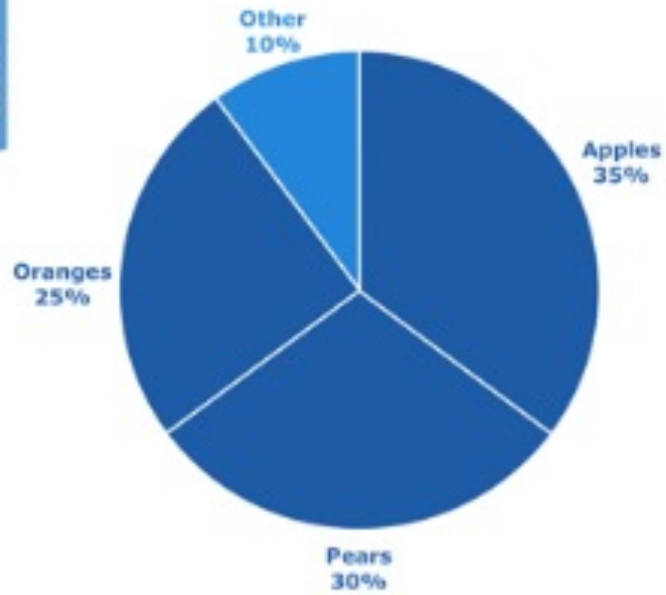
Mapping spatial patterns through overlays and distortions

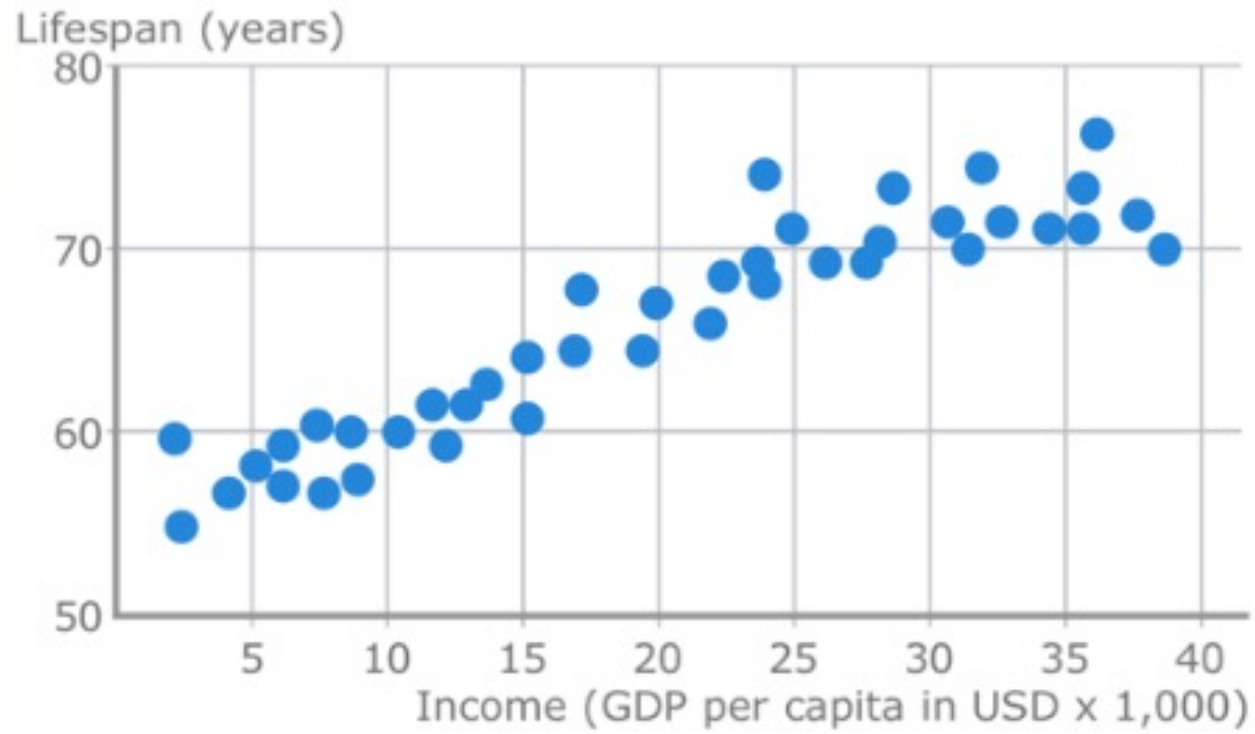


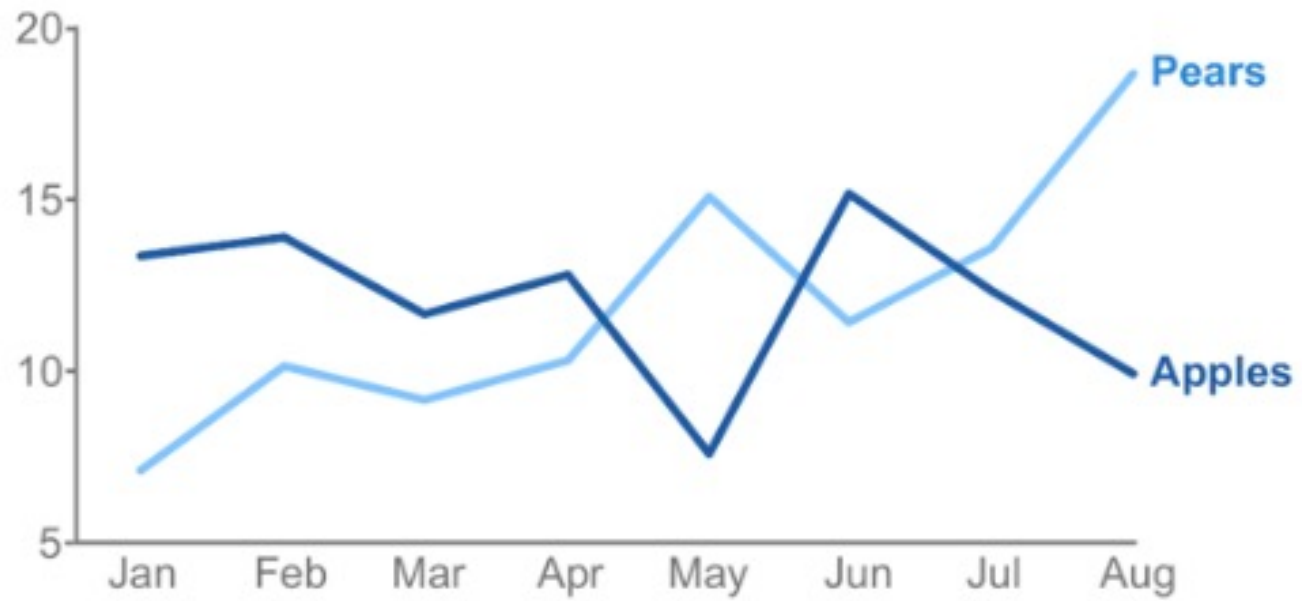
Spatial

Based on: Data Visualization, Andy Kirk



















	Jan	Feb	Mar	Apr	May	Jun
product 1	267	357	587	320	268	398
product 2	365	387	401	406	421	404
product 3	554	582	561	551	583	600
Total	1.186	1.326	1.549	1.277	1.272	1.402

	Jan	Feb	Mar	Apr	May	Jun
product 1	267	357	587	320	268	398
product 2	365	387	401	406	421	404
product 3	554	582	561	551	583	600
Total	1.186	1.326	1.549	1.277	1.272	1.402



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-  Why does the data matter to you?
-  Does the claim match the data?
-  Does the claim seem plausible?
-  What comparison needs to be made?
-  Who's saying it?
-  How was the data gathered?
-  What's missing?
-  Is the data being distorted?





