



DATA LITERACY & DATA INTUITION: MAKING SMARTER DECISIONS WITH DATA

PROF. DR. FLORIAN STAHL

What is this online module about?

Data Literacy

=

“Ability to **read, write and communicate data** in context, including an **understanding of data sources** and constructs, **analytical methods** and techniques applied, and the ability to **describe the use case, application and resulting value**”

Data Intuition

=

“Data Intuition is **not** about **using your gut feel**. It is about the **intuitive understanding of concepts**, in other words, how to **apply the concepts**”



Data Are Not Insights



Understanding Your Psychological Biases in Decision Making



Data-Driven Decision Making



How to Ask Data-Driven Questions



How to Evaluate Data Integrity



Creating Richer Data-Driven Dialogue



The Art of Guestimating – The Fermi Method



Emerging Areas in Data-Driven Decision Making

Key Take-away: Data Intuition is About Mindset





Data Are Not Insights



Understanding Your Psychological Biases in Decision Making



Data-Driven Decision Making



How to Ask Data-Driven Questions



How to Evaluate Data Integrity



Creating Richer Data-Driven Dialogue



The Art of Guestimating – The Fermi Method



Emerging Areas in Data-Driven Decision Making



Data Are Not Insights



Beware the source



Accuracy is relative



To trust or not to trust



Benchmark or else



Tell a story, don't write your memories



Format is king



Understanding Your Psychological Biases in Decision Making



Data-Driven Decision Making



How to Ask Data-Driven Questions



Data Are Not Insights



Beware the source



Accuracy is relative



To trust or not to trust



Benchmark or else



Tell a story, don't write your memories



Format is king



Understanding Your Psychological Biases in Decision Making



Data-Driven Decision Making



How to Ask Data-Driven Questions

Data Quality Drives Quality of Insights

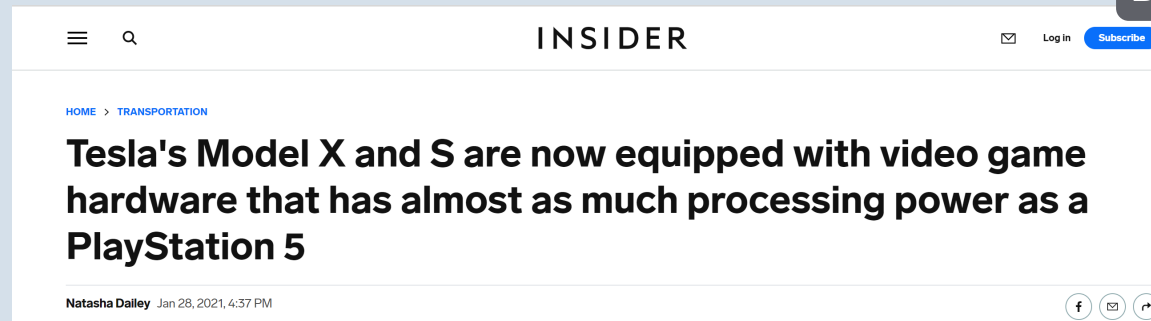
Beware the source 



Deriving powerful insights starts at picking the right source.

Different Sources Can Provide Fundamentally Different Data

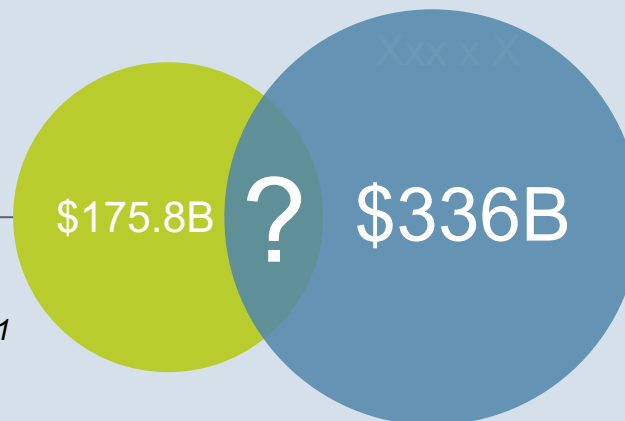
Beware the source 



<https://www.businessinsider.com/tesla-model-s-x-video-games-high-power-hardware-playstation-2021-1>

Market Size of The Gaming Industry

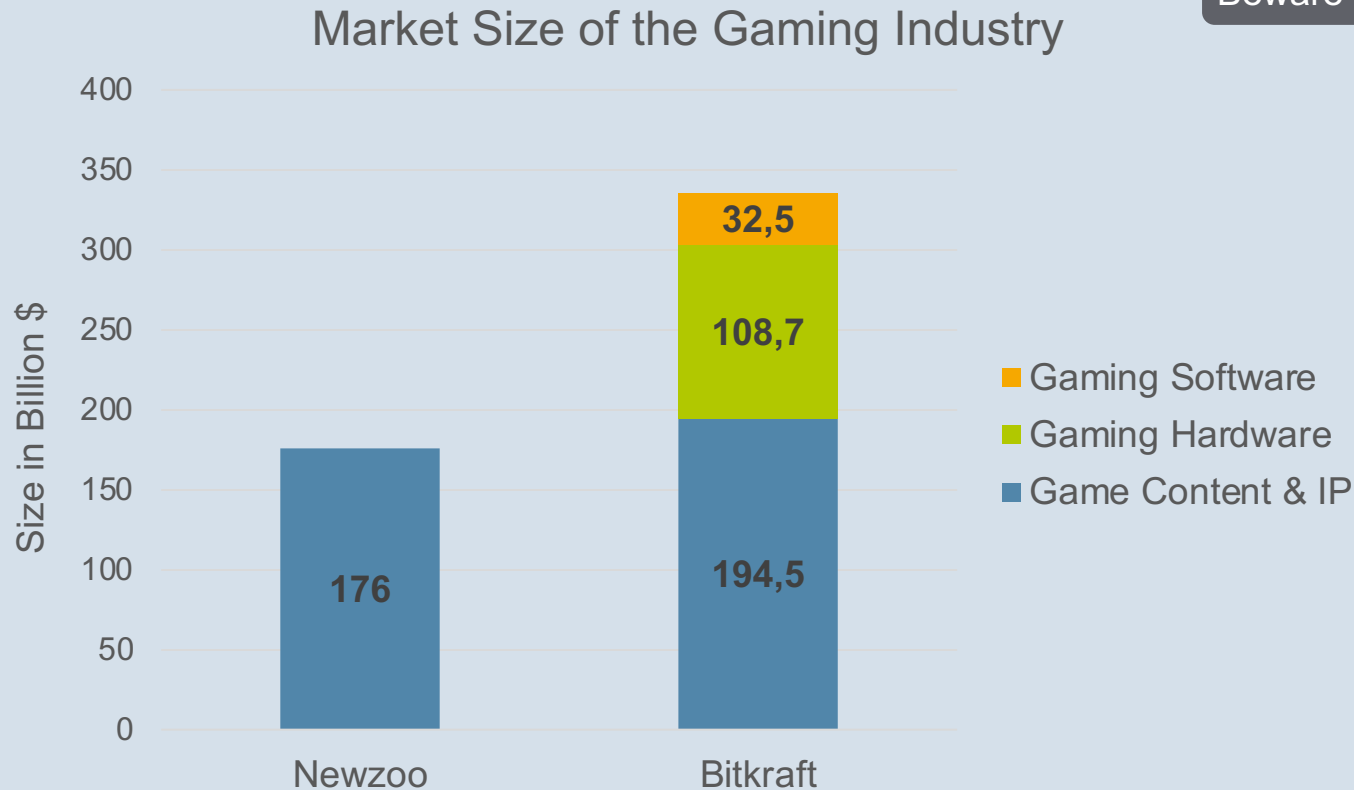
Newzoo:
« Global Games Market to
Generate **\$175.8 Billion** in
2021 »
May 6th, 2021



Bitkraft:
« Gaming Industry Nearly
Twice as Large as
Reported, at **\$336B** »
September 15th, 2021

- <https://newzoo.com/insights/articles/global-games-market-to-generate-175-8-billion-in-2021-despite-a-slight-decline-the-market-is-on-track-to-surpass-200-billion-in-2023/>
- <https://www.bitkraft.vc/gaming-industry-market-size/>

Data is Not Right or Wrong in Absolute Terms, but Relative to the User

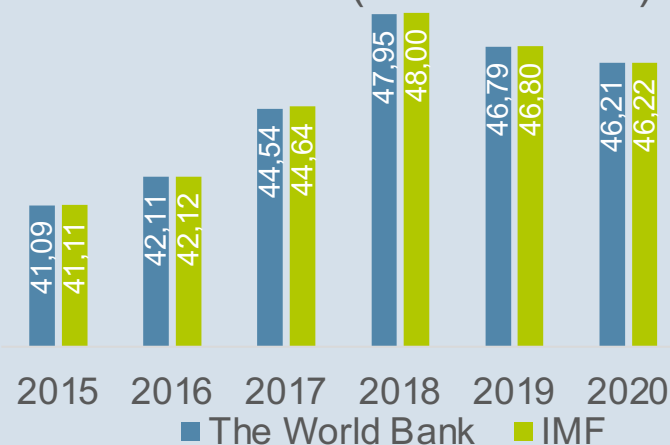


None of the data are actually right or wrong. You have to decide which one is **more important** and **more relevant** for yourself!

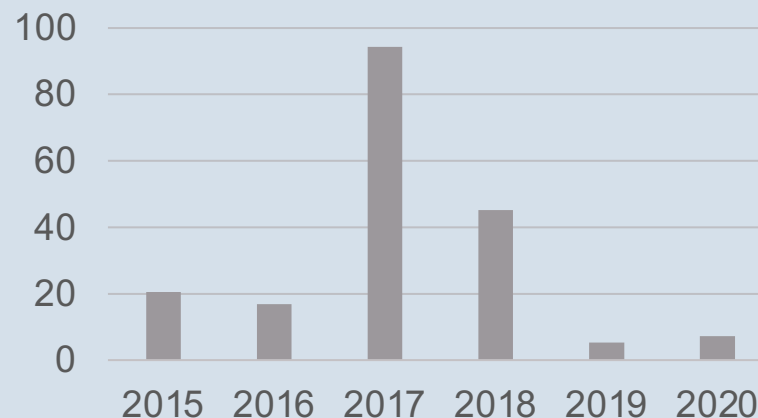
Example: Divergent Macro-Economic Data

Beware the source 

Germany, GDP per capita in current USD (in thousands)



Absolute difference between WB and IMF data in USD



Even historic micro-economic data from best-in-class sources shows differing values and can be inaccurate showcasing that data always has to be questioned.

The 4 Cs of Data Sourcing

Beware the source 



Citation

Always
state the
source



Consideration

Carefully
consider
the source



Common
sense

Apply common sense
in questioning both
data and source



Consequences

Be aware of the
ramifications of
using the data



Follow your intuition and always question the data source to be used in your analytics. Since data drives results – beware the source.



Data Are Not Insights



Beware the source



Accuracy is relative



To trust or not to trust



Benchmark or else



Tell a story, don't write your memories



Format is king



Understanding Your Psychological Biases in Decision Making



Data-Driven Decision Making



How to Ask Data-Driven Questions

The Difference Between Accuracy and Precision



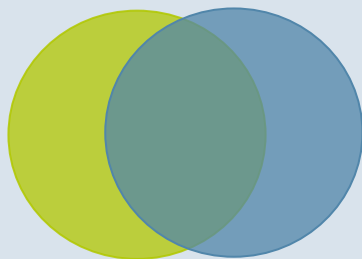
Accuracy is relative 



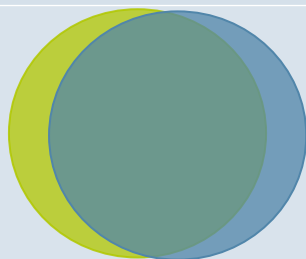
Refers to **the degree** to which the **result** of a measurement, calculation, or specification **conforms to the correct value.**

Understand Estimates For What They Are

Accuracy is relative



Estimates are only calculations **based on assumptions** and the **data** you have!



Factors leading to **higher accuracy**:

- › Greater **access** to information
- › Greater **share of actuals** vs estimates



Beware of changes in reporting or calculations methodology!

● Estimate
● Reality



Data Are Not Insights



Beware the source



Accuracy is relative



To trust or not to trust



Benchmark or else



Tell a story, don't write your memories



Format is king



Understanding Your Psychological Biases in Decision Making



Data-Driven Decision Making

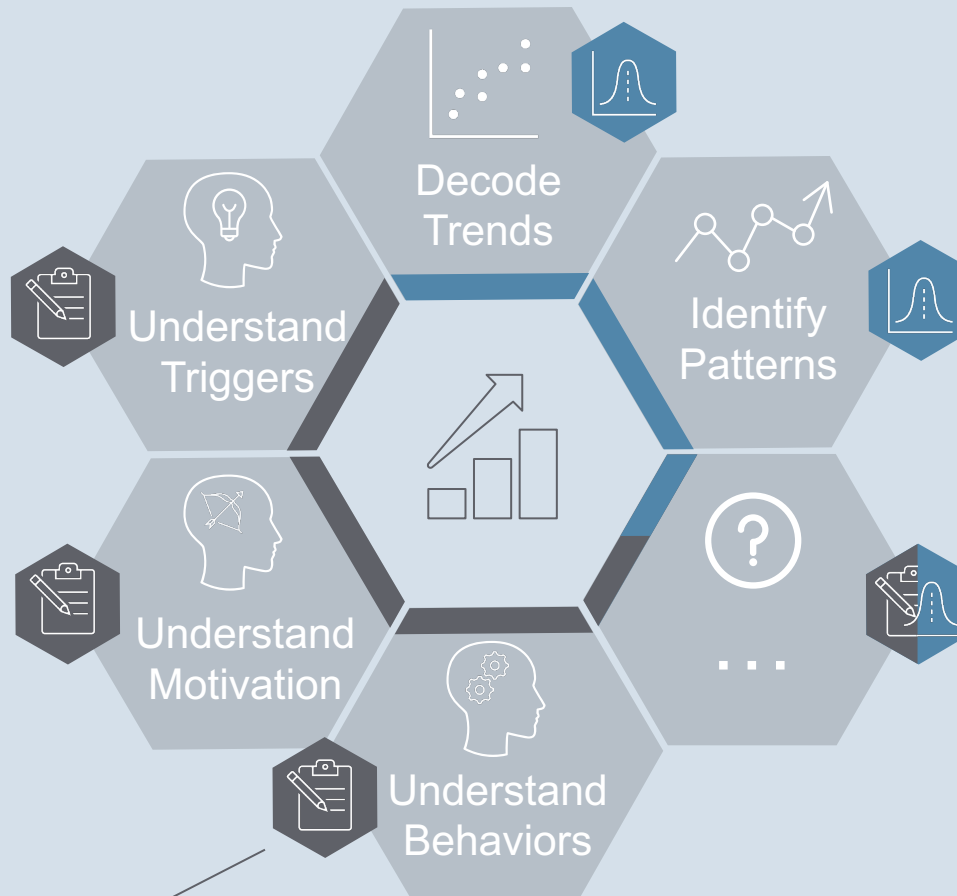


How to Ask Data-Driven Questions

Goals of Primary Consumer Research

To trust or not to trust 

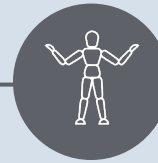
Quantitative



Qualitative

Survey Design – The Don'ts of Consumer Research

To trust or not to trust



Complicated & Unintuitive Questions

- › Answers that require survey takers to make (multiple) assumptions and estimations cannot be trusted.

✗ “How much do you spend, on average, per year, on luxury items?”

Sample Selection

To trust or not to trust



Regional Markets



Identify smallest individual cell



Bottom-up approach

Target Groups



Find representatives



Primary and secondary

Sample Size



Focus sample for efficiency



Smallest size
 $n=50$



Data Are Not Insights



Beware the source



Accuracy is relative



To trust or not to trust



Benchmark or else



Tell a story, don't write your memories



Format is king



Understanding Your Psychological Biases in Decision Making



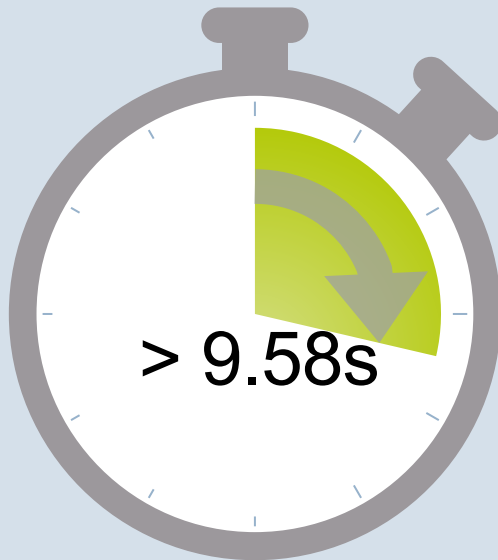
Data-Driven Decision Making



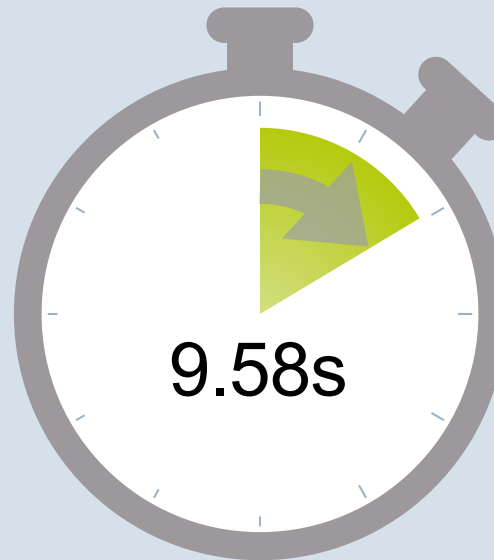
How to Ask Data-Driven Questions

Figures are Always Relative and therefore Context Matters

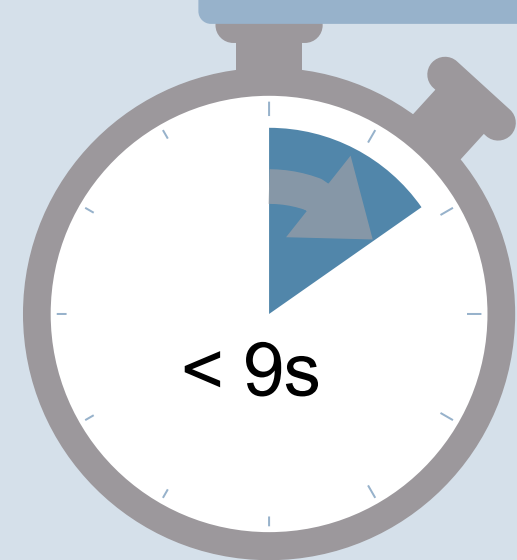
Benchmark or else 



Average human 100m dash



Current 100m WR

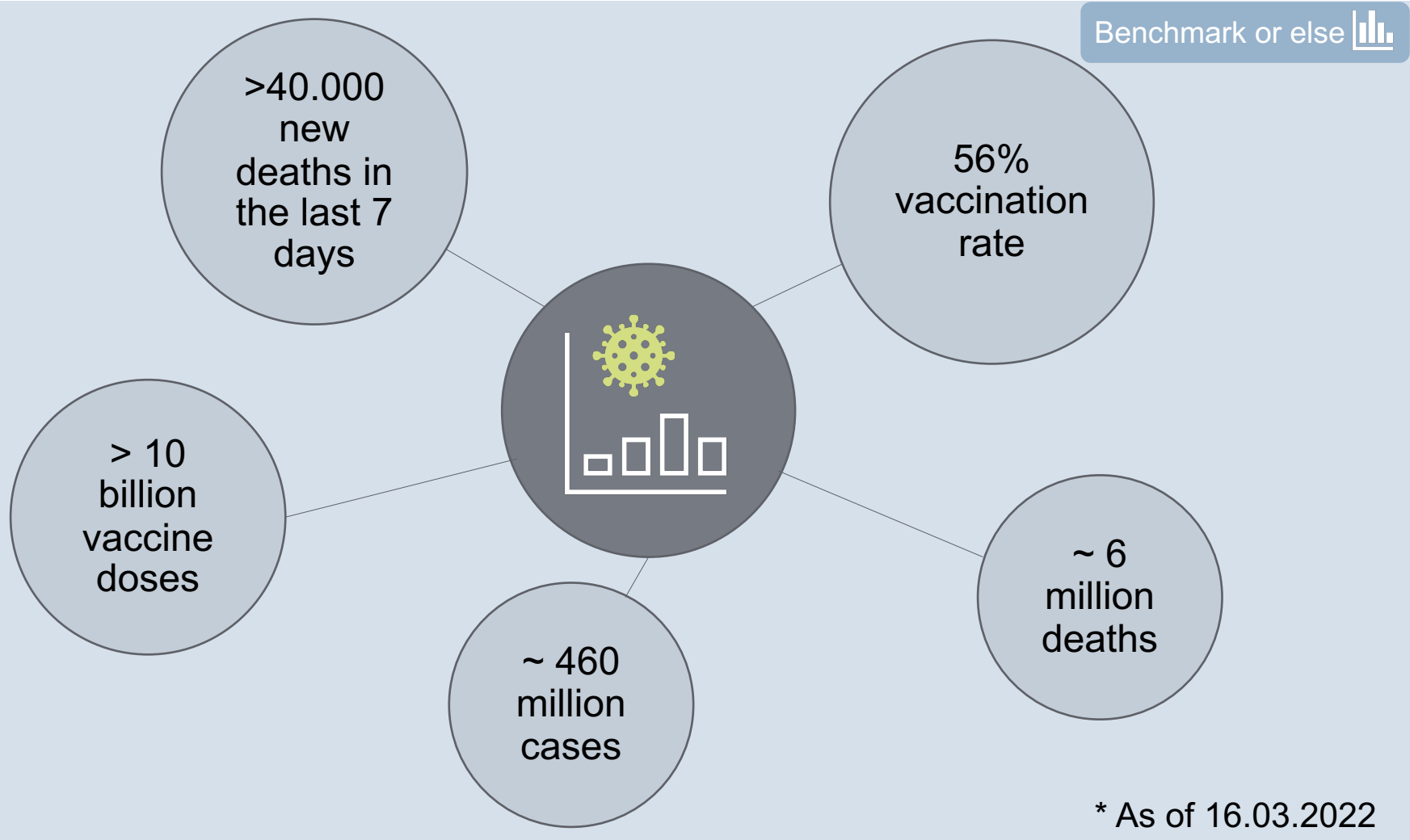


100m dash of a
Grizzly Bear

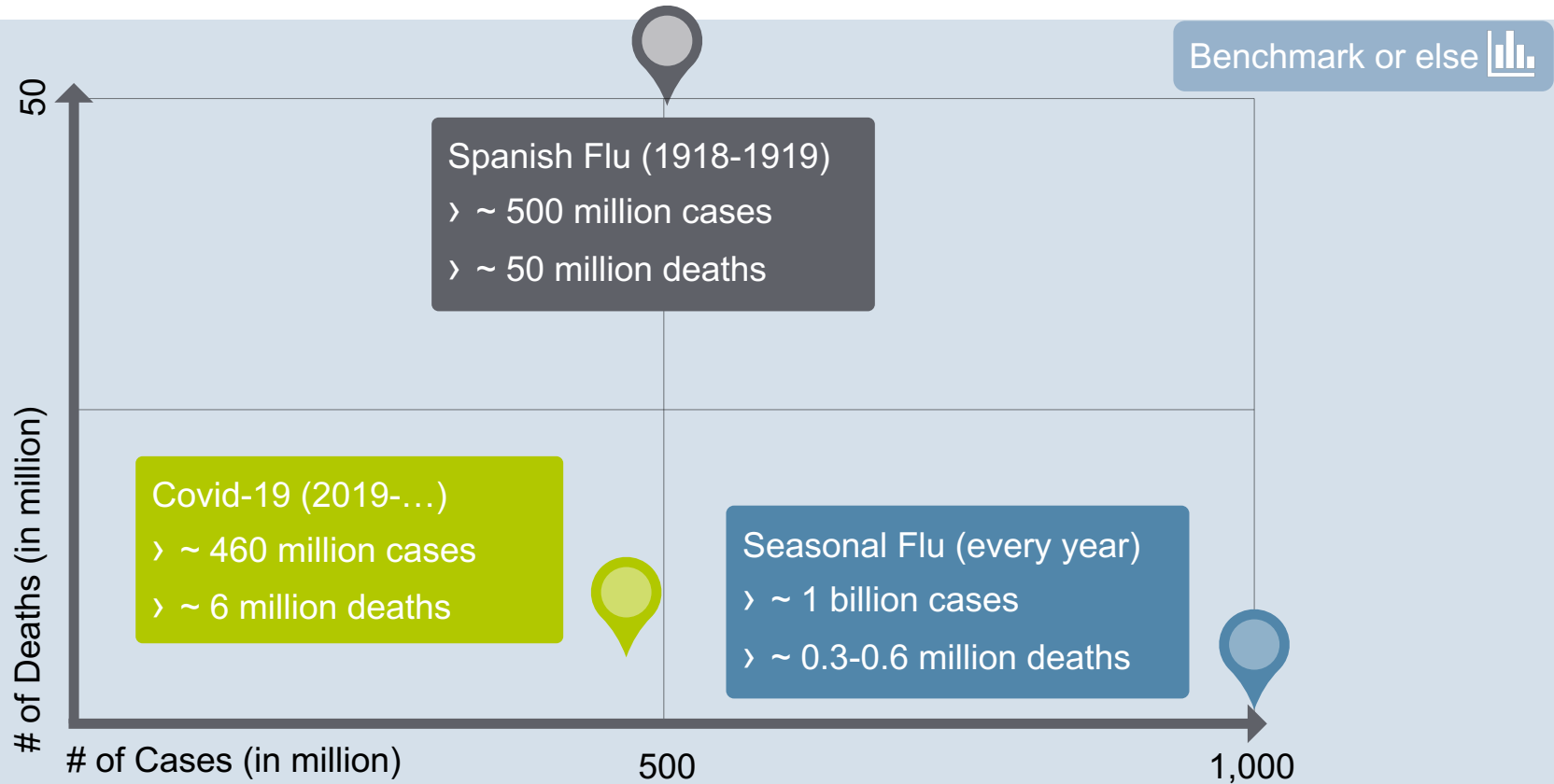


Data needs perspective, background information and/or benchmarking for their users to make sense of it.

Numbers of the Covid-19 Pandemic worldwide*



Putting Those Numbers Into Context



But: Is such simple benchmarking already enough to draw insights from our data?



Data Are Not Insights



Beware the source



Accuracy is relative



To trust or not to trust



Benchmark or else



Tell a story, don't write your memories



Format is king



Understanding Your Psychological Biases in Decision Making



Data-Driven Decision Making



How to Ask Data-Driven Questions

Data are Linear, Insights are Not – An Example from the Luxury Industry

Tell a story



» Cluster analysis for
Persian Gulf region



Kuwaitis



Qataris



Although Kuwaitis and Qataris have very different characteristics in this segment, both were statistically clustered together – why?



Unlike data, insights are fueled by intuition. They go beyond facts and figures to show what actually matters to your business.

Finding the Story that Matters to the Business

Tell a story



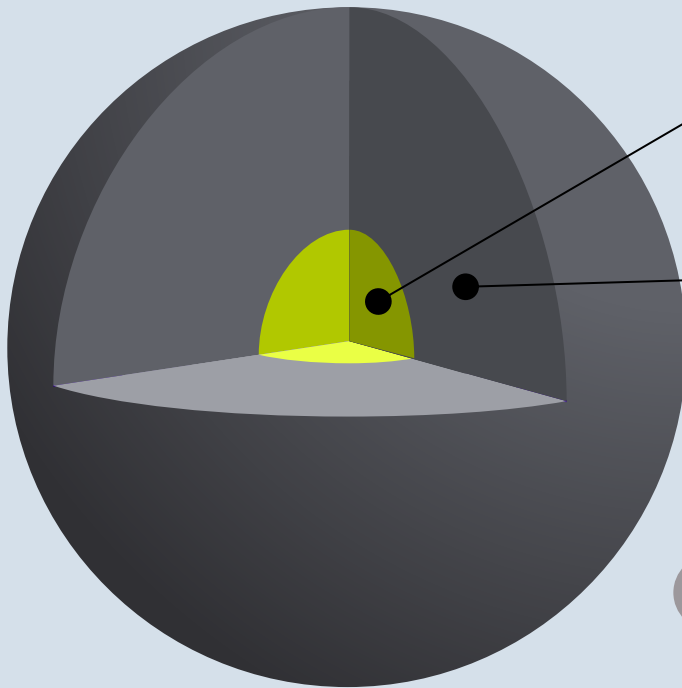
“

If you torture data long enough,
they will confess to anything.

Ronald Coase

To Present Insights, Focus on the Essential Story

Tell a story 



Present the Essence



Prepare backup for questions
on the details



Aim the presentation not at showcasing
your work, but on delivering the insight
to an audience

Exemplary Flow of The Insights Presentation

Tell a story 

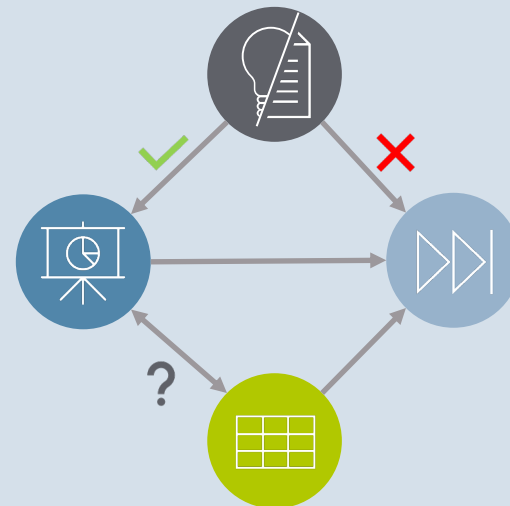
Key building elements of an insights presentation (exemplary):

Introduction

Argumentative Part

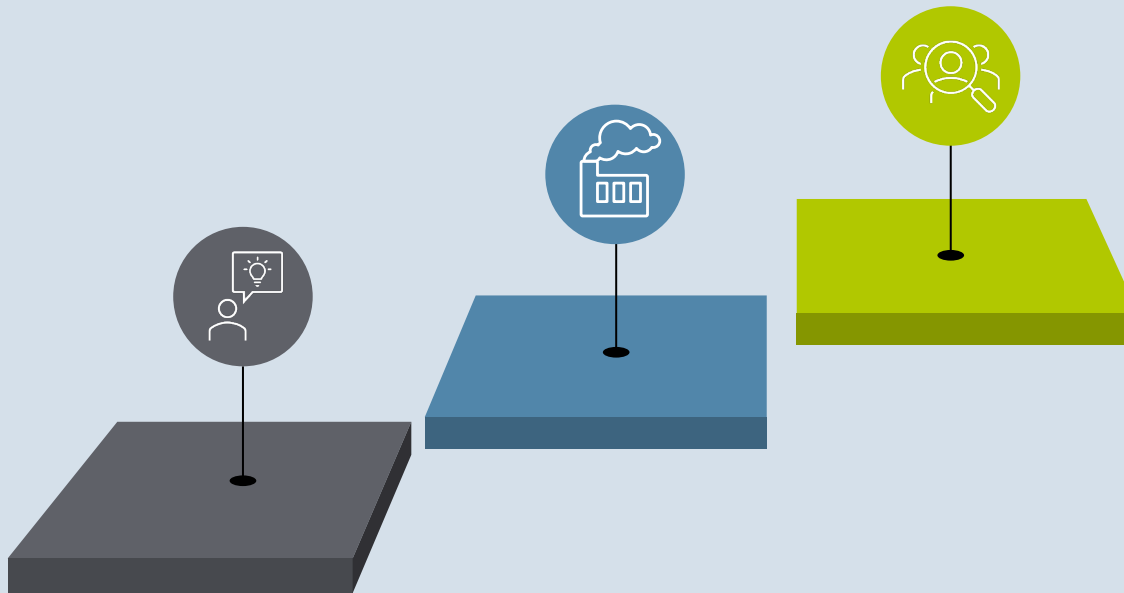
Backup / Questions

Possible presentation flow:



The Three Key Layers to Drawing Powerful Insights From Data

Tell a story 



1

Knowledge of the market

2

Understanding of the industry

3

Audience-orientation



Data Are Not Insights



Beware the source



Accuracy is relative



To trust or not to trust



Benchmark or else



Tell a story, don't write your memories



Format is king



Understanding Your Psychological Biases in Decision Making



Data-Driven Decision Making



How to Ask Data-Driven Questions

Design for Impact or Risk Making No Impact at All

Format is king



Visual presentation of insights will make or break the attempt of convincing the audience!

The Presentation is to the Insight, What a Trailer is to a Movie

A trailer (is)...



Short



Dynamic



Visually exciting



Presents the main
characters and plot



Avoid “death by
Power-point”

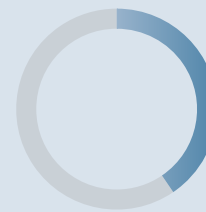
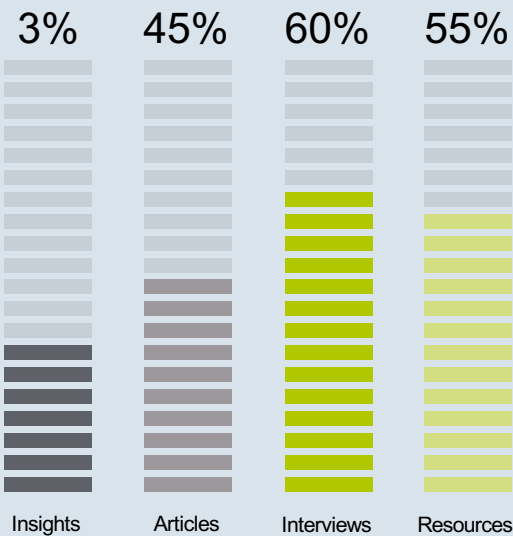


Format is king



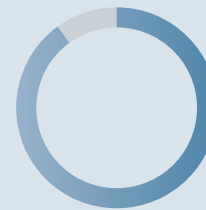
A Trailer is Short

Format is king



45%

Xxxxxx x xx x xxx x xxx xx xxx x



90%

Xx xxxxxx xxxxxxxx x xx xxxxx



Visualize only key elements!

A Trailer is Dynamic

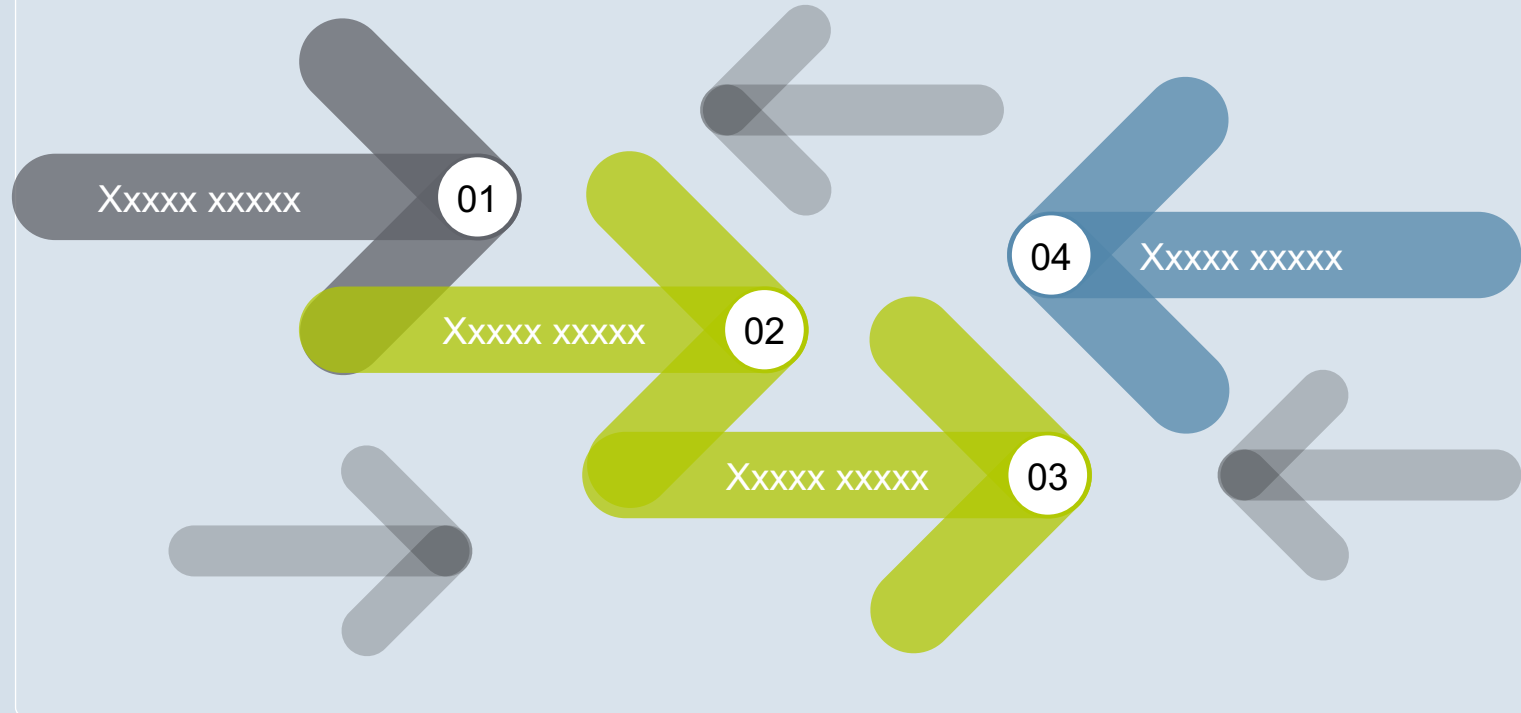
Format is king 



Use visualizations like matrices and mappings to go beyond the linearity of a data table.

A Trailer is Visually Exciting

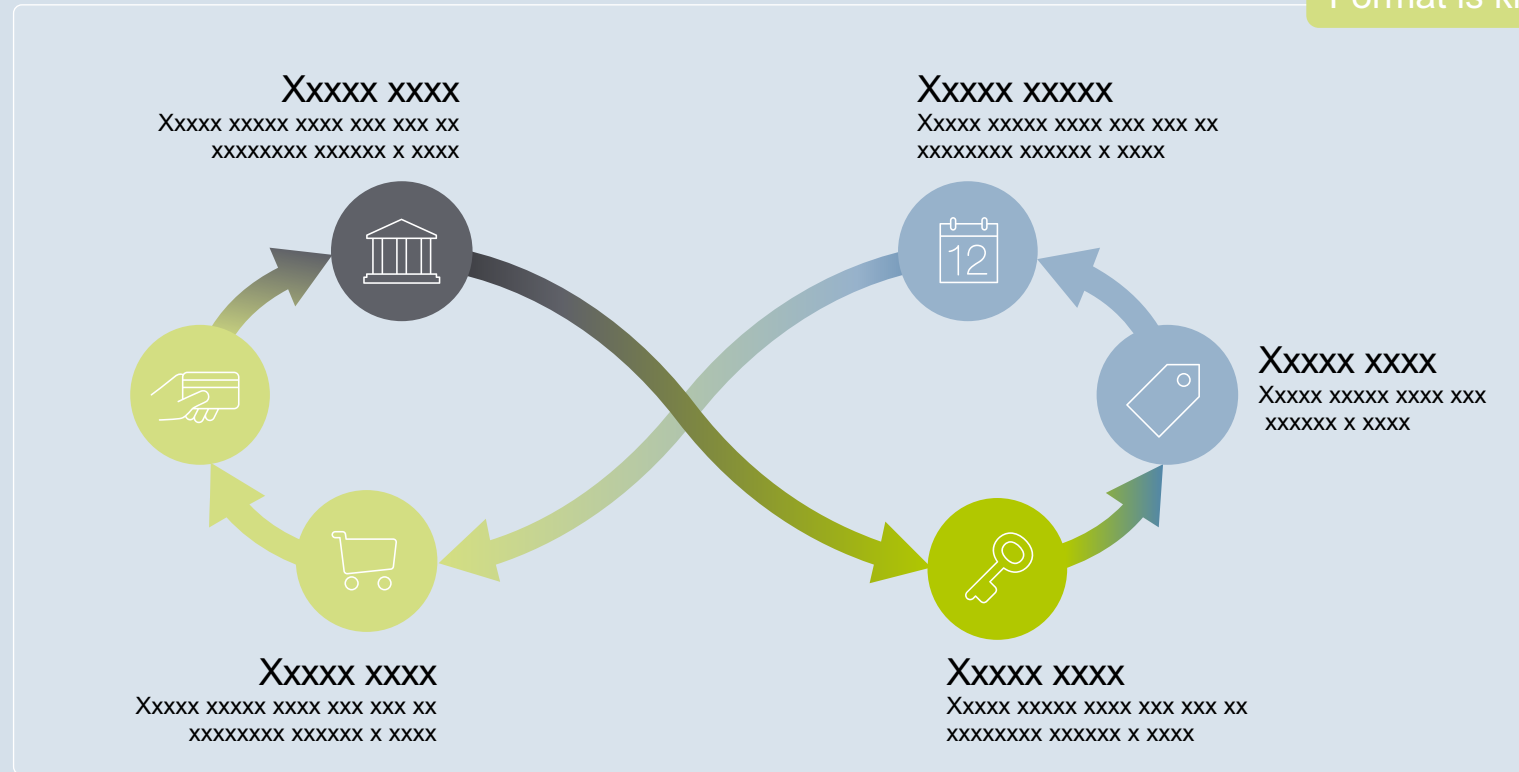
Format is king 



Less is more when it comes to the use of colors, animations, fonts, etc.

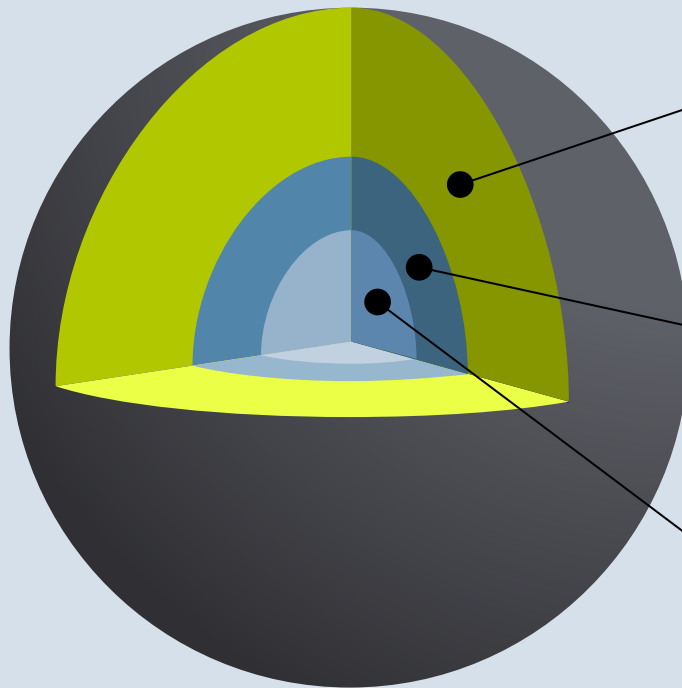
A Trailer Conveys Key Points of the Story

Format is king



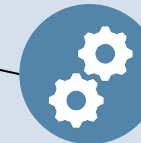
A slide show uses symbols to tell a story visually. It should be understood without explanations, but also leave room to elaborate and tell a story.

Format is king



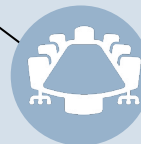
Your Analysis Team

- › Show them everything you did
- › Bury them in data



Operations

- › Deliver excitement for your results
- › Go into a bit more detail



C-Level Management

- › Give them a feel of your results
- › Show the big picture
- › Present key conclusions