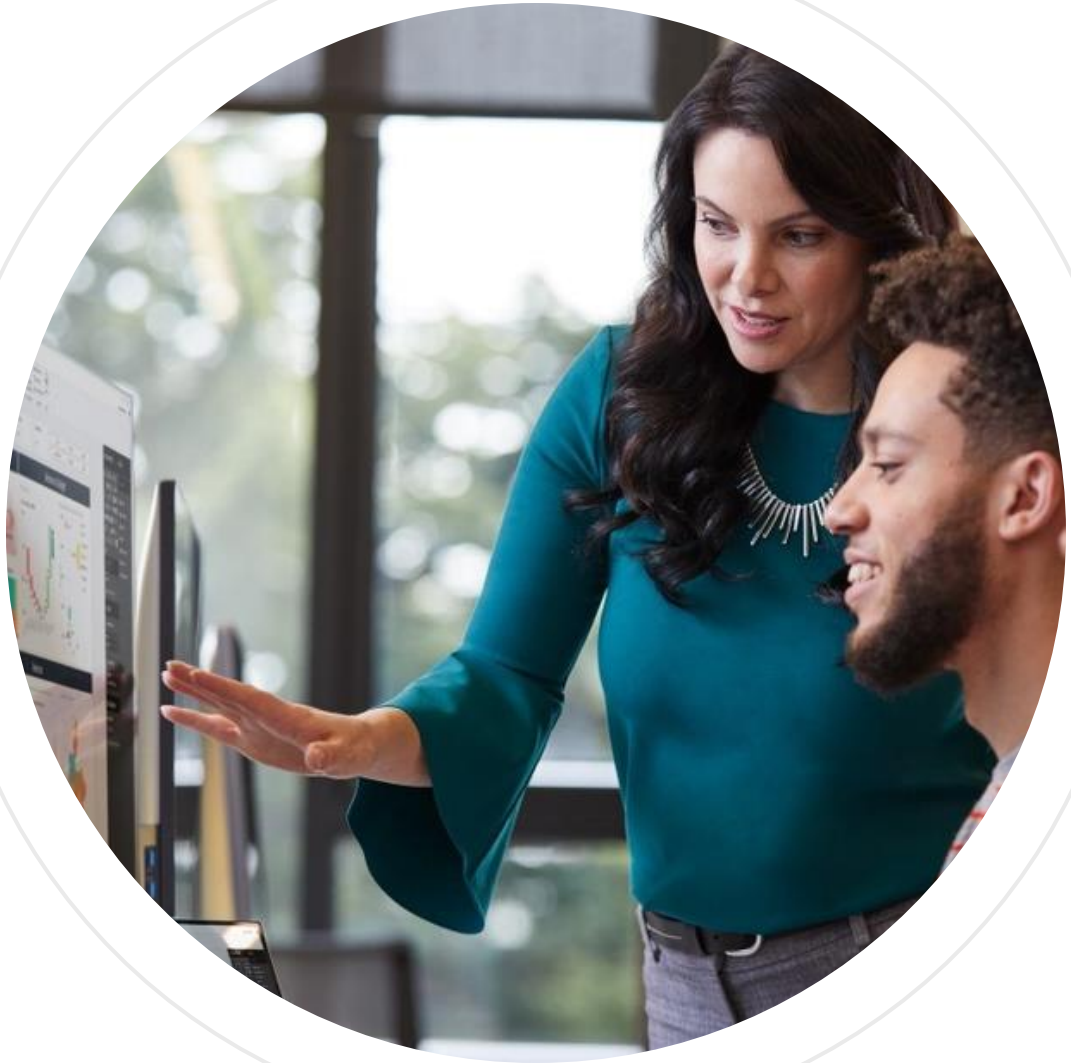
Data Storytelling

DRIVING RESULT THROUGH DATA STORYTELLING



Place you Mind Map Link below:

https://bit.ly/uobdst

3 COURSE

DESIGN:
Choose the Right Visuals

VISUAL COMMUNICATION

=

the most impactful way to communicate

Design Literacy

the ability to understand and interpret **visual elements** and their **purpose in communication**

Numbers, on their own, **can be limited** in telling the entire story of your data.

What is Data Visualization?

- Presents analytical information in a visual format
- Makes data analysis easier and more efficient vs. traditional spreadsheets
- Simplifies data sets into easily understandable visual analogies

Remember!

Effective data visualization can elevate the storytelling experience and present complex data in a clear and compelling manner.