***Tidy datasets
are all alike, but
every messy
dataset is messy
in its own way.***



table 1

1		
2		

inner join

1				
2				

outer join

1				
2				
3				
4				

union

1		
2		
1		
3		
4		

table 2

1		
3		
4		

left join

1				
2				

right join

1				
3				
4				

*Data management is about
people, processes,
and **technology**, in that
order.*

Source: unknown



Success loves **speed**



Patterns, not points



It's a **process**, not an event



Buy-in, not sign-off



Results before measures

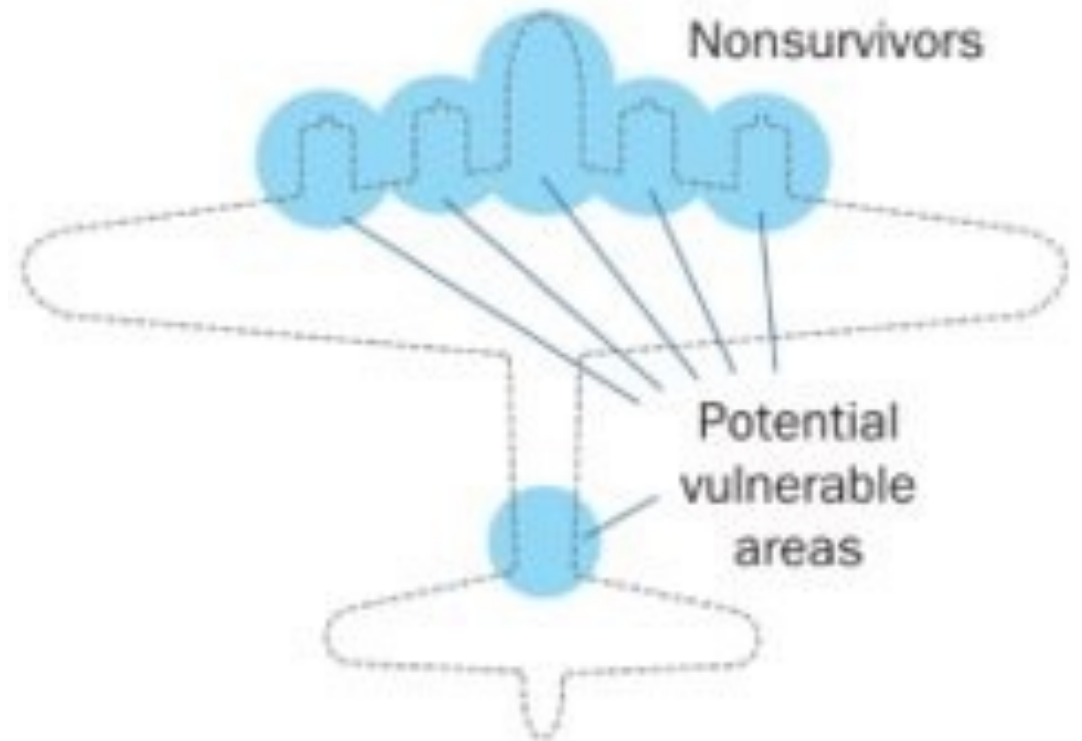


Should, **can** and **will**



Practical, not perfect

Source:
https://en.wikipedia.org/wiki/Survivorship_bias





Counts



Min/Max



Sums (totals)



**Ratios/
Proportions/
Percent**



**Measure of
central tendency**



**Measure of
dispersion**



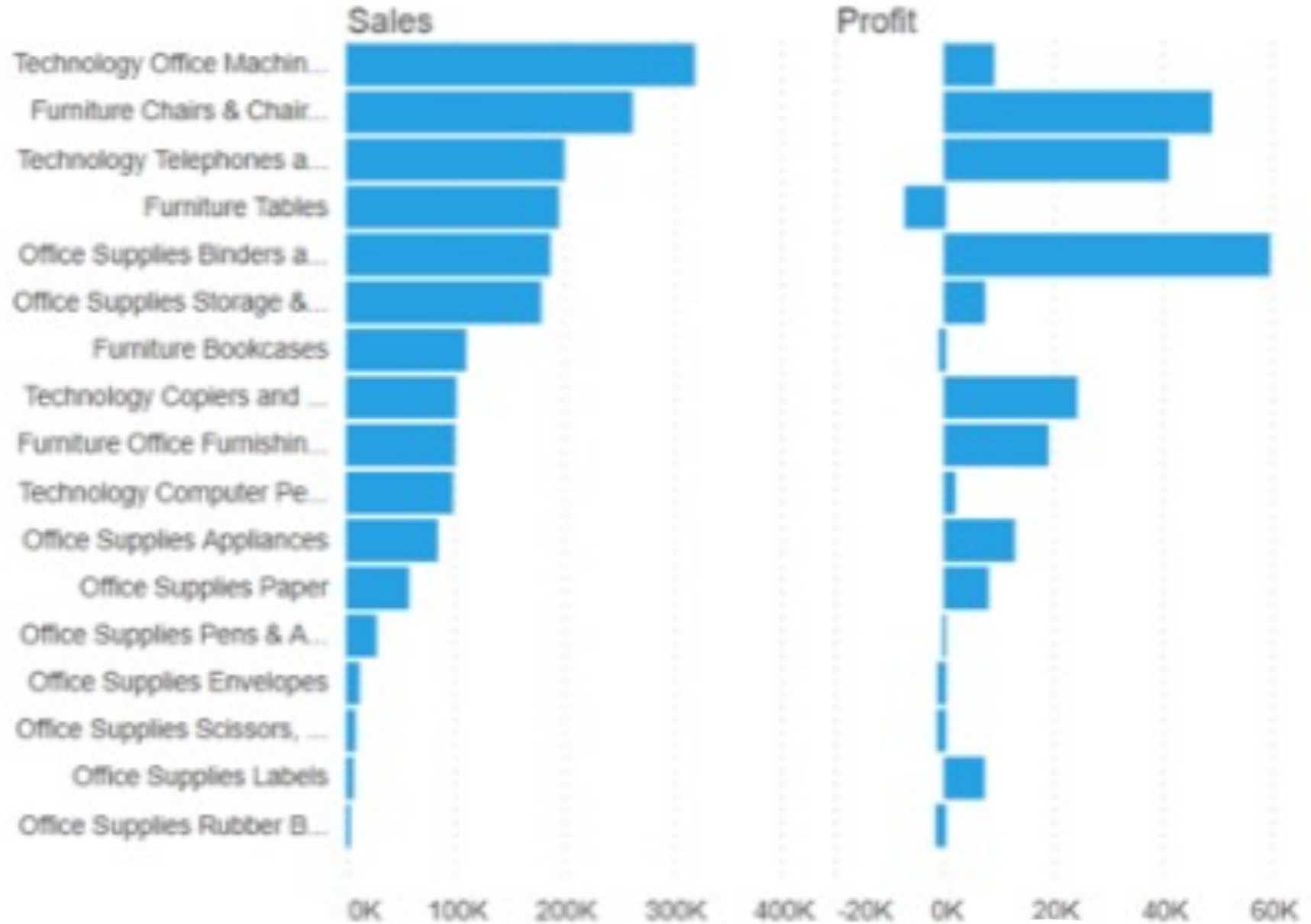
Drilling down



Finding correlations



Spotting outliers





Population



Sample



Sample size (N)




