

Navigating from Data **to meaningful Visualizations**

Mirna Malaeb
Data & AI Specialist
Microsoft

Agenda

- Data as key part in visualization
- Data analytics journey
- Data analytics in the Era of AI with Microsoft Fabric
- 10 Rules for designing Dashboards
- Effective checklist

20%

GRIDS
LINES
SIZE
SHAPES
CONSISTENCY
ALIGNMENT SPACING
COLOR SIMPLICITY
BALANCE
BACKGROUND CONTRAST

MEASURES RELATIONSHIPS

DATA SOURCES EDIT QUERIES

DAX

APPEND TRANSPOSE

DRILL DOWN UNPIVOT

M

COMBINE BINARIES

FORMULAS

MULTIDIMENSIONAL TABLES

SPLIT COLUMNS

HIERARCHY

SORT BY

AGGREGATE

MODELING

MERGE

QUALITY

FILTERS

REMOVE DUPLICATES

REPLACE

PIVOT

EXPAND

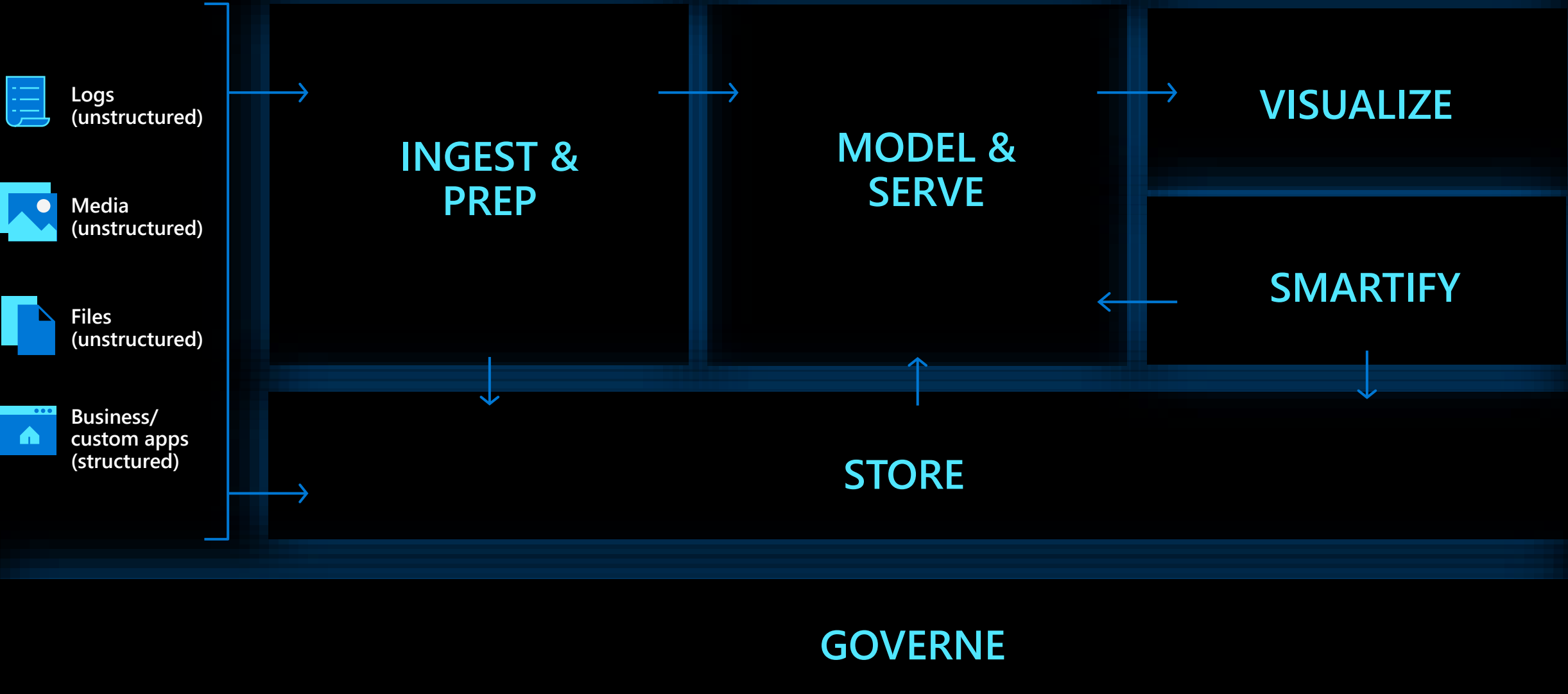
SUMMARIZATION

**WORKING,
CLEANING
AND ENHANCING
THE
DATA**

80%

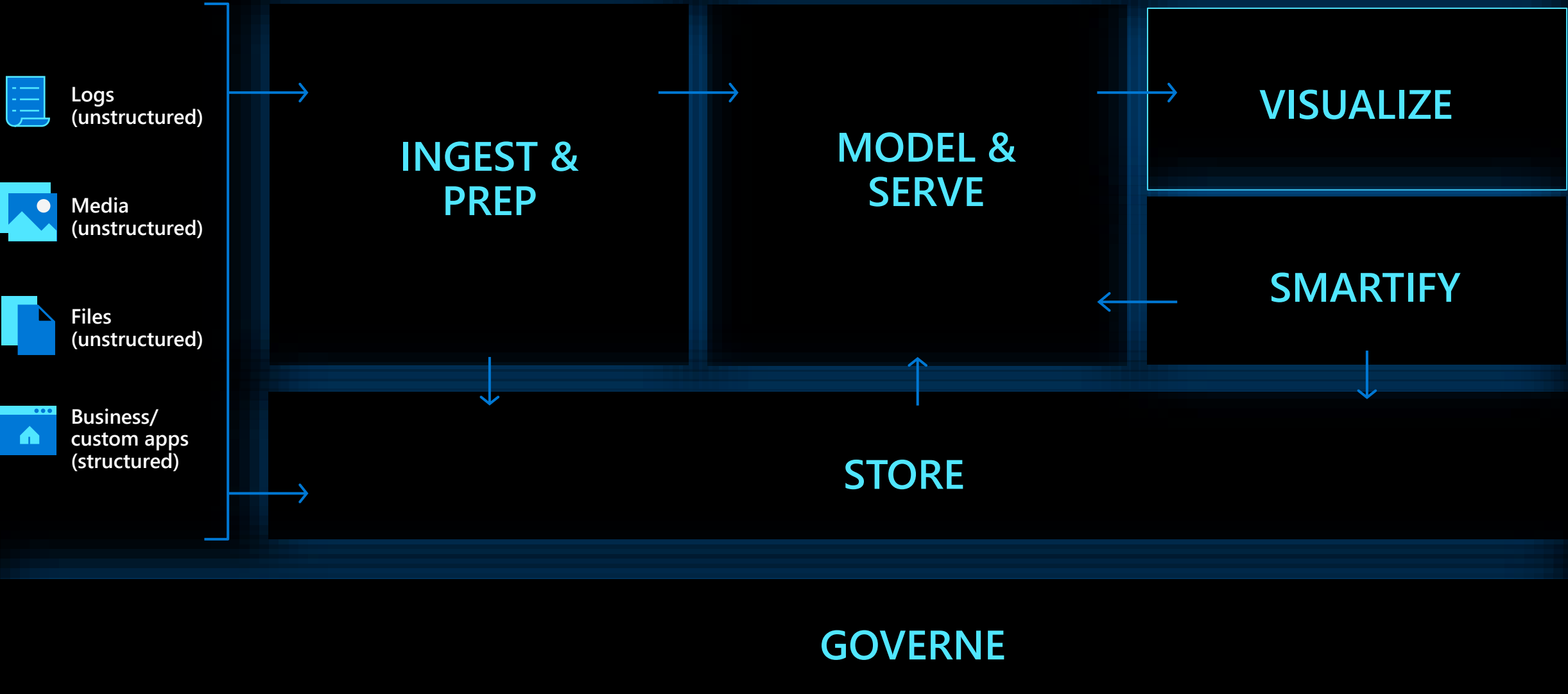
Data Analytics Journey

Modern Data warehouse approach



Data Analytics Journey

Modern Data warehouse approach



Announcing



Microsoft Fabric

Data analytics for the era of AI



Microsoft Fabric

Data analytics for the era of AI

Complete Analytics Platform



Microsoft Fabric

Data analytics for the era of AI

**Complete
Analytics
Platform**

**Lake Centric
and Open**



Microsoft Fabric

Data analytics for the era of AI

**Complete
Analytics
Platform**

**Lake Centric
and Open**

**Empower Every
Business User**



Microsoft Fabric

Data analytics for the era of AI

Complete
Analytics
Platform

Lake Centric
and Open

Empower Every
Business User

AI
Powered

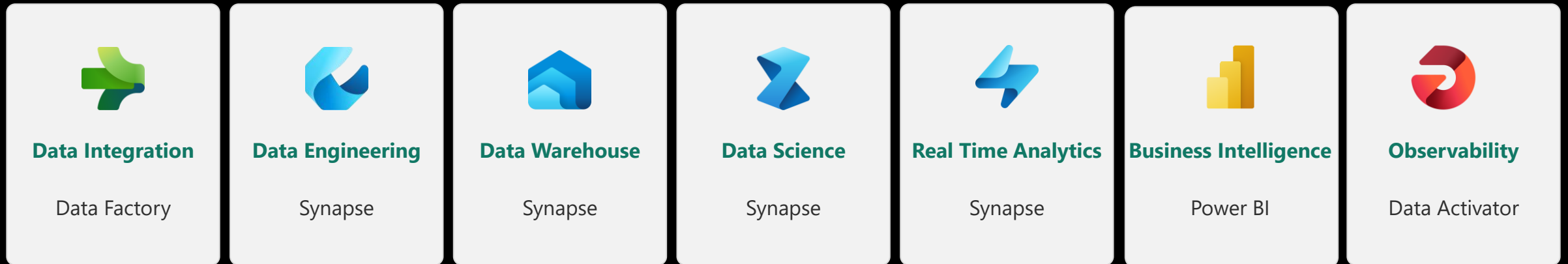
Get more done and accelerate time to insights with Copilot in Microsoft Fabric


- Turn your words into dataflows and data pipelines so you can intelligently integrate data from anywhere
- Get suggestions for code and entire functions in real-time
- Get a guided machine learning model creation experience to unlock more insights in your data.
- Create and tailor Power BI reports in seconds, generate DAX calculations, create narrative summaries, and ask questions about your data
- Even create your own conversational experiences that combine Azure Open AI models and your organization's data and publish as plug-ins.
- Most importantly, Microsoft Cloud runs on trust which means your data always remains your data



A unified solution to maximize the value of your data

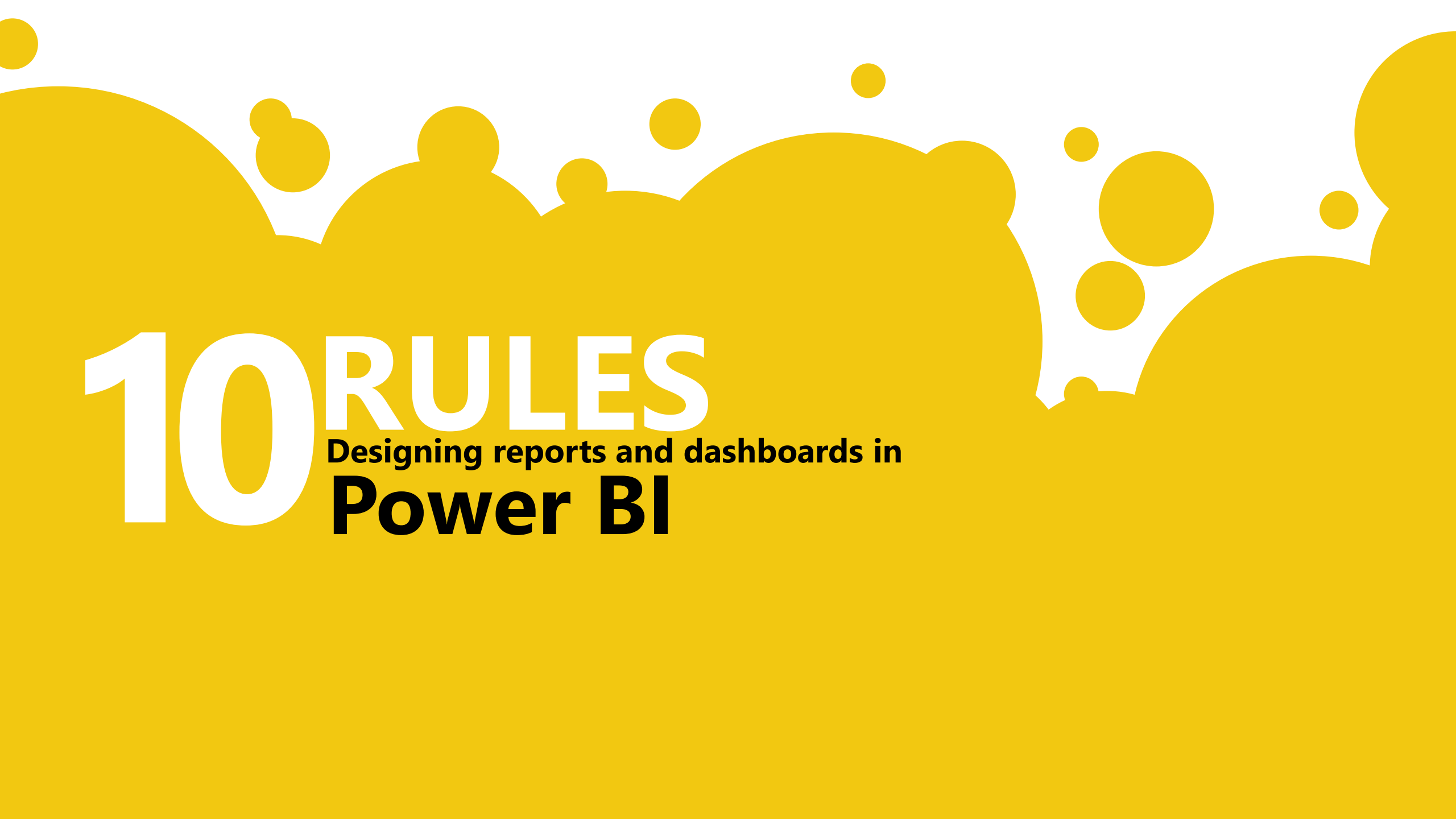
An end-to-end analytics platform that brings together all the data and analytics tools that organizations need to go from the data lake to the business user





Let's find some insights & create a report...

- Data**
- *DAX
 - Measures
 - Buckets
 - Calendar
 - Employee Demographics
 - Employee to Operations
 - KPI Owners
 - Managers
 - Operations Team
 - Projects

The background is a solid yellow color. It features several abstract, organic shapes and circles of various sizes, some overlapping, creating a dynamic and modern aesthetic. The shapes are primarily in the upper half of the image, with some extending towards the right side.