LEARNING ROADMAP:

Navigating Your Path to Success

Course 1:
Driving Change and Action through Insight

Course 1:
Unearthing Stories in Data

Course 2:
3 C's of Building Your Data Story

Course 3:
The Value of Visuals

Course 3:
Visualizing the Story

5

6

Course 4:
Secrets to Effective Visuals

II. Visualizing the Story

II. Visualizing the Story

A. 6 Types of Data Stories

3 Elements of a Data Story

Data

Story

Visual

6 Types of Data Stories

1. RANKINGS

Assign a numerical or ordinal value to items based on their importance or performance.

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Assign a numerical or ordinal value to items based on their importance or performance.

- ✓ Helps compare and prioritize data points
- ✓ Quick way to know results

Top 10 occupations in the United States

SOURCE: U.S. Bureau of Labor Statistics (bls.gov), May 2020

1. RANKINGS

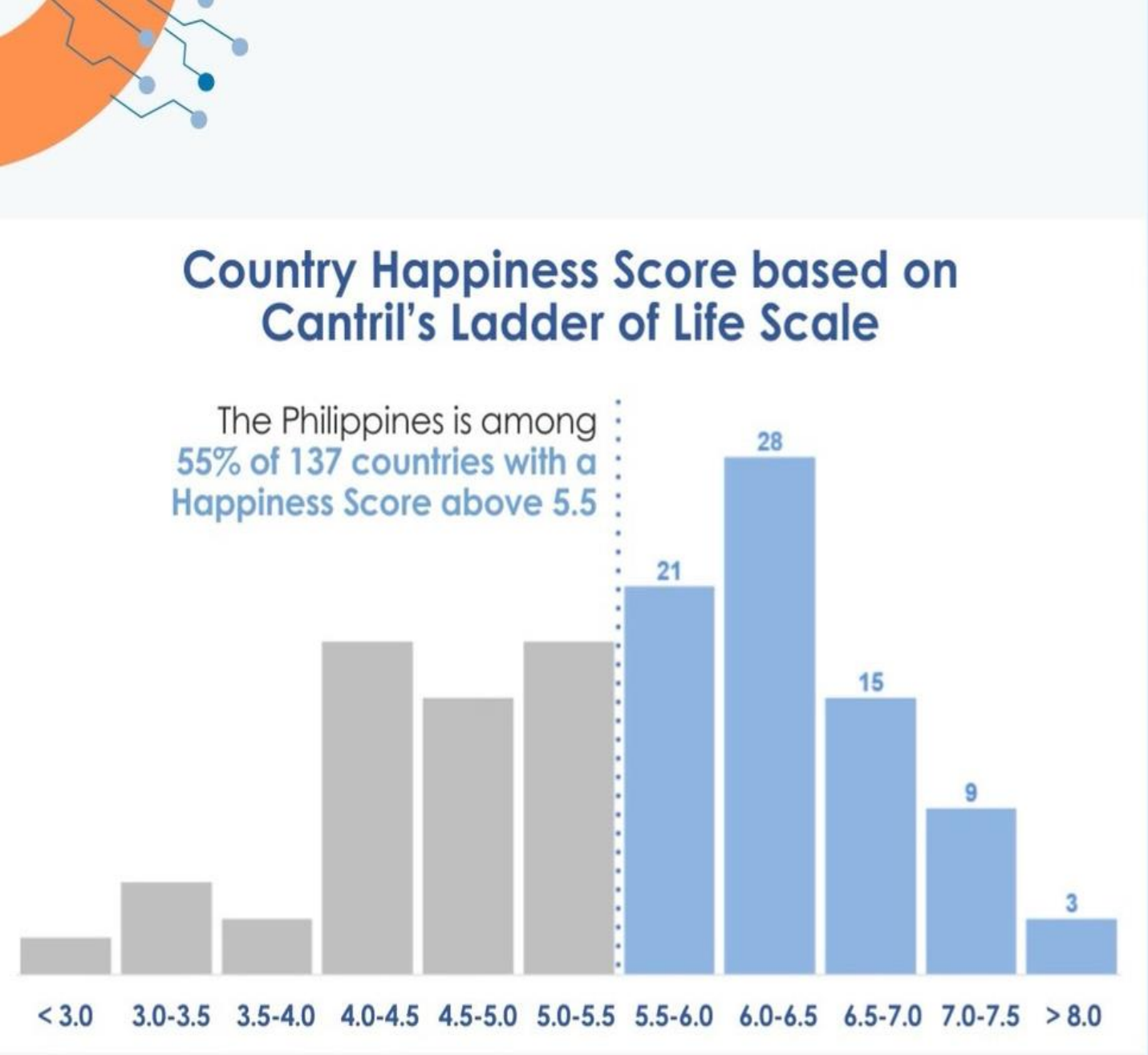
Answers Questions:

- Who are the **top** performers?
- Who are the **bottom** performers?
- What are the **position rankings** (percentile, quartile, decile)?

1. RANKINGS