**Representative
sample**



**Under-coverage
bias**

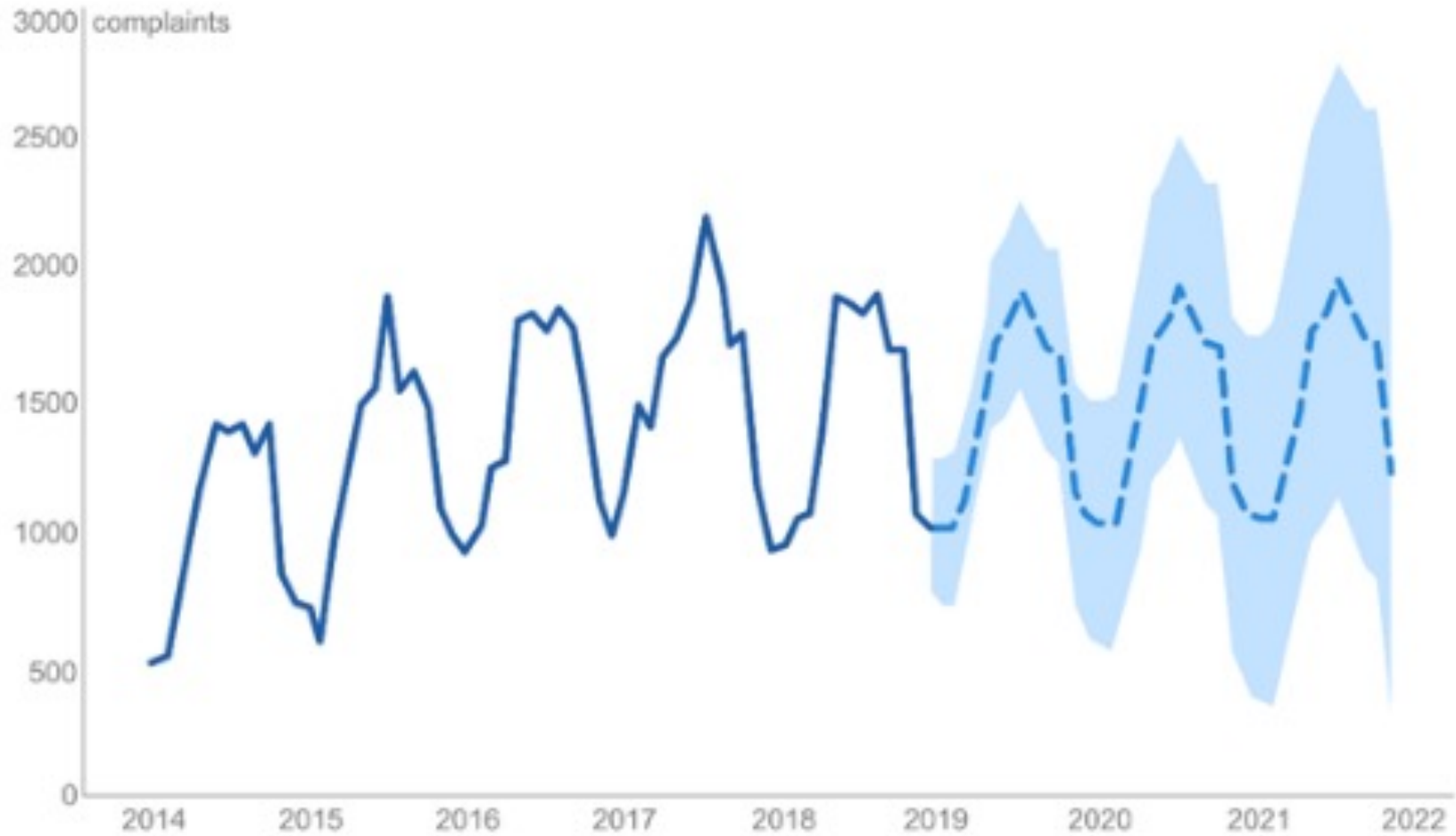


**Self-selection
bias**

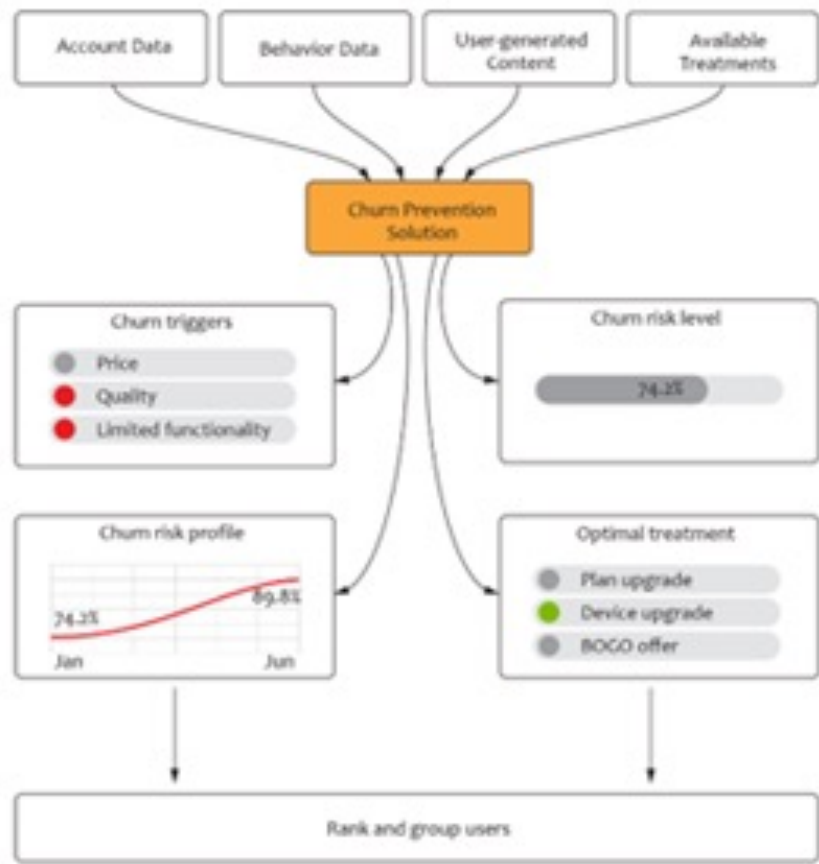

Linear
regression


Identify
patterns


Forecast
the future



Source: Jones, Ben. *Data Literacy Fundamentals: Understanding the Power & Value of Data*



Source: <https://blog.griddynamics.com/customer-churn-prevention-prescriptive-solution-using-deep-learning/> & <https://kpi-max.com/churn-rate/>