10 RULES

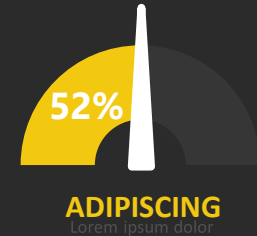
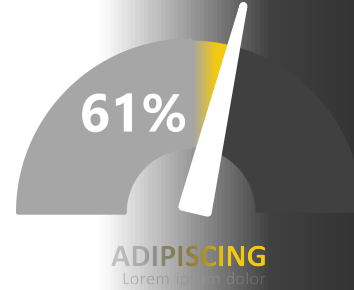
Designing reports and dashboards in

Power BI

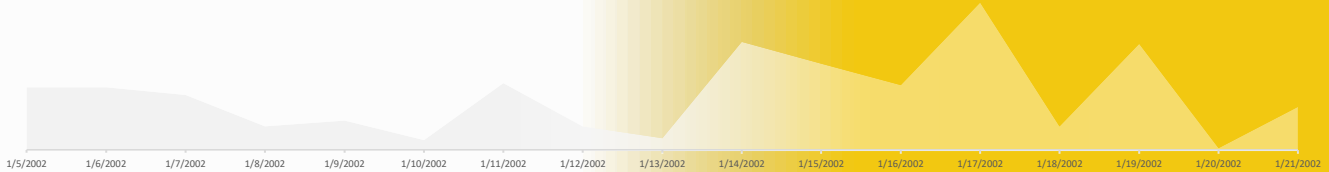
1. Draw a Sketch









- consectetur
- consectetur
- consectetur
- consectetur

42  -30%
Lorem ipsum



Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod



Category A	Category B	Category C	Category D	Category E
fugiat nulla	87 	87 	87 	87 
fugiat nulla	87 	87	87	87
fugiat nulla	87	87	87 	87
fugiat nulla	87 	87	87 	87

What do you want to explain?

WHAT

WHERE

HOW

WHEN

WHY

2. Organize your Structure

1
Main KPI

2a
Over Time

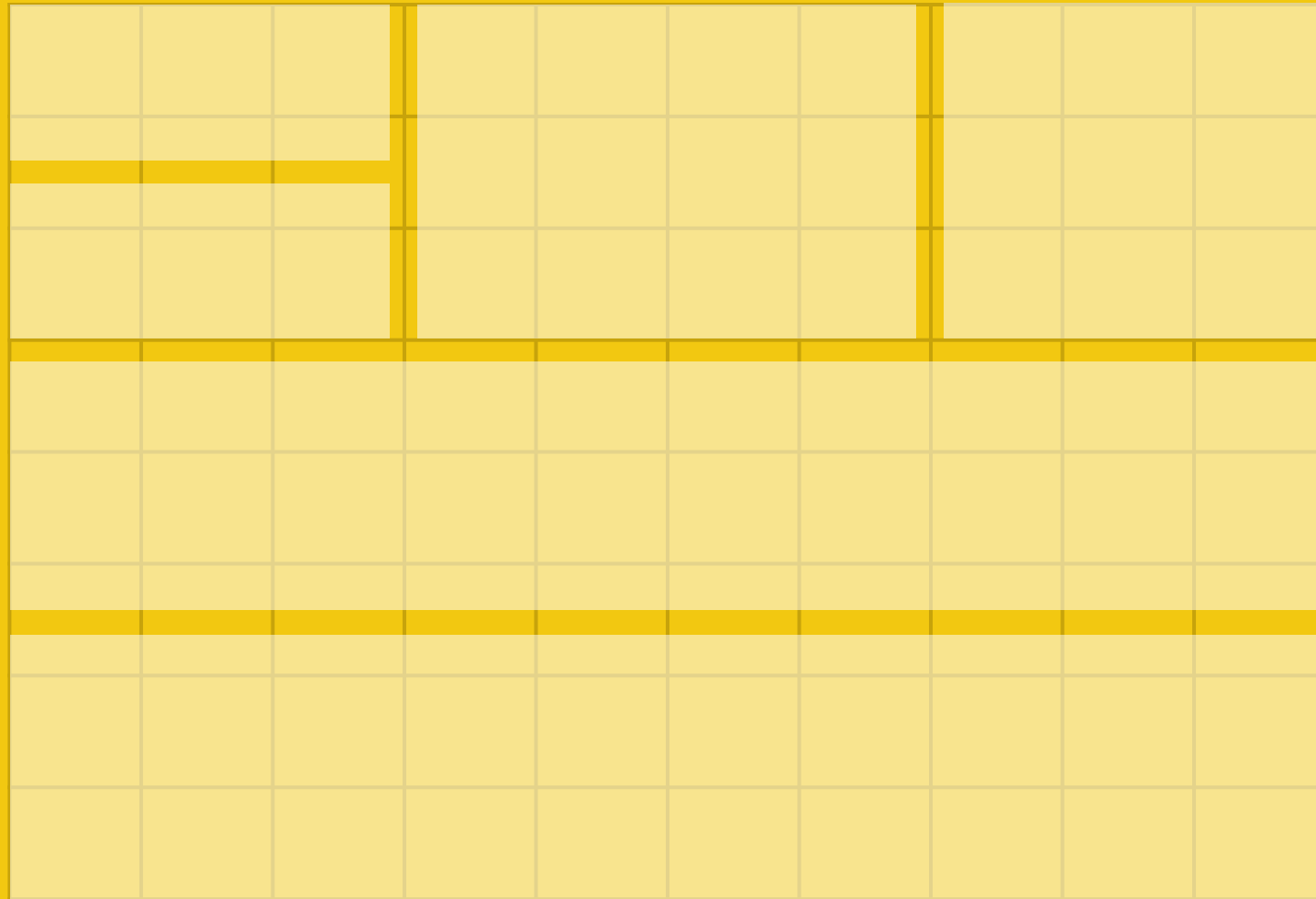
2b
Over Time

2c
Over Time

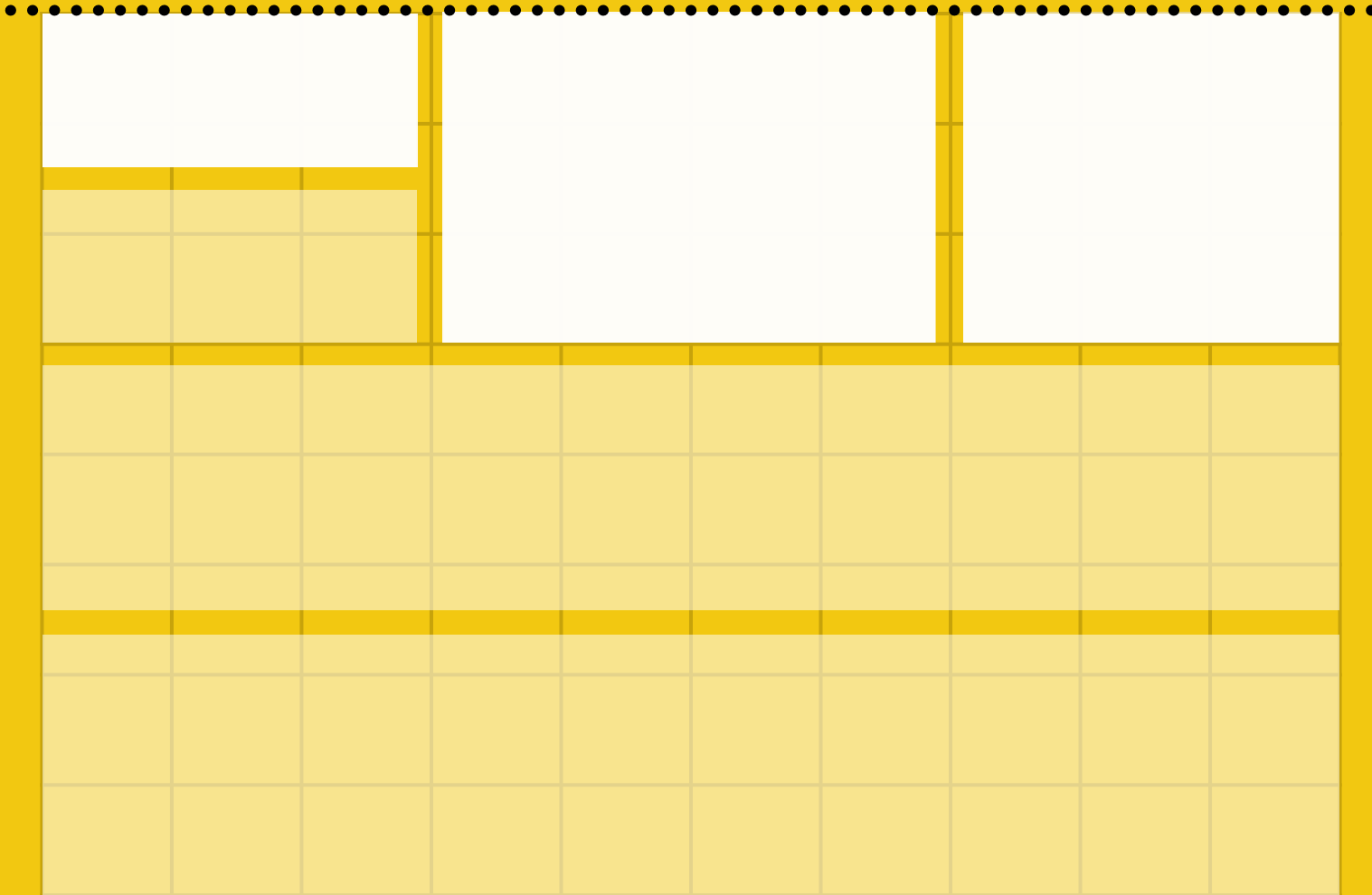
3a
Map

3b
Comparison

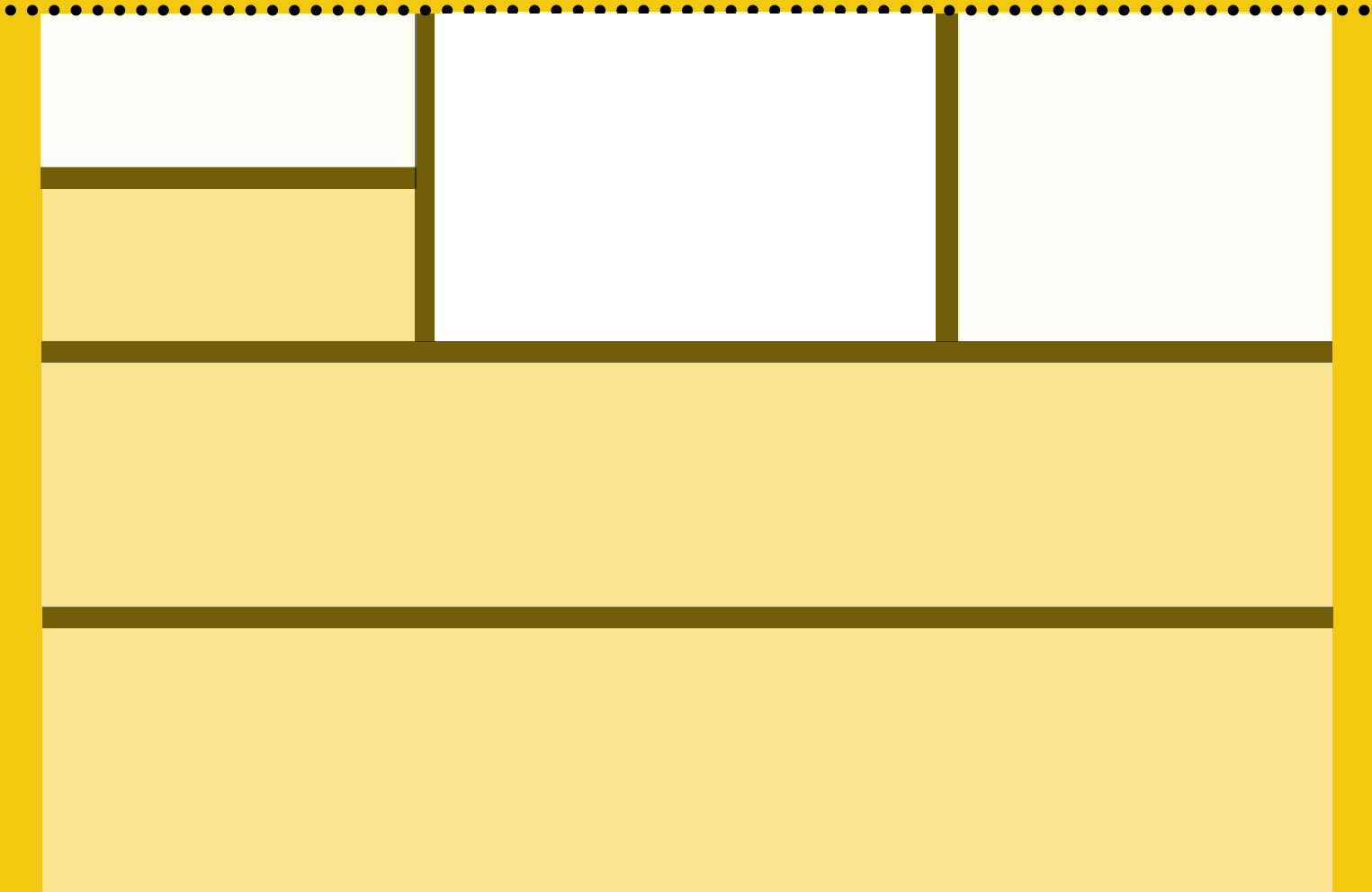
3c
Top



2.
Always use a
Grid



3.
Use a correct
Alignment



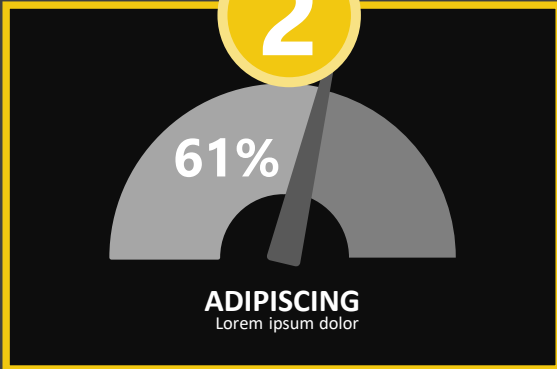
4. Appropriate Spacing

5.
Select the right
Background

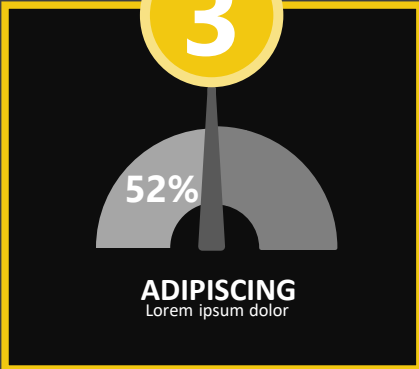
1

- consectetur
- consectetur
- consectetur
- consectetur

2



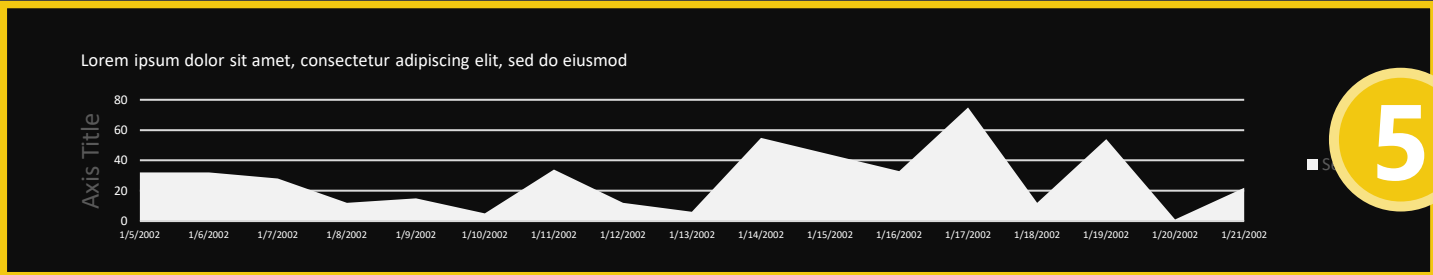
3



4



5



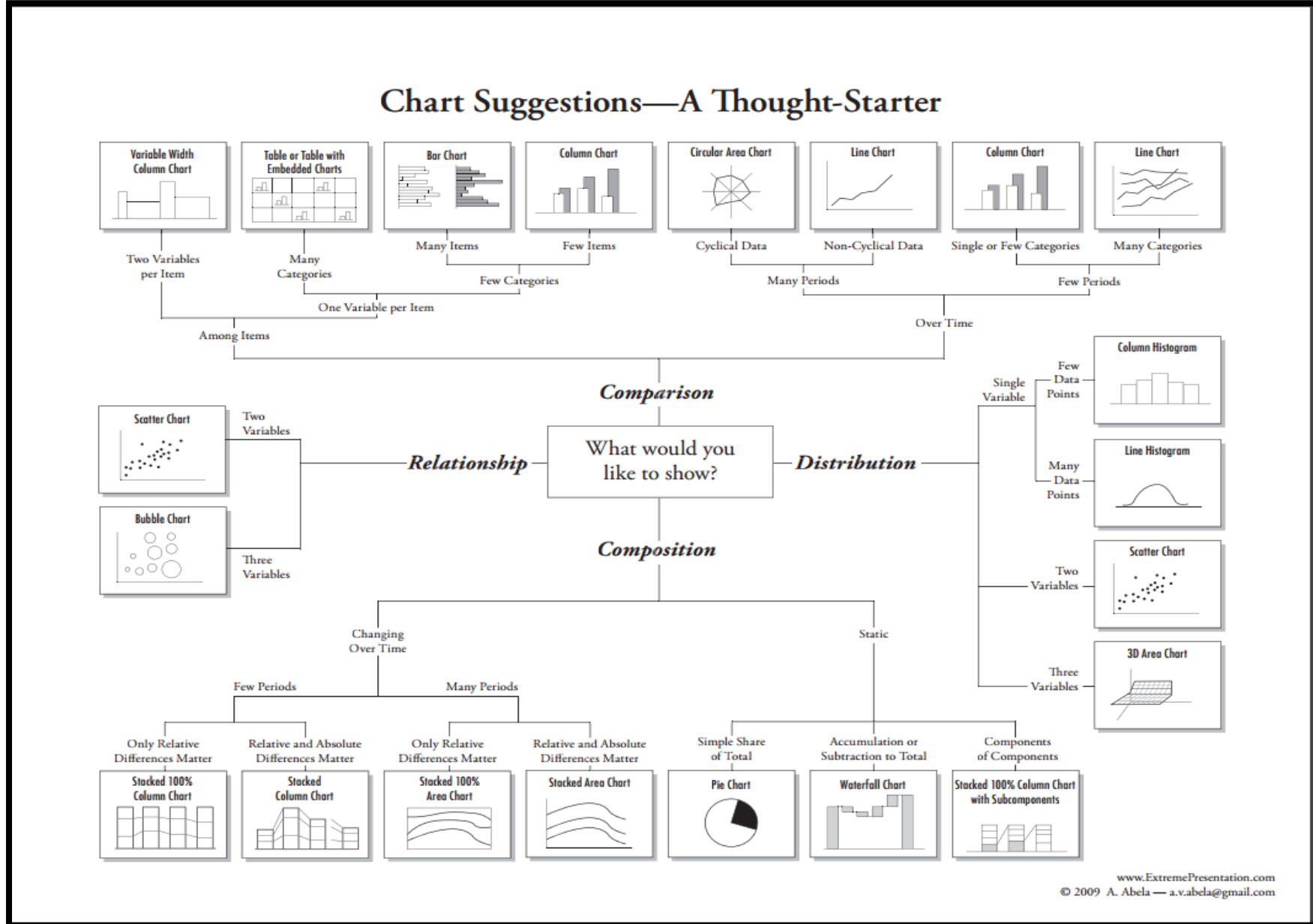
6

Category A	Category B	Category C	Category D	Category E
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87

6. Use the right Visualizations



Choose the right chart



4 Design Ways

to show your results



Reports

Analysis



Scorecards

State



Dashboards

Overview



Infographics

Pictorial

Designing Power BI Analysis

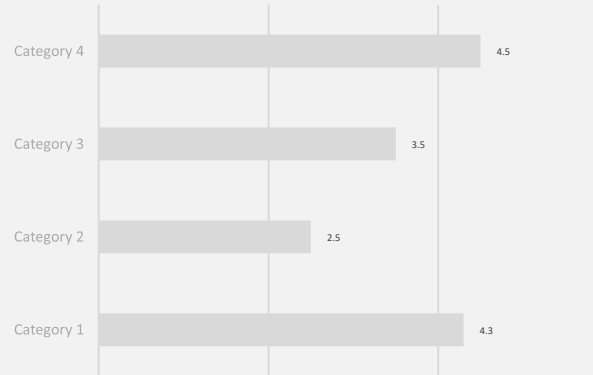
TEXT
TABLES
CHARTS
CARDS
INDICATORS
IMAGES
SLICERS

LOREM IPSUM DOLOR SIT AMET CONSECTETUR ADIPISCING

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod



Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod



1st Qtr 2nd Qtr 3rd Qtr 4th Qtr

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis

A report is a textual work (usually of writing, speech, television, or film) made with the specific intention of relaying information or recounting certain events in a widely presentable form (Wikipedia).

Designing Power BI Scorecards

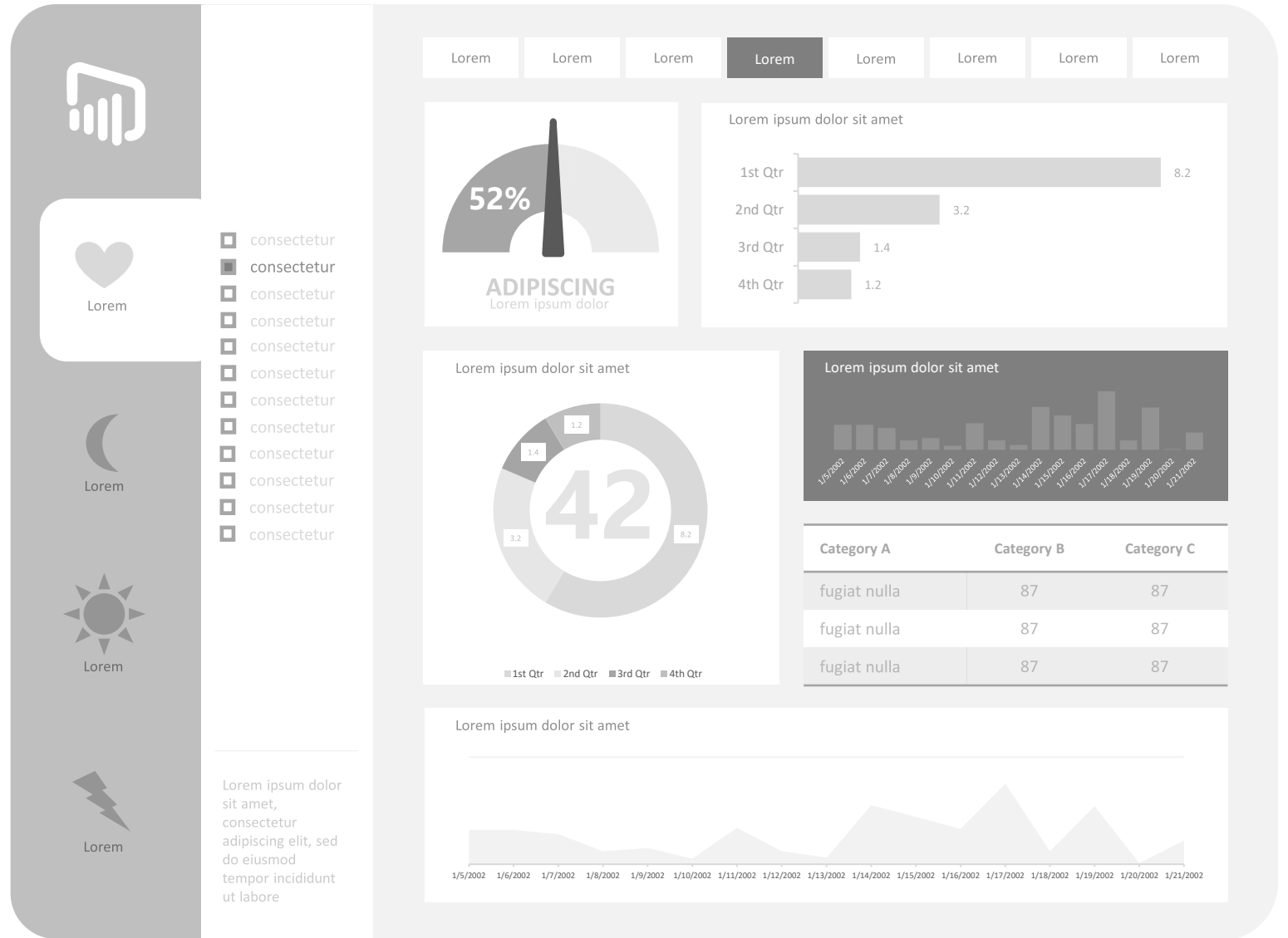
INDICATORS
TABLES
CARDS
CHARTS
SLICERS
IMAGES
TEXT



*A succinct summary that captures the information most relevant to those reading it.
(Wikipedia).*

Designing Power BI DASHBOARDS

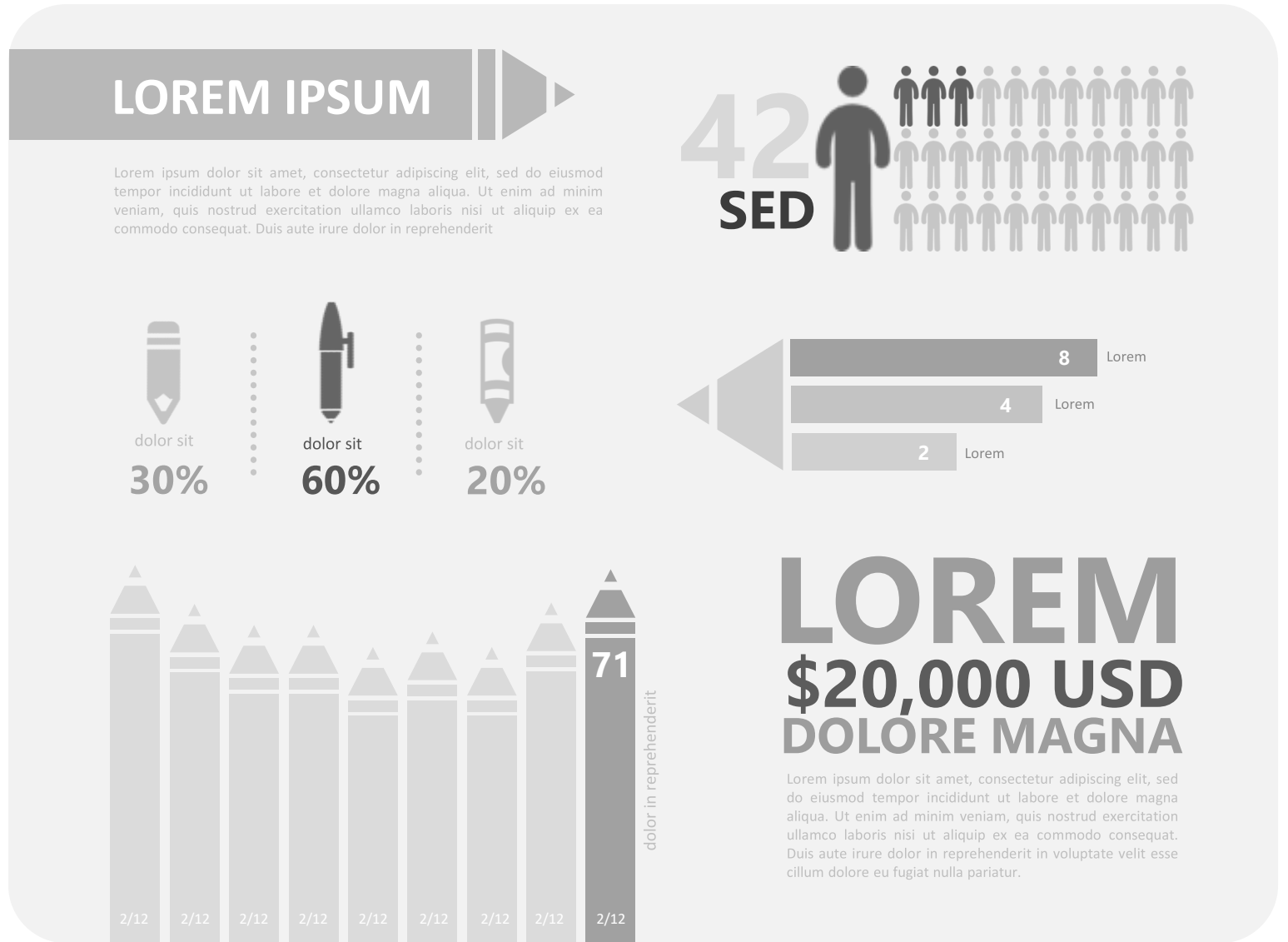
CHARTS
SLICERS
CARDS
INDICATORS
TABLES
IMAGES
TEXT



....a dashboard is an executive information system user interface that (similar to an automobile's dashboard) is designed to be easy to read (Wikipedia).

Designing Power BI INFOGRAPHICS

IMAGES
TEXT
CHARTS
CARDS
INDICATORS
SLICERS
TABLES



Information graphics or infographics are graphic visual representations of information, data or knowledge intended to present information quickly and clearly (Wikipedia).



Report



Scorecard



Dashboard

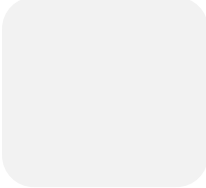


Infographics

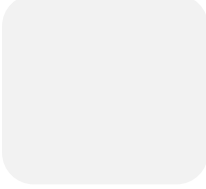
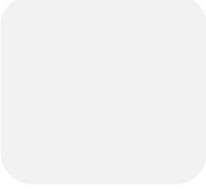
- CEO
- President
- Director



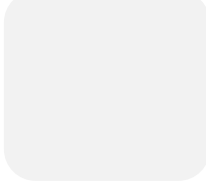
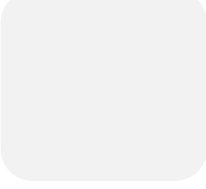
- Leader
- Manager
- Supervisor



- Analyst
- Marketing Specialist
- IT Technician



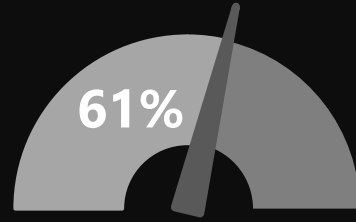
- Client
- Customer
- Employee



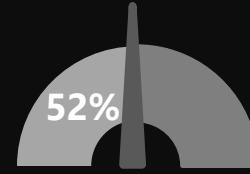
All about the Users

- consectetur
- consectetur
- consectetur
- consectetur

42  -30%



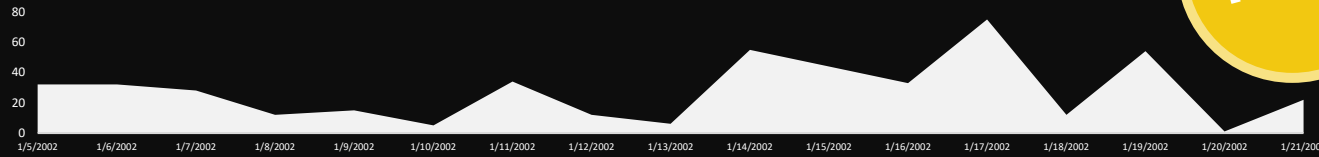
ADIPISCING
Lorem ipsum dolor



ADIPISCING
Lorem ipsum dolor



Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod

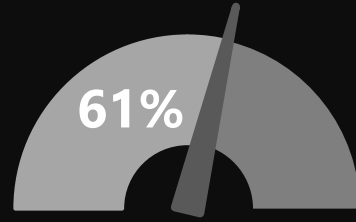


Category A	Category B	Category C	Category D	Category E
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87

7.
Simpler
Is better!

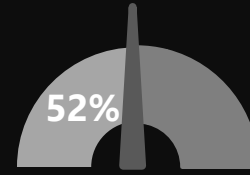
- consectetur
- consectetur
- consectetur
- consectetur

42  -30%



61%

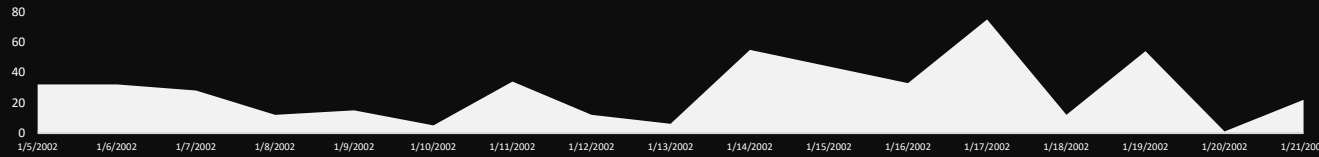
ADIPISCING
Lorem ipsum dolor



52%

ADIPISCING
Lorem ipsum dolor

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod



Category A	Category B	Category C	Category D	Category E
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87

8.

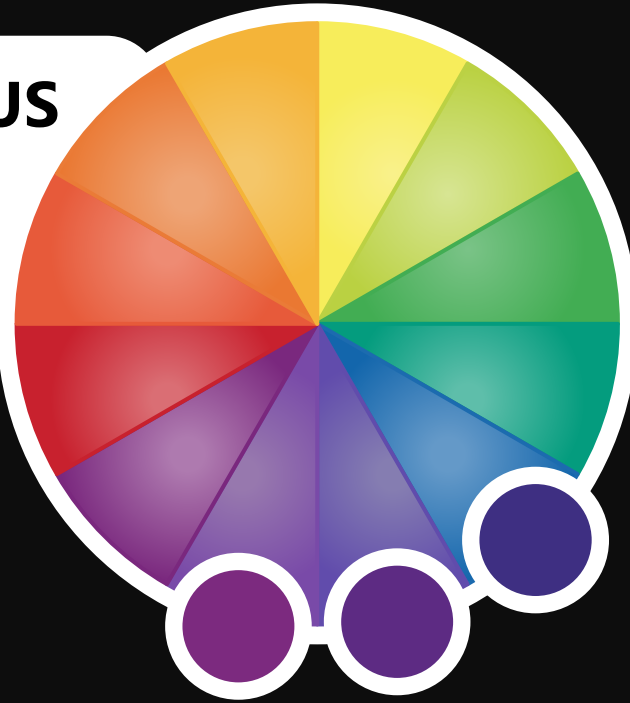
Use

Negative Space
wisely

ANALOGOUS

Colors

<4



TRIADIC

Color

<4



MONOCHROMATIC

Color

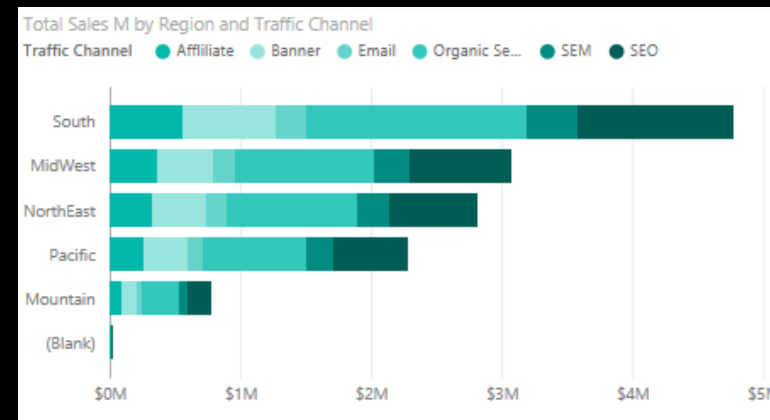
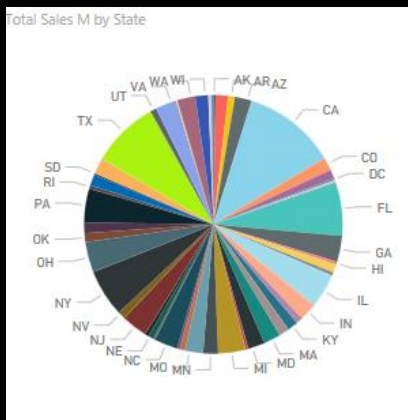
<6



9.
Choose your
Color
palette

Things to remember when using colors

- Do not have more than 3-5 colors display on a single visual (think of Short Term memory)
- The eye cannot differentiate more than 5 colors of same hue
- Try to have a semantic meaning for your colors (Red = Bad, Green = Good)




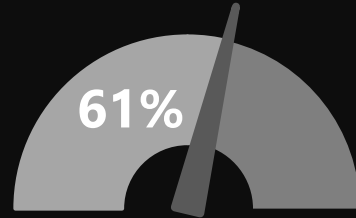
Themes, contrast and colorblind- friendly colors

<p>Fails AA</p> <p>Required contrast ratio: 4.5</p> <p>Your contrast ratio: 4.03</p>	<p>Passes AA</p> <p>if you change background color to #FBFBFB</p> <p>New contrast ratio: 4.52</p>	<p>Passes AA</p> <p>if you change text color to #606060</p> <p>New contrast ratio: 4.53</p>
<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do...</p>	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do...</p>	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do...</p>

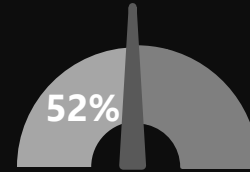
- Reports should have enough contrast between text and any background colors. Tools such as Color Contrast Analyzer, WebAIM, and Accessible Colors to check your report colors.
- Avoid using certain color combinations as can be difficult for users to distinguish:
 - green and red
 - green and brown
 - blue and purple
 - green and blue
 - light green and yellow
 - ...Tools like Coblis and Vischeck simulate what report viewers with different visual abilities see.
- Using fewer colors or a monochrome palette in your report to mitigate creating reports that are inaccessible.

- consectetur
- consectetur
- consectetur
- consectetur

42  -30%

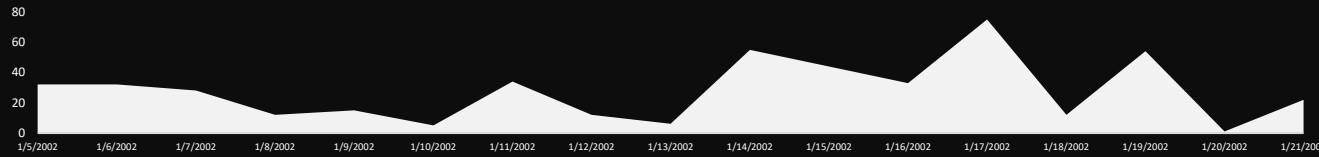


ADIPISCING
Lorem ipsum dolor



ADIPISCING
Lorem ipsum dolor

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod

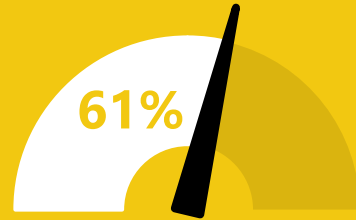


Category A	Category B	Category C	Category D	Category E
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87
fugiat nulla	87	87	87	87

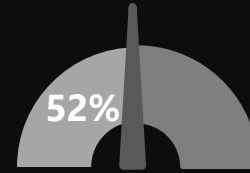
10.
Enhance
the important
parts of a page

- consectetur
- consectetur
- consectetur
- consectetur

42  -30%

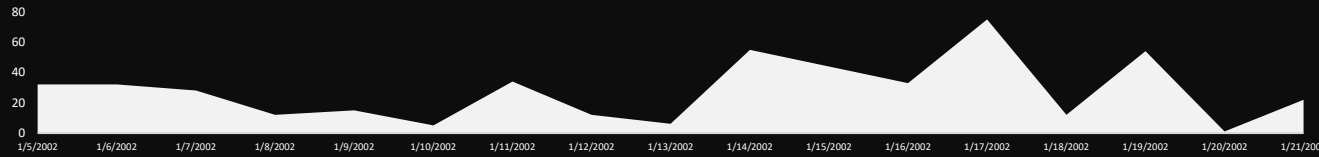


ADIPISCING
Lorem ipsum dolor



ADIPISCING
Lorem ipsum dolor

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod

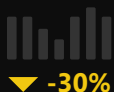


Category A	Category B	Category C	Category D	Category E
fugiat nulla	87 ↑	87 ↓	87 ↑	87 ↑
fugiat nulla	87 ↑	87 ↑	87 ↑	87 ↓
fugiat nulla	87 ↓	87 ↑	87 ↓	87 ↓
fugiat nulla	87 ↑	87 ↓	87 ↓	87 ↓

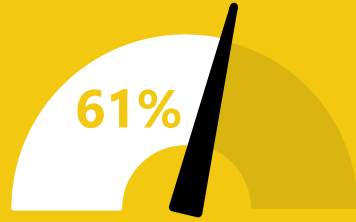
10.
Enhance
the important
parts of a page

- consectetur
- consectetur
- consectetur
- consectetur

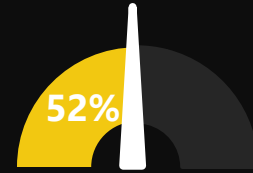
42



Lorem ipsum

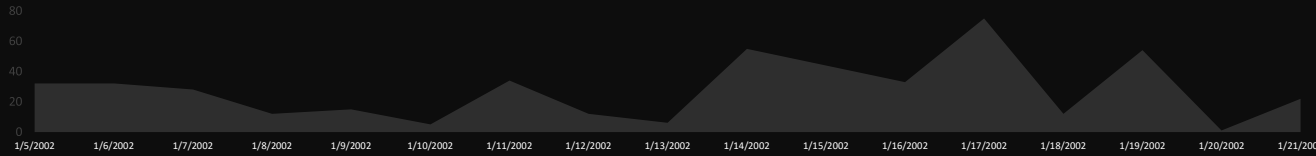


ADIPISCING
Lorem ipsum dolor



ADIPISCING
Lorem ipsum dolor

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod

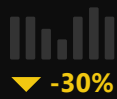


Category A	Category B	Category C	Category D	Category E
fugiat nulla	87 ↑	87 ↓	87 ↑	87 ↑
fugiat nulla	87 ↑	87 ↑	87 ↑	87 ↓
fugiat nulla	87 ↓	87 ↑	87 ↓	87 ↓
fugiat nulla	87 ↑	87 ↓	87 ↓	87 ↓

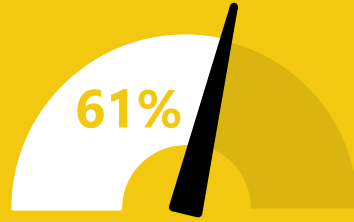
Success!!!

- consectetur
- consectetur
- consectetur
- consectetur

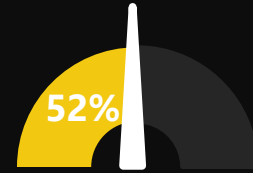
42



Lorem ipsum

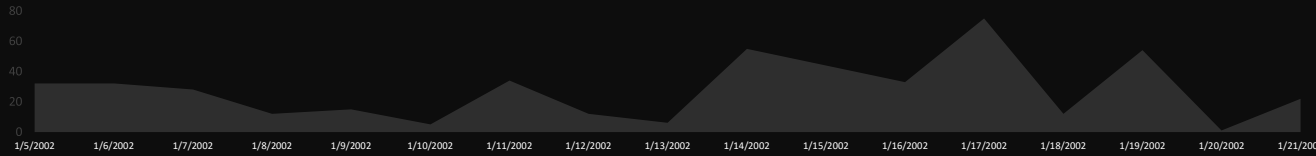


ADIPISCING
Lorem ipsum dolor



ADIPISCING
Lorem ipsum dolor

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod



Category A	Category B	Category C	Category D	Category E
fugiat nulla	87 ↑	87 ↓	87 ↑	87 ↑
fugiat nulla	87 ↑	87 ↑	87 ↑	87 ↓
fugiat nulla	87 ↓	87 ↑	87 ↓	87 ↓
fugiat nulla	87 ↑	87 ↓	87 ↓	87 ↓

Success!!!

Effective Data Visualization Checklist

What audience are you trying to address?

- What value can they get from your data visualization?
- Are you making their jobs easier and helping them make more impact?
- Are your insights actionable?

What ideas and insights are you trying to communicate?

- Are your ideas and insights self-explanatory through your visualization without you being there and explaining them?
- Have you cut down the irrelevant charts so that your audience can just focus on the relevant ones?
- Can your audience understand your visualization in the shortest time possible? Five seconds per tab for example.

Have you chosen the right charts to effectively display your findings?

- What types of analysis are you performing? Comparison, correlation, clustering, or trending?
- Have you selected the most suitable chart type(s) for your types of analysis?
- Have you considered alternative chart types that could work better than the ones you have chosen?

Effective Data Visualization Checklist

How did you organize your charts and other visual elements?

- Are relevant views on the same tab/page?
- Are your tabs organized by themes of messaging rather than dimension names in your data?

Are your interactions intended? Do they support effective data exploration?

- Have you carefully chosen the right interactions (slider filters, view filters, legend highlighting, or view highlight) for your visual or a collection of visuals?
- Have you customized the interactions between your visuals rather than using the default?

Have you gone extra mile to ensure great user experience for your audience?

- Are your titles and subtitles informative?
- Are your data labels clear, in good format, and readable? Are they placed optimally to help guide your viewers?
- Have you leveraged colors to highlight key insights rather than using them for decorations?
- Are your tooltips informative and add additional value beyond what viewers see from the visible data labels?

Thank you