

# Module 1A: Power of Data Visualisation

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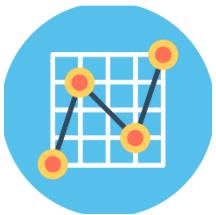
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# Introduction

Through visualization, we are seeking to portray data in ways that allow us



to see it in a new light



to visually observe patterns & exceptions



to discover the possible stories that sit behind its raw state

# Data Visualisation

has 2 objectives...



**Explain** data to solve specific problems or answer specific questions



**Explore** large or complex datasets to gain a better understanding

The greatest value of a picture is when it forces us to notice what we never expected to see

- John W Tukey (Exploratory Data Analysis)

# Exploiting the Digital Age



The ability to take data

to be able

to understand it, to process it, to extract value from it,  
to visualize it, to communicate it

that's going to be a hugely important skill in the next decades.

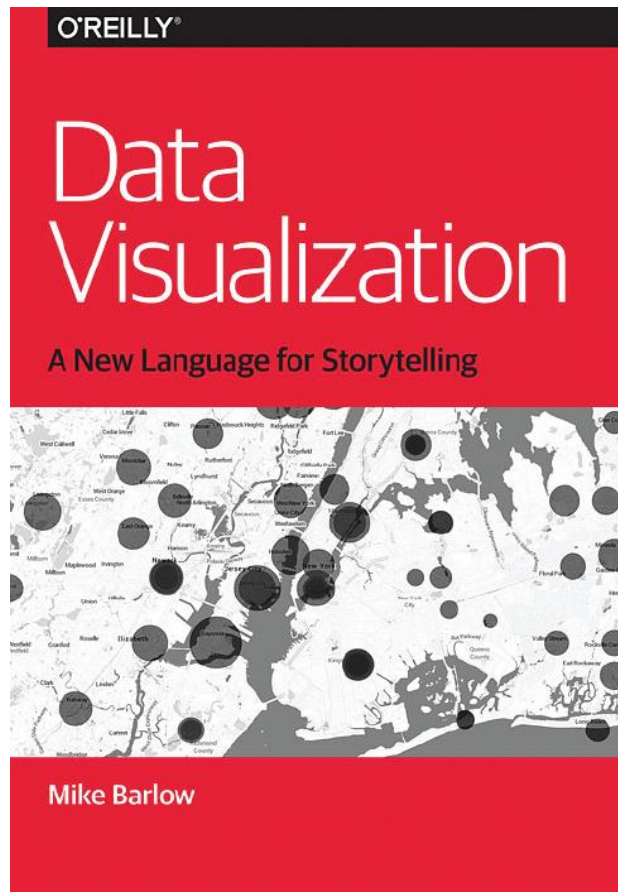
– Hal Varian, Google's chief economist



[http://www.mckinseyquarterly.com/Hal\\_Varian\\_on\\_how\\_the\\_Web\\_challenges\\_managers\\_2286](http://www.mckinseyquarterly.com/Hal_Varian_on_how_the_Web_challenges_managers_2286)



# Data Visualisation

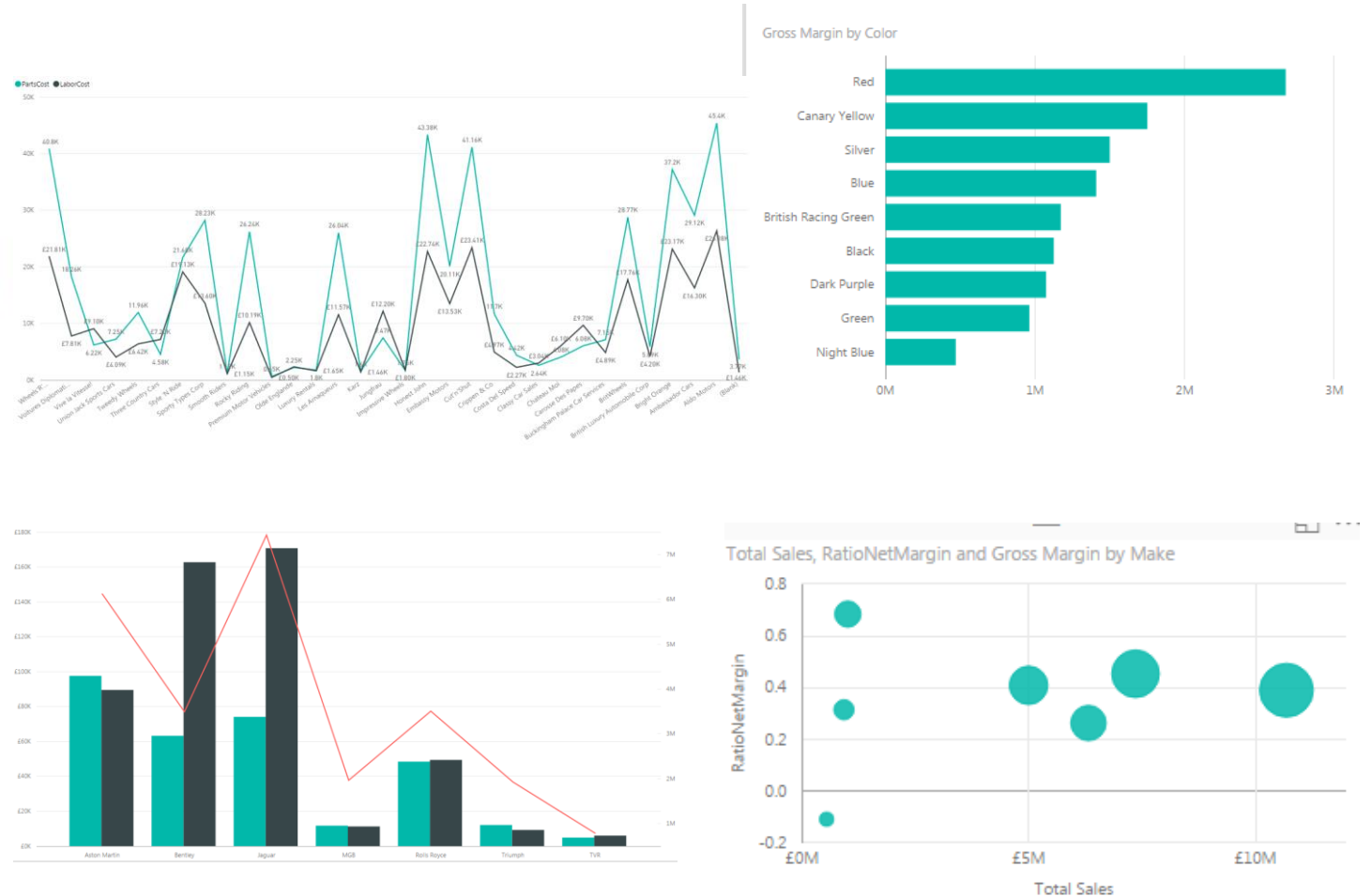
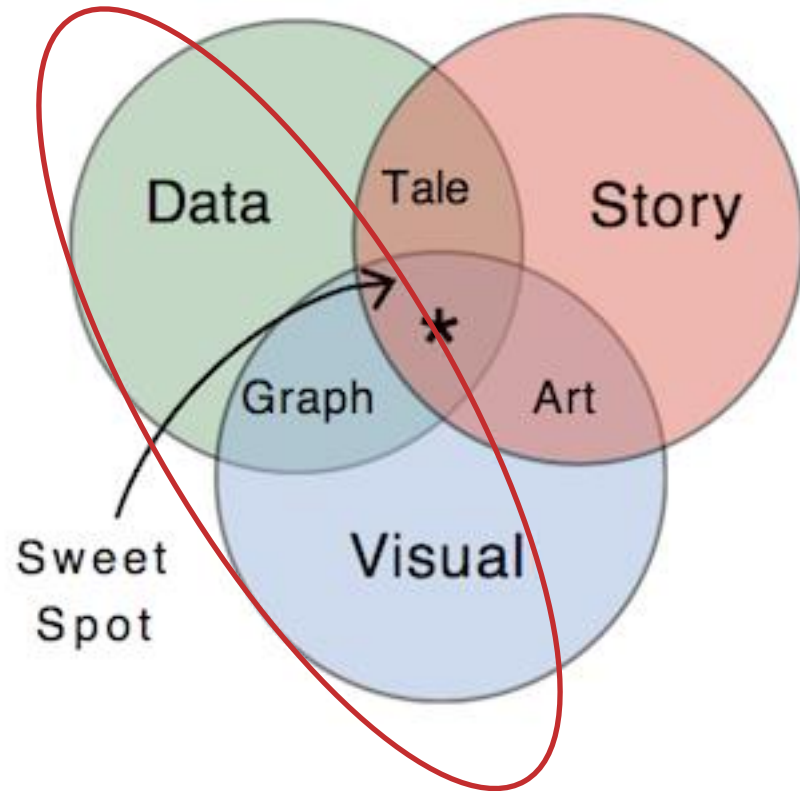


- extremely powerful tool
- essential part of nonfiction storytelling

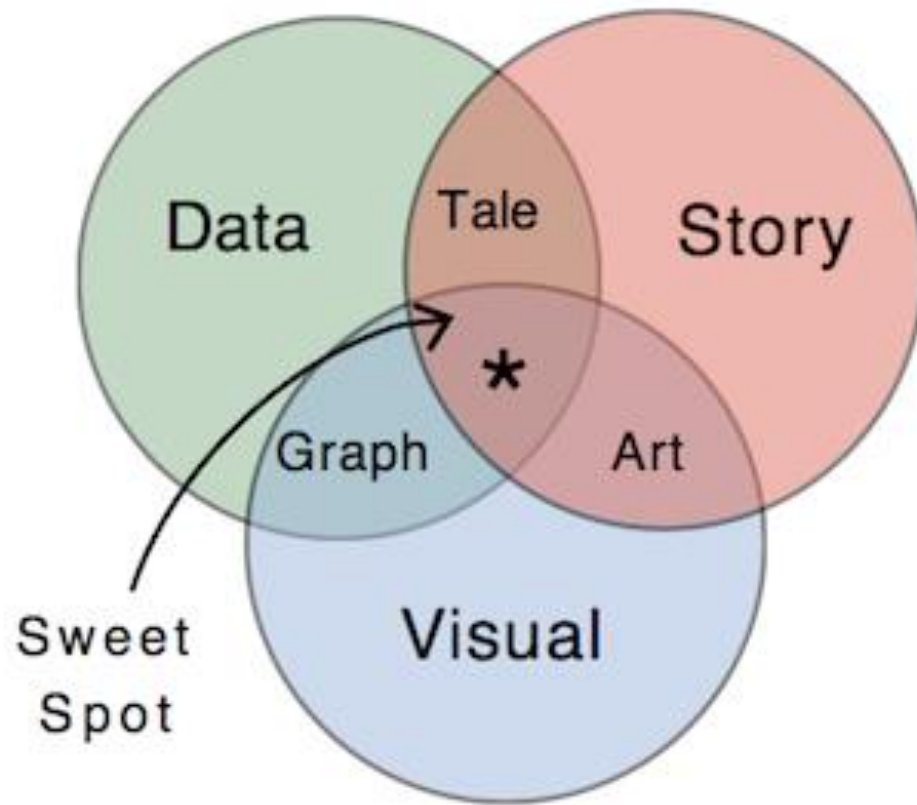
an Emerging Universal Medium  
as a New Language for Storytelling

Good data visualization bring patterns, trends, gaps  
and outliers to the surface,  
making them  
visible to our **EYES** & accessible to our **BRAINS**

# Data + Visual = Graphs



# key ingredients – DATA, VISUAL & STORY

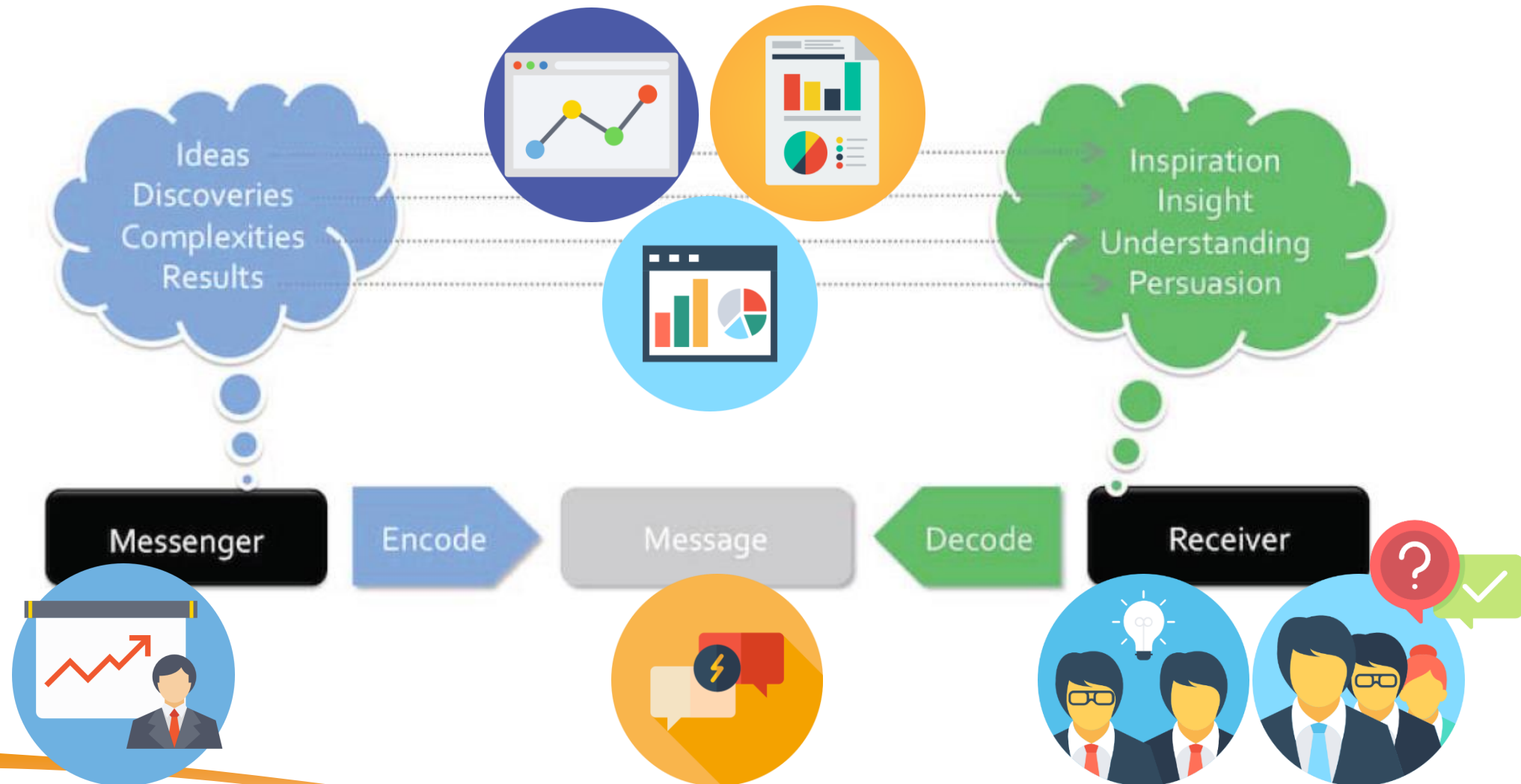


## Telling Visual Stories with Data

Building the skills  
to see the **DATA**,  
to show the **VISUAL**,  
to tell **STORY**,  
to engage the **AUDIENCE**

# Overview of Data Storytelling

## Relationship between Messenger and Receiver





# Unlocking the Power of Dashboard

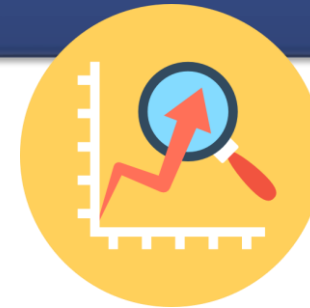
visual display of the most important information needed to achieve one or more objectives

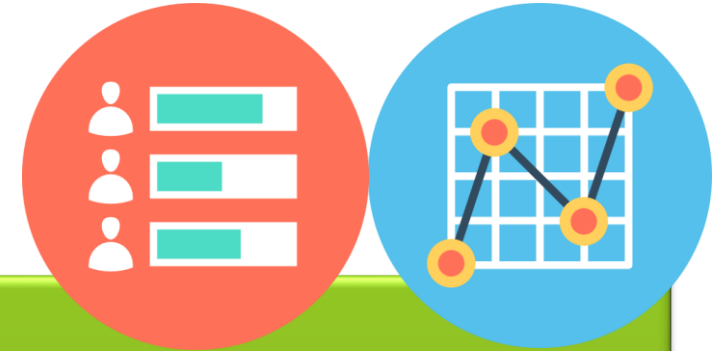


**data  
dashboard**

- Stephen  
Few

consolidated and arranged on a single screen so the information can be monitored at a glance





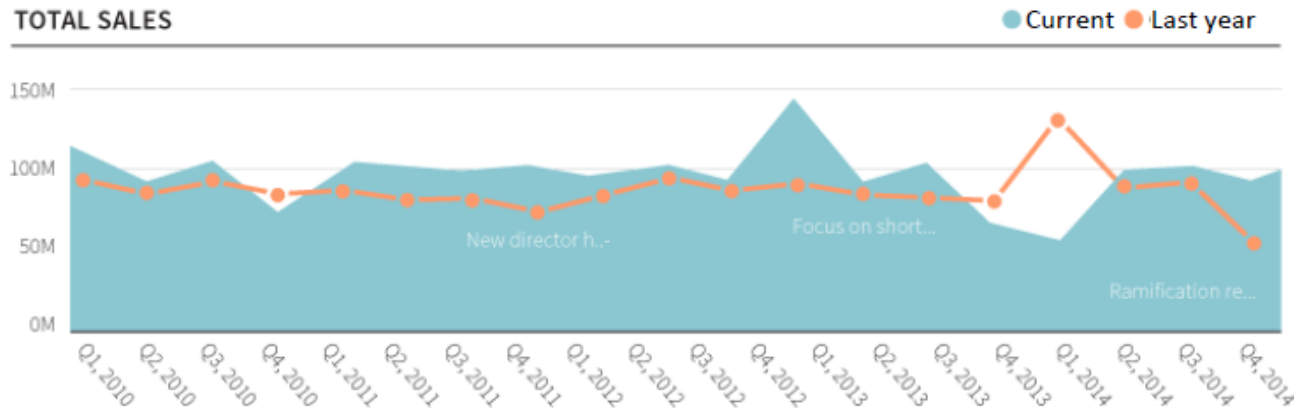
# Data Storytelling with Dashboard

Type of Questions  
and  
Interestingness of Questions

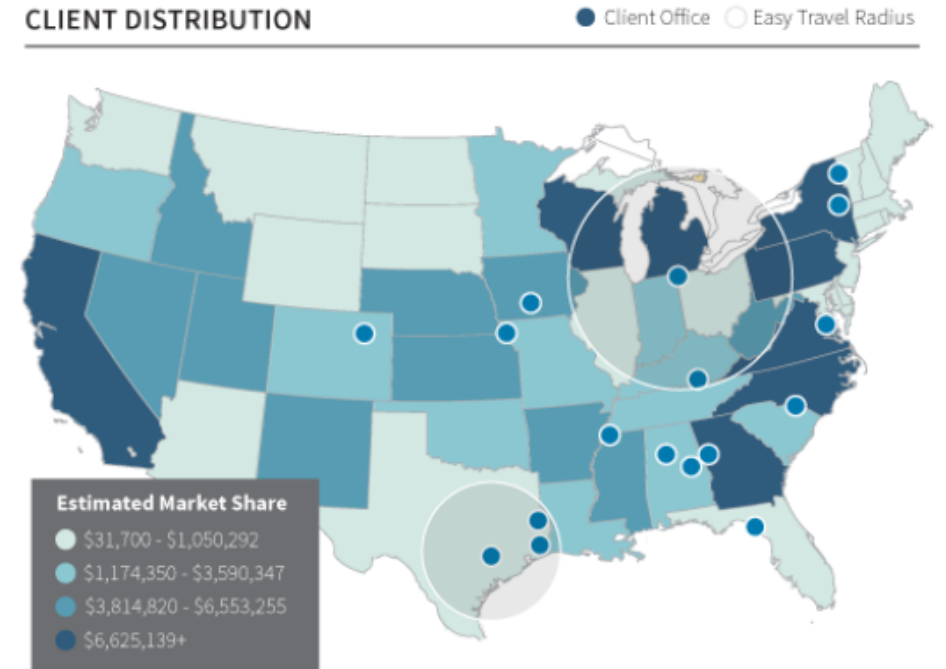
"Different forms do better jobs at answering different questions."  
- Amanda Cox, New York Times

# Dashboard for Sales Performance

## TOTAL SALES



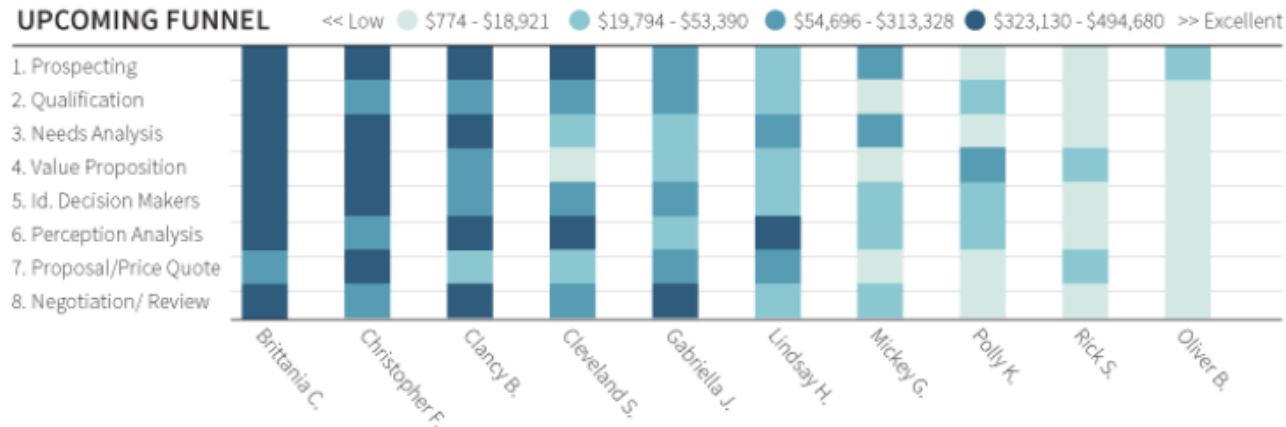
## CLIENT DISTRIBUTION



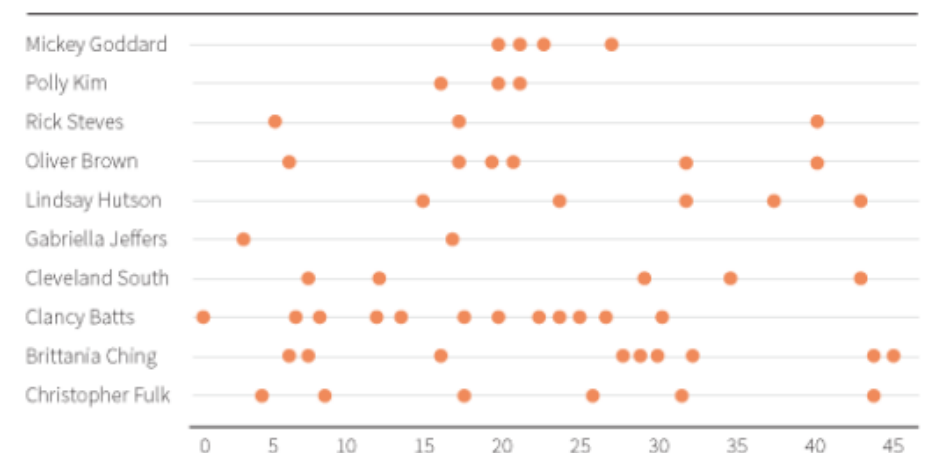
## TOP CLIENTS

	Total Spend		Units Ordered	
Company A	\$224,561,388		615,147	
Company B	\$216,820,372		588,621	
Company C	\$210,825,744		565,756	

## UPCOMING FUNNEL



## MEETINGS BOOKED - IN THE NEXT 45 DAYS



# Target Audience: Head of Sales and Marketing Department

## Questions:

### • How are our sales moving over time?

- Trend over time
- Year-over-year change
- Special events

***Sales 'Targets' should be added***

### • Where are our sales coming from?

- Top performing areas
- Focus areas for future growth
- Rationalization opportunities

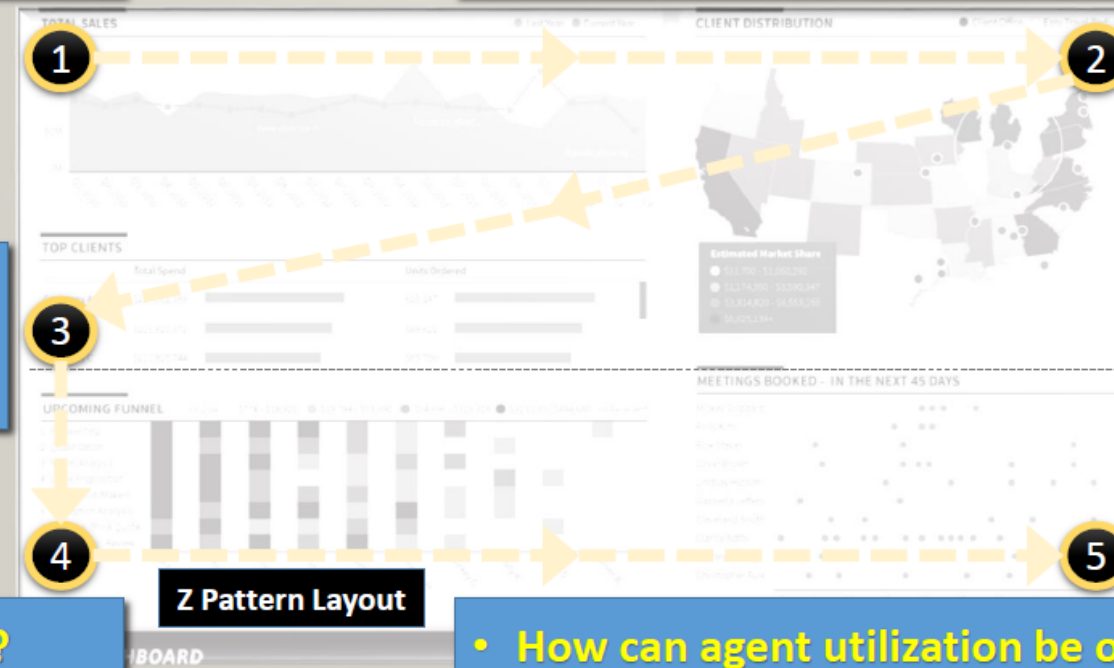
### • Who are the most valuable clients?

- How they fare against targets
- Strategy profiles (e.g. bulk buyers)

### • How is the pipeline for sales agents?

- Agents with highest sales funnels
- Resource reallocation opportunities

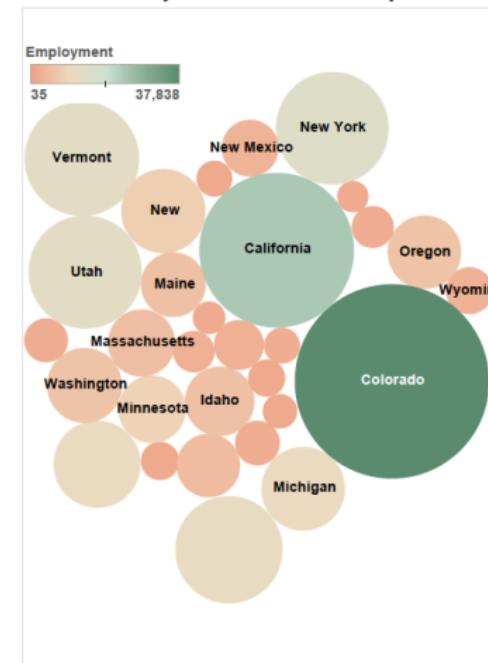
***Should be simplified using 'Average' sales pipeline, instead of distribution by funnel***



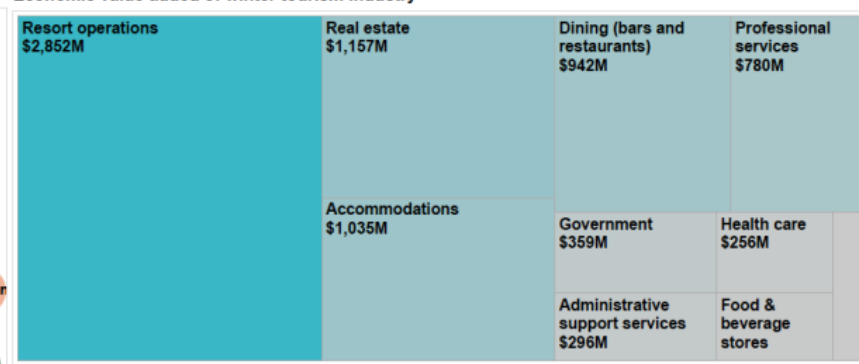
### • How can agent utilization be optimized further?

- Scheduled agent peak and downtimes
- Responsibility sharing opportunities

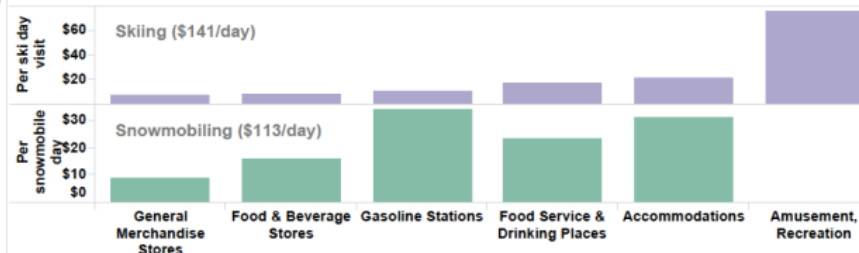
Number of ski days and state winter tourism jobs



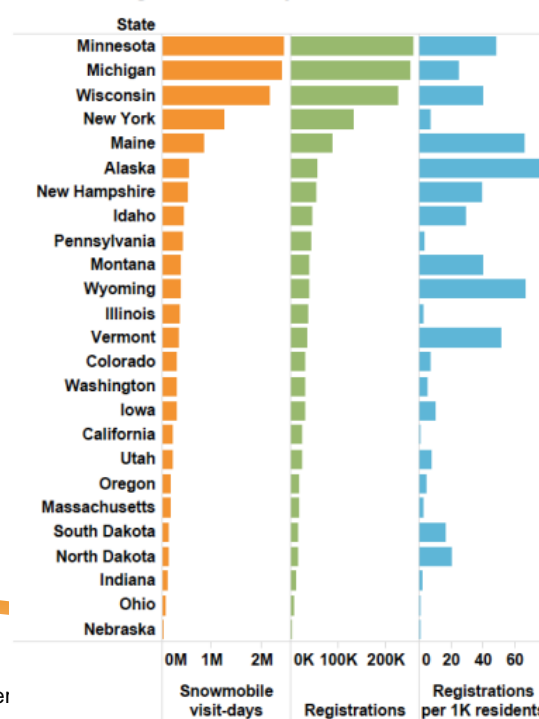
Economic value added of winter tourism industry



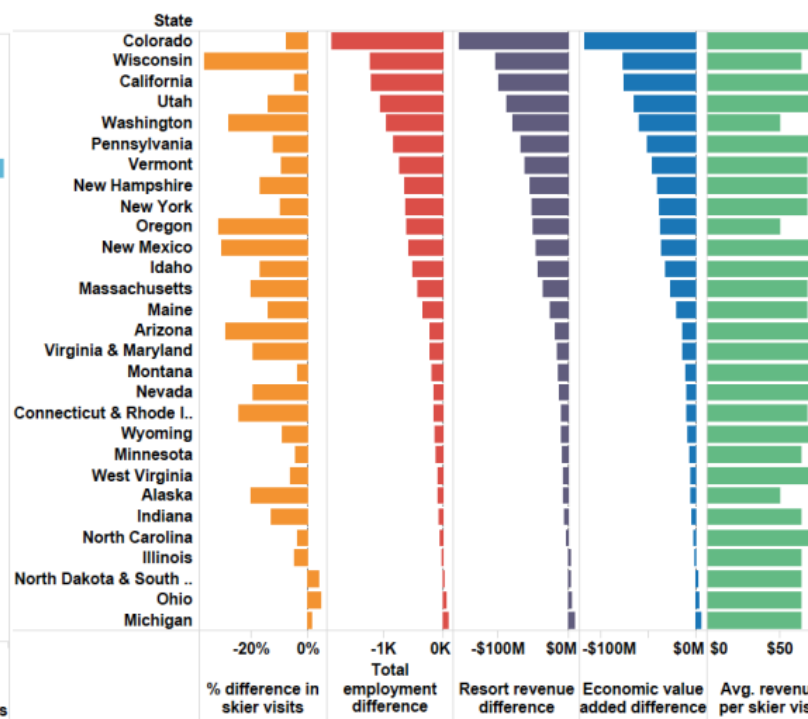
Trip expenses for skiing and snowmobiling



Snowmobile registrations and days



Impact of low-snow years on ski industry



**AUDIENCE**

United States National Tourism Office- Labor and Commerce Department



Goal



Question



Metric

Compare states based on **employee performance**(revenue per ski visit)

What is the number of winter tourism jobs for every ski visit in each state?  
Are there any states that contribute more revenue with less jobs?

Employee  
Engagement

Sectors that will be **highly impacted** due to low snow years

What is the economic value added by winter tourism industry to different industries ?

Sector-wise  
Value  
Addition

Impact of decline in winter tourism industry on **exposed allied sectors**

What is the per day income generated by allied sectors like F&B, Merchandising etc. for every ski/ snowmobile visit?

Indirect  
Losses/ Day

Impact of low-snow years on **employment** in ski Industry

How many employees have lost their jobs/moved to another job as result of drop in skier visits? What is its impact on employment?

Employee  
Attrition  
Rate

State-wise impact on **revenue** following a decline in skiing industry

Based on the declining trends of ski visits in skiing industry in each state, what is the impact on the overall revenue at a state-level?

State-wise  
Revenue Loss

## Exercise

**find a dashboard online and provide your comments/suggestions...**

Who is the target audience? What questions can be answered?

What measurement/metrics are used?



# Storytelling Framework

## Constructing the Story





# the Importance of **CONTEXT**



To **whom** are you communicating?

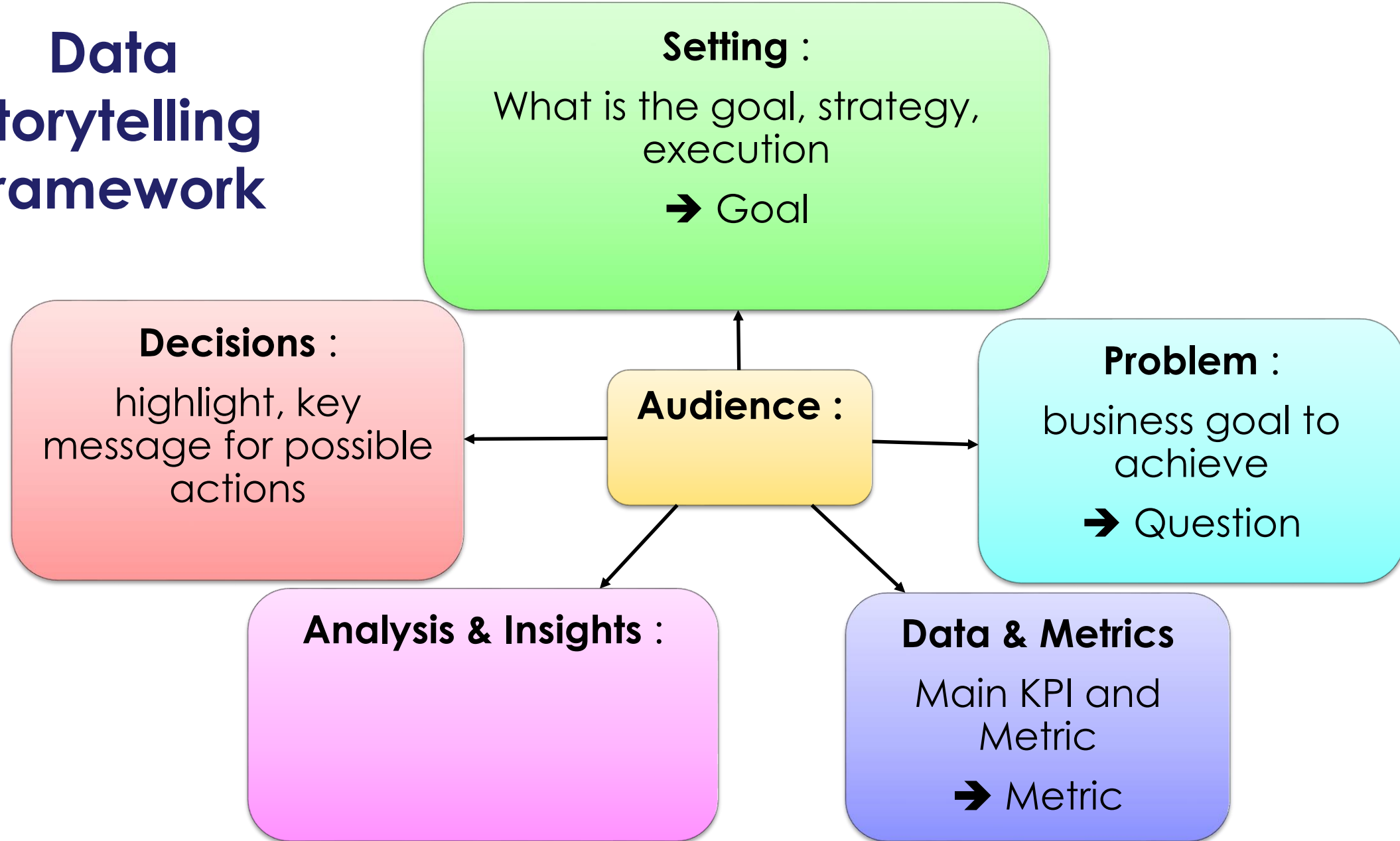


**What** do you want your audience to know or do?



**How** can you use data to help make your point?

# Data Storytelling Framework



- A **goal** is defined for an **object**, for a variety of reasons, with respect to various models of quality, from various points of view and relative to a particular environment.

## Conceptual level (Goal)



- A set of **questions** is used to define models of the object of study and then focuses on that object to characterize the **assessment** or **achievement** of a specific goal.

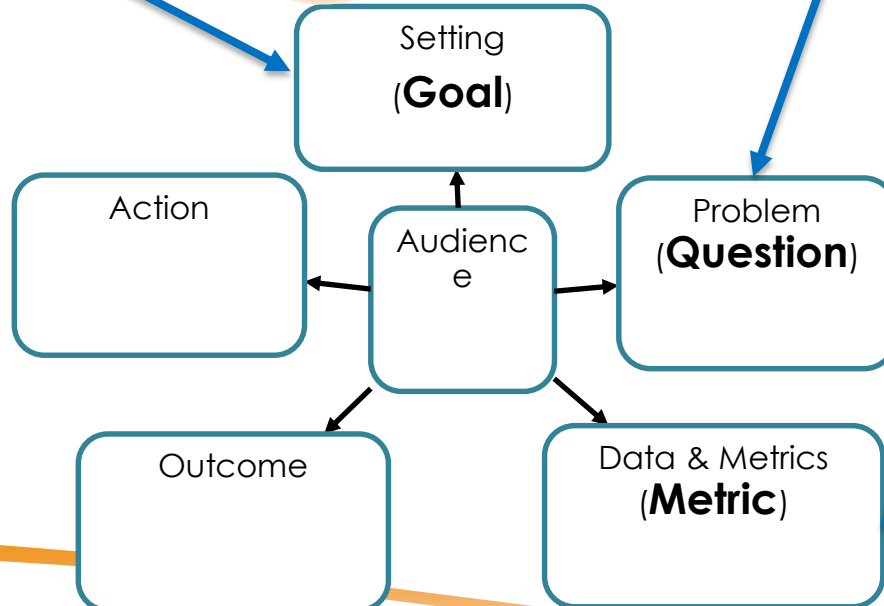
## Operational level (Question)



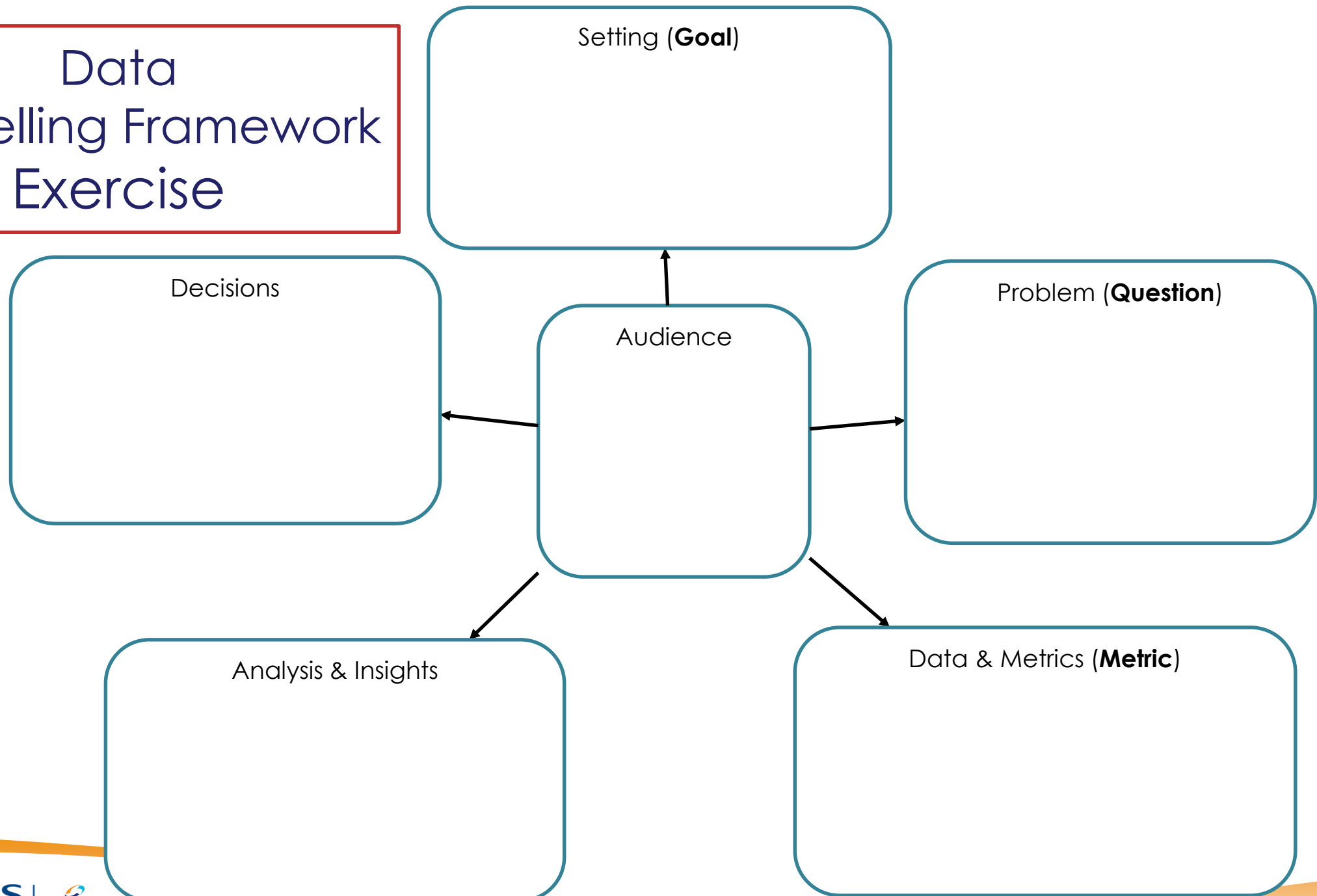
## Apply **GQM** in Storytelling Framework

- A set of **metrics**, based on the models, is associated with every question in order to answer it in a measurable/quantitative way. Data can be **objective** or **subjective**.

## Quantitative level (Metric)



# Data Storytelling Framework Exercise



# Summary

- **Data Visualisation**
  - to explain and explore data
- **Data Storytelling with Dashboard**
  - Type of Questions
  - Interestingness of Questions
- **Data Storytelling Framework**
  - Constructing the Story
  - Goal-Question-Metric (GQM)