Quality



Variation within categories



Relations among categories



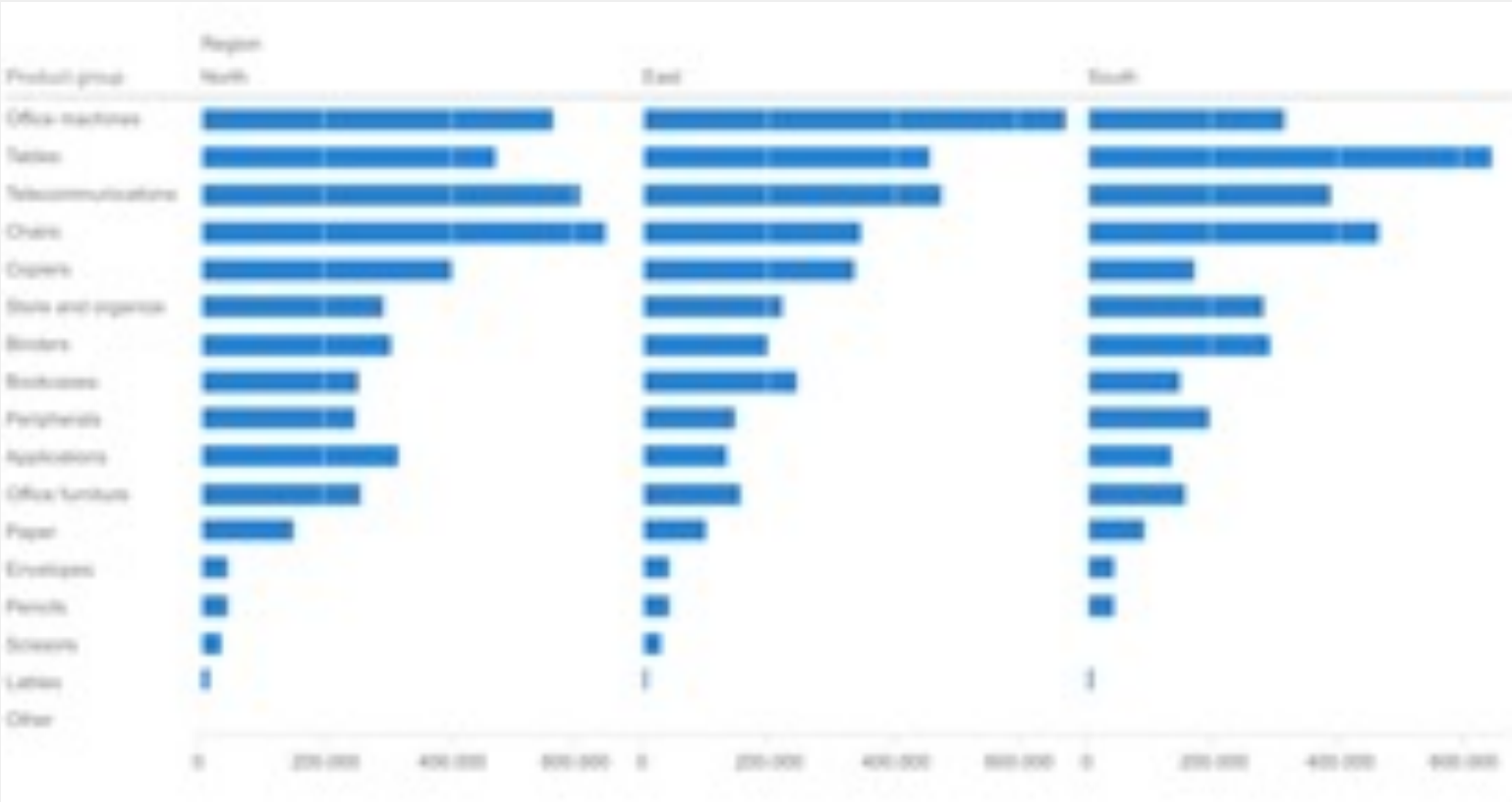
Quantity



Variation within measures

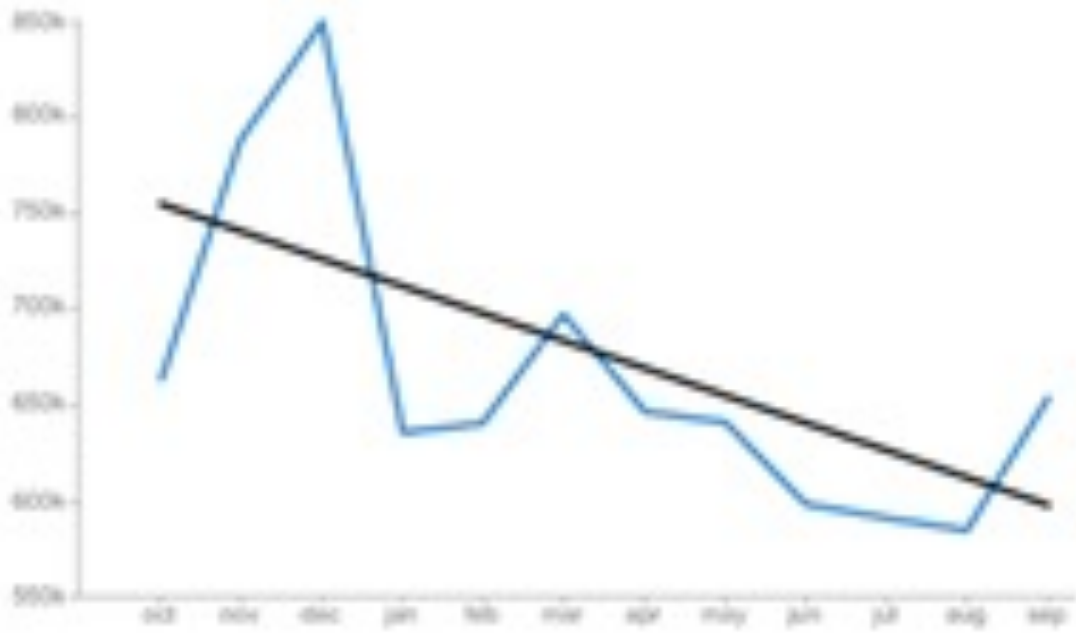


Relations among measures

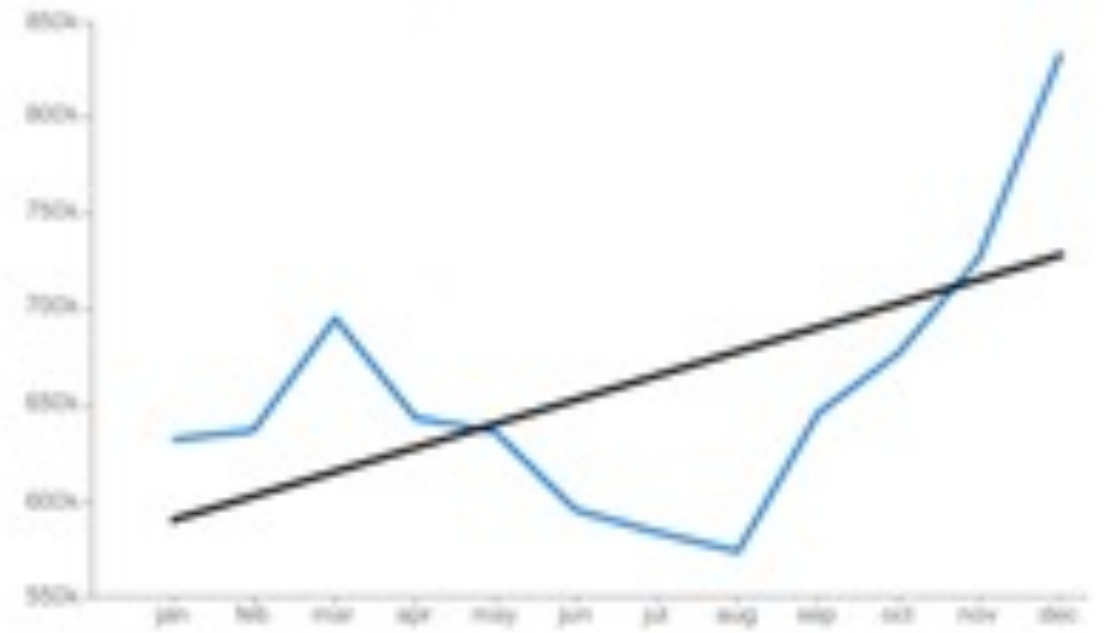


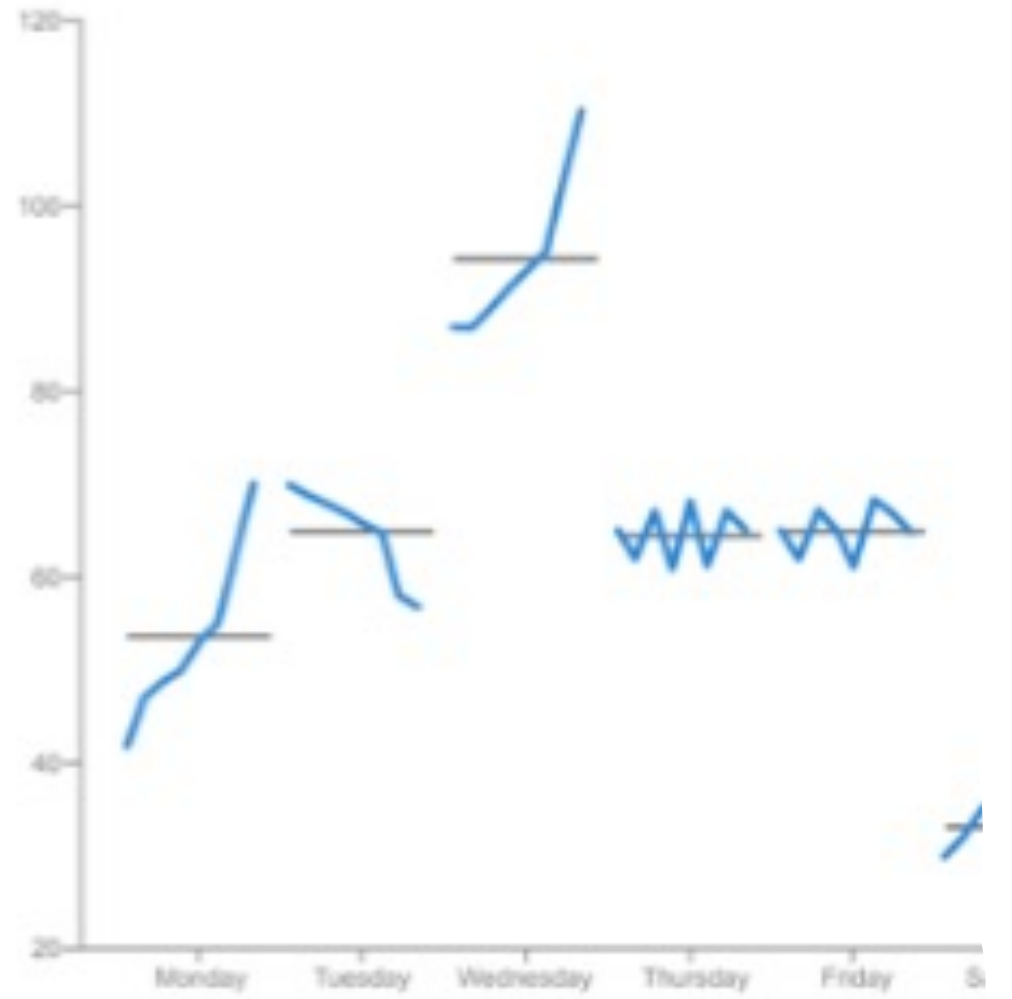
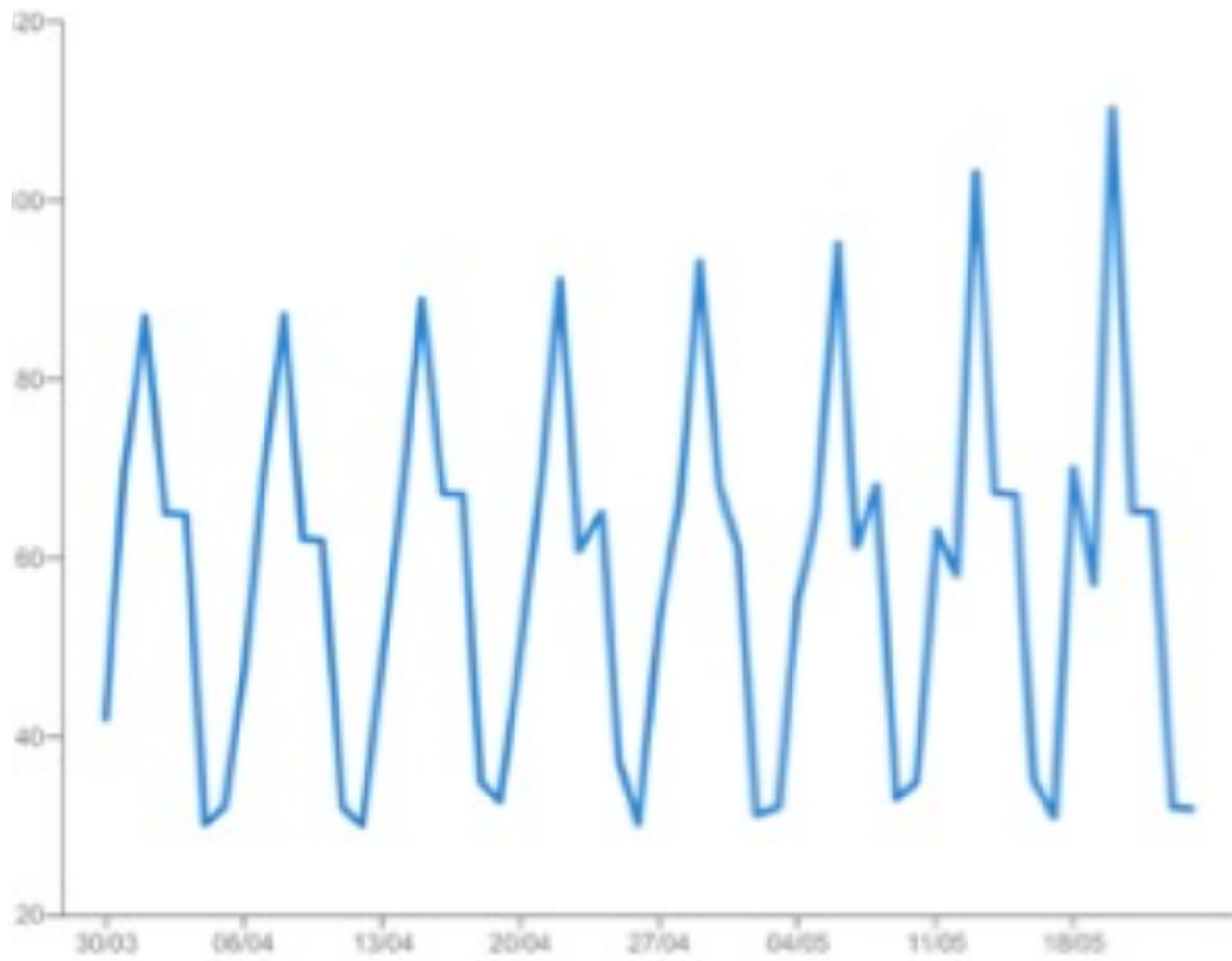
1

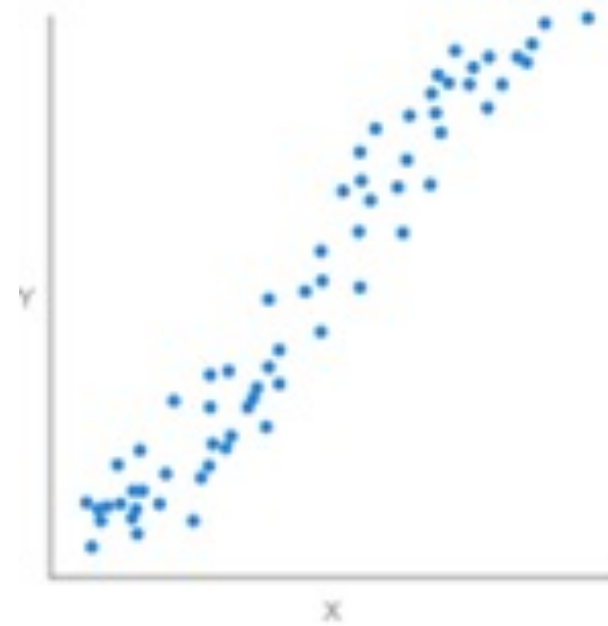
Expenses from October 2021 until September 2022



Expenses from January 2022 until December 2022







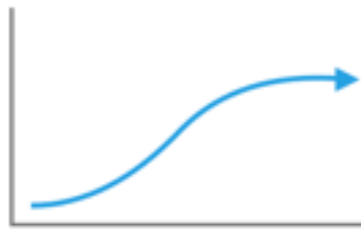
strength



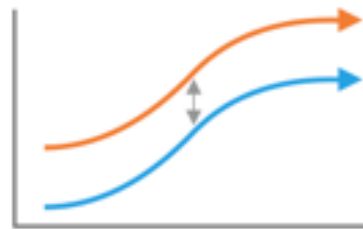
direction



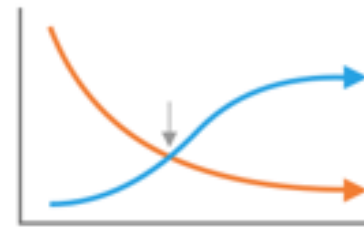
shape



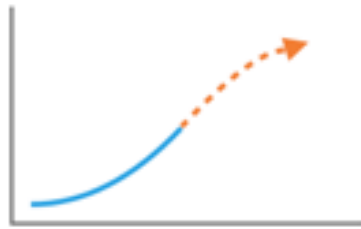
Change over time



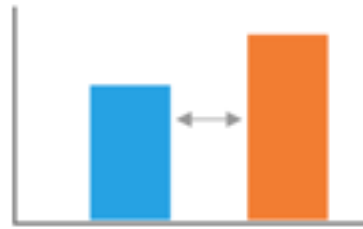
Relationship



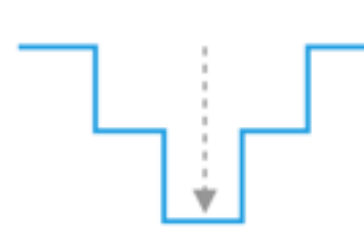
Intersection



Project forward



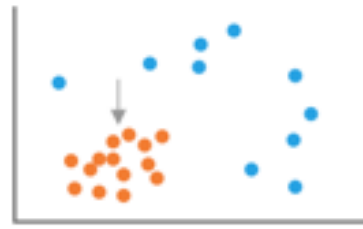
Compare & contrast



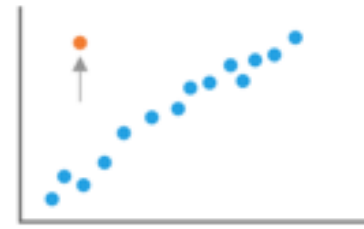
Drill down



Zoom out



Cluster



Outlier

Source: Brent Dykes - Effective Data Storytelling



Source: *Effective data storytelling* – Brent Dykes

Source: *Jordan Morrow*



Source: Effective data storytelling – Brent Dykes



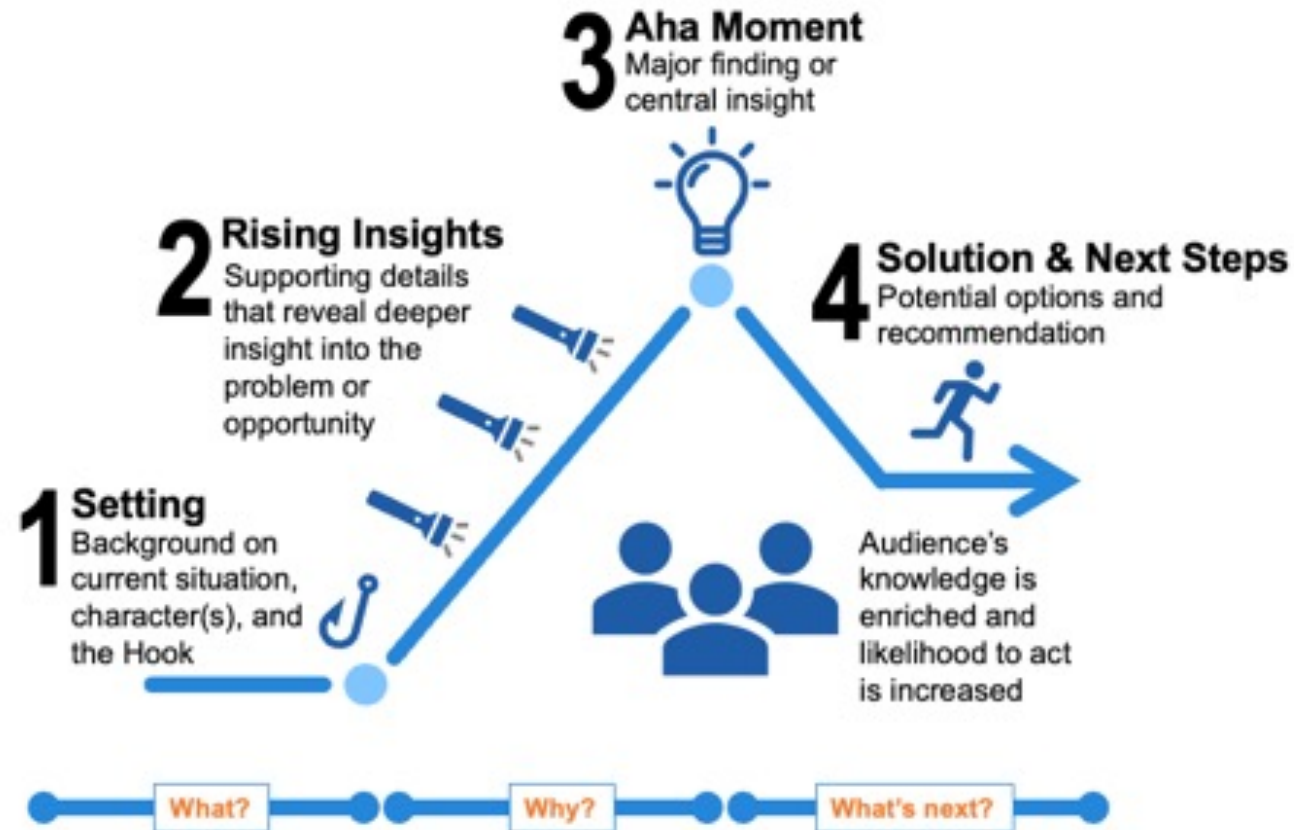
Source: *Effective data storytelling* – Brent Dykes



Source: Effective data storytelling – Brent Dykes




Source: Stephen S. Few, *Show me the Numbers*, 2004



Source: *Effective data storytelling* – Brent Dykes


PART 1 – THE SETUP


 RIGHT DATA

 RIGHT VISUALIZATIONS


 RIGHT CONFIGURATIONS

PART 2 – THE POLISH

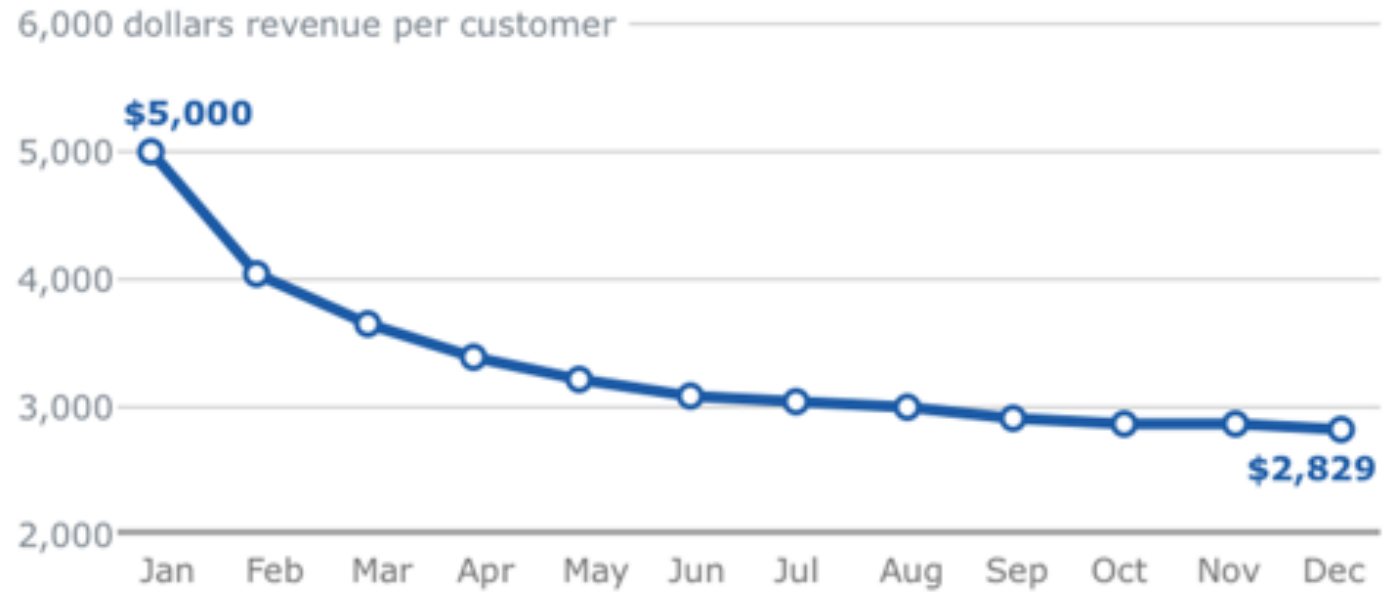
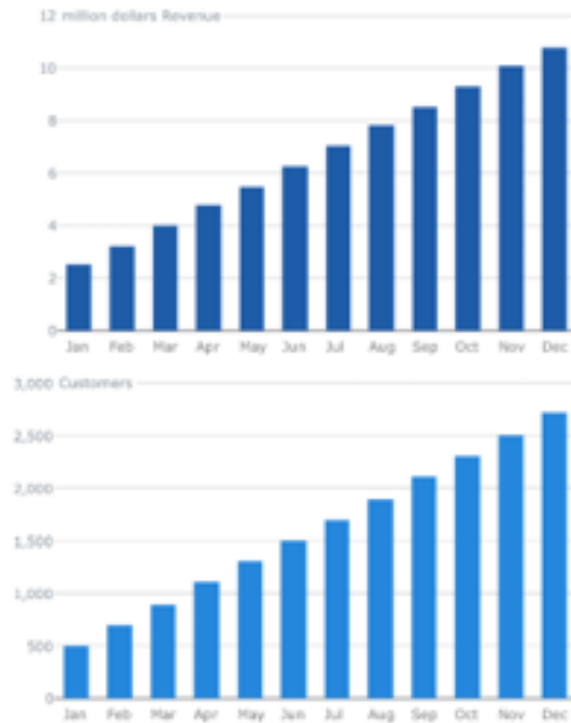
 REMOVE NOISE

 FOCUS ATTENTION

 MAKE APPROACHABLE

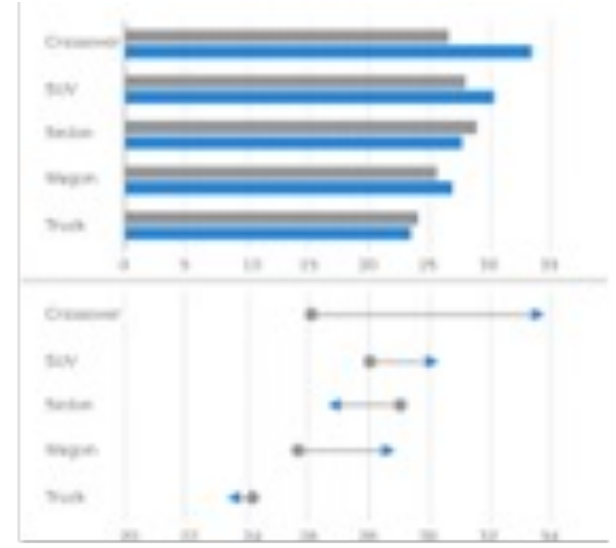
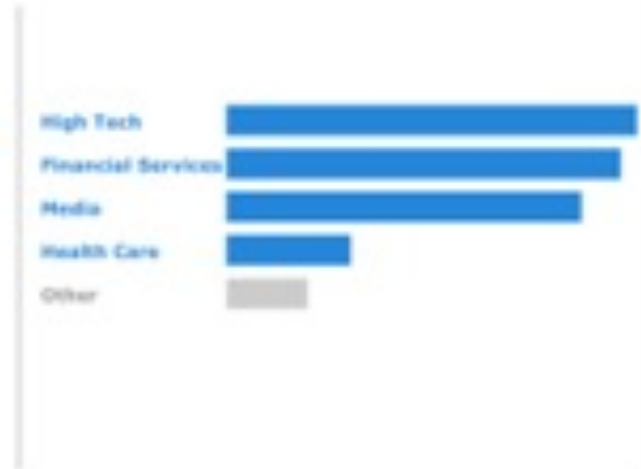
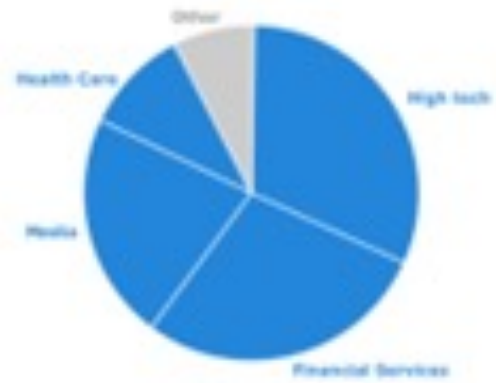
 INSTILL TRUST

Source: Effective data storytelling – Brent Dykes



Source: *Effective data storytelling* – Brent Dykes

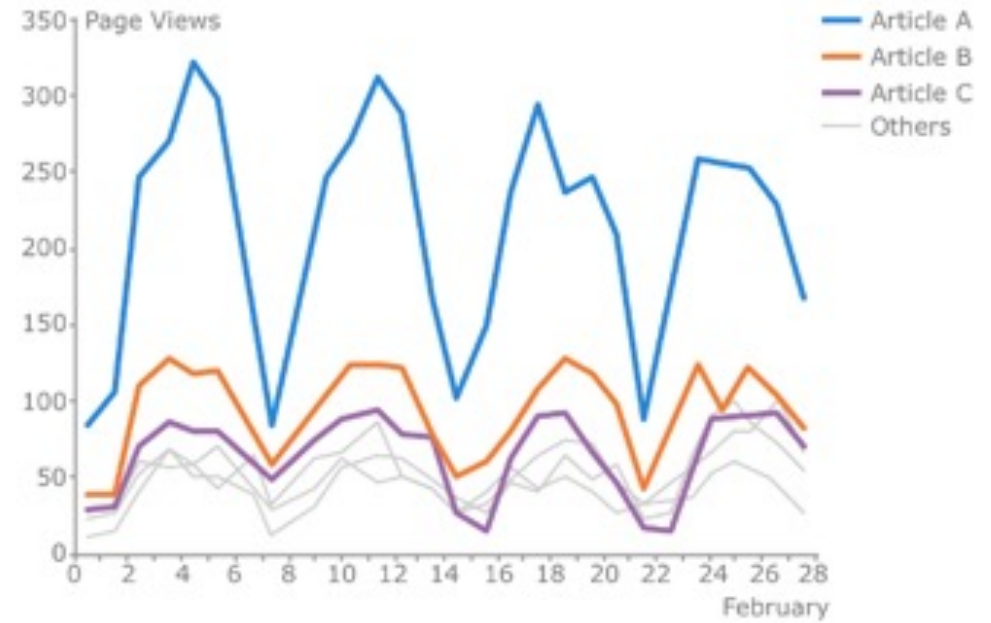
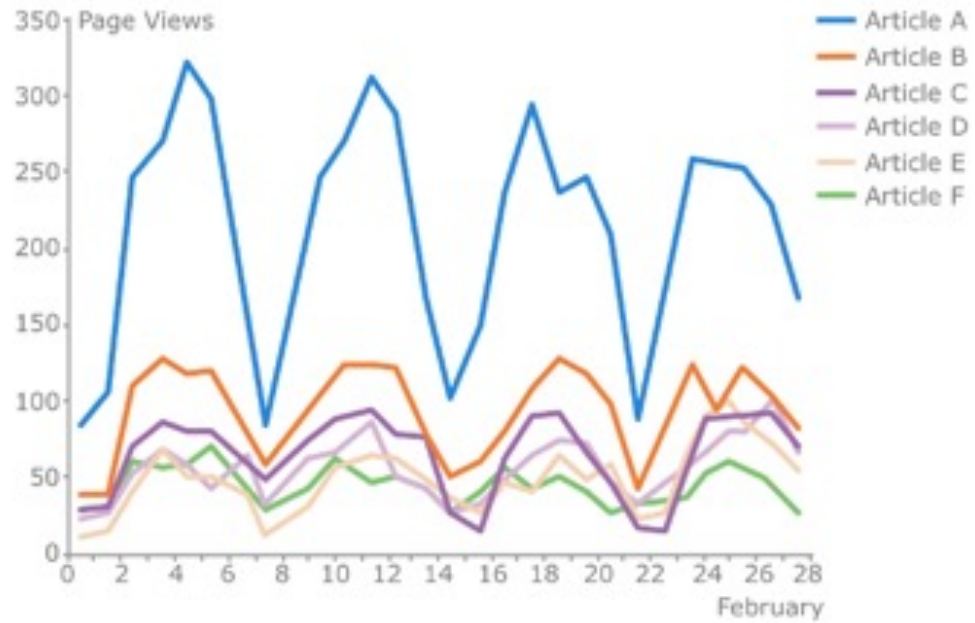




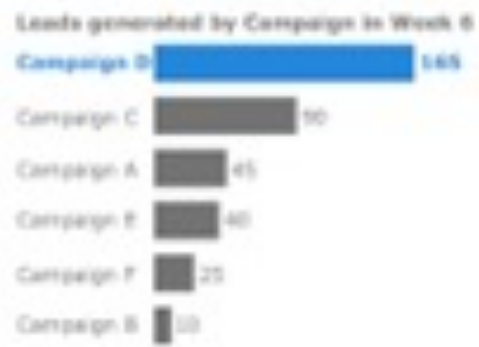
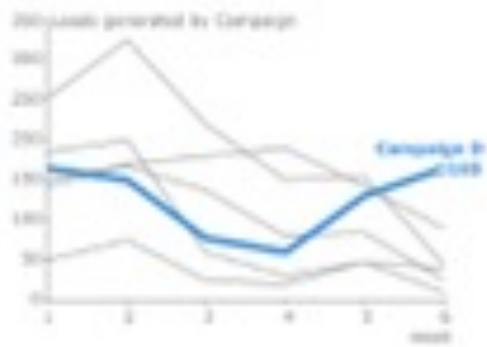
Source: *Effective data storytelling* – Brent Dykes



Source: *Effective data storytelling* – Brent Dykes



Source: *Effective data storytelling* – Brent Dykes



Source: *Effective data storytelling* – Brent Dykes

Bundled promotion drives 194% increase in sales



Source: Effective data storytelling – Brent Dykes

Japan is 35% higher than the next highest country



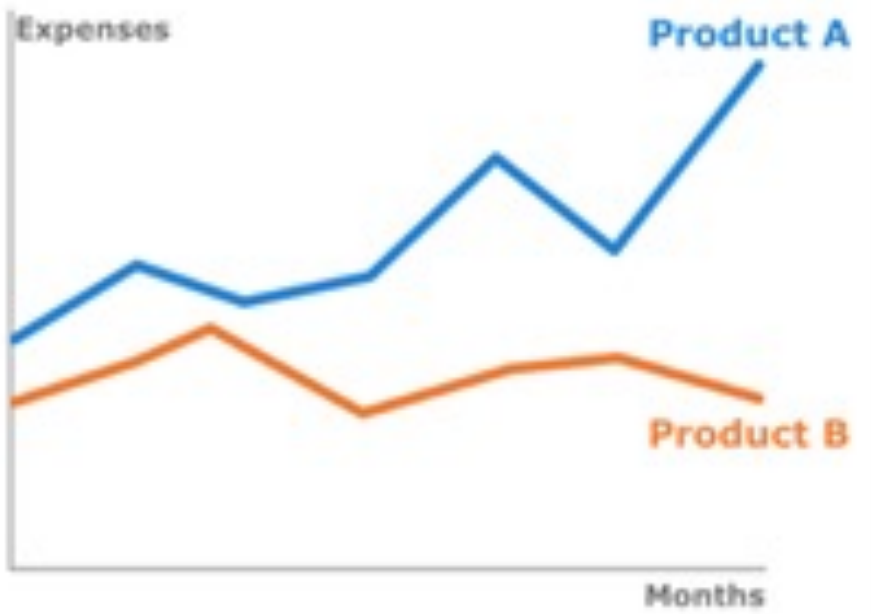
Japan is 35% higher than the next highest country



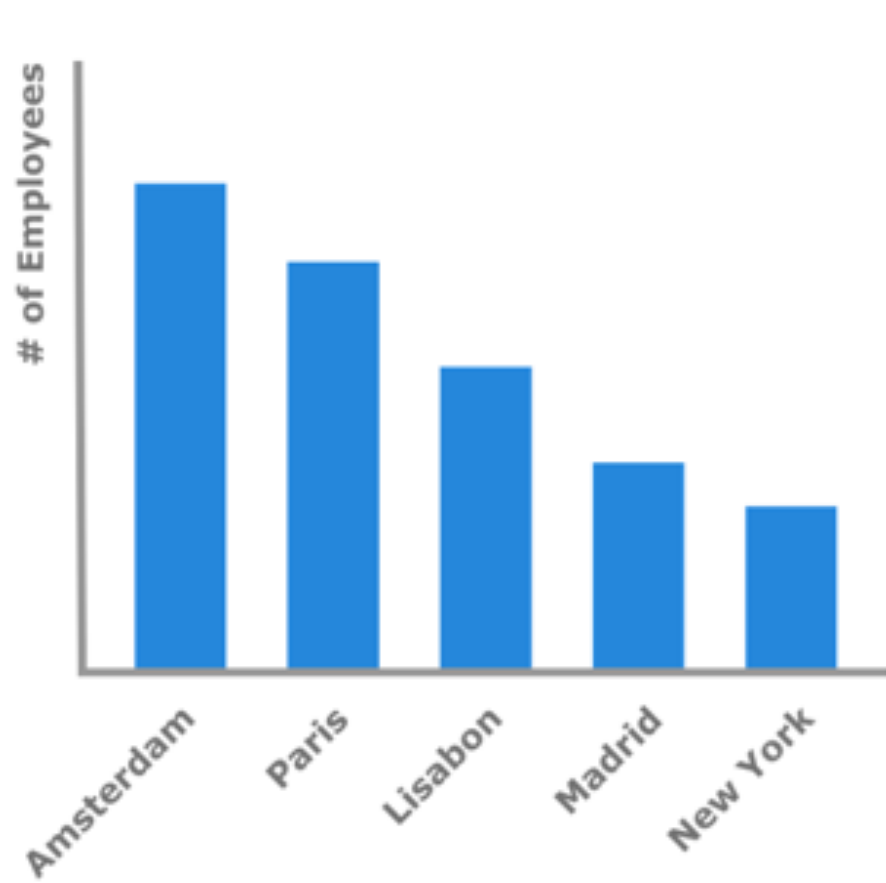
Japan is 35% higher than the next highest country



Source: *Effective data storytelling* – Brent Dykes



Source: *Effective data storytelling* – Brent Dykes



Source: *Effective data storytelling* – Brent Dykes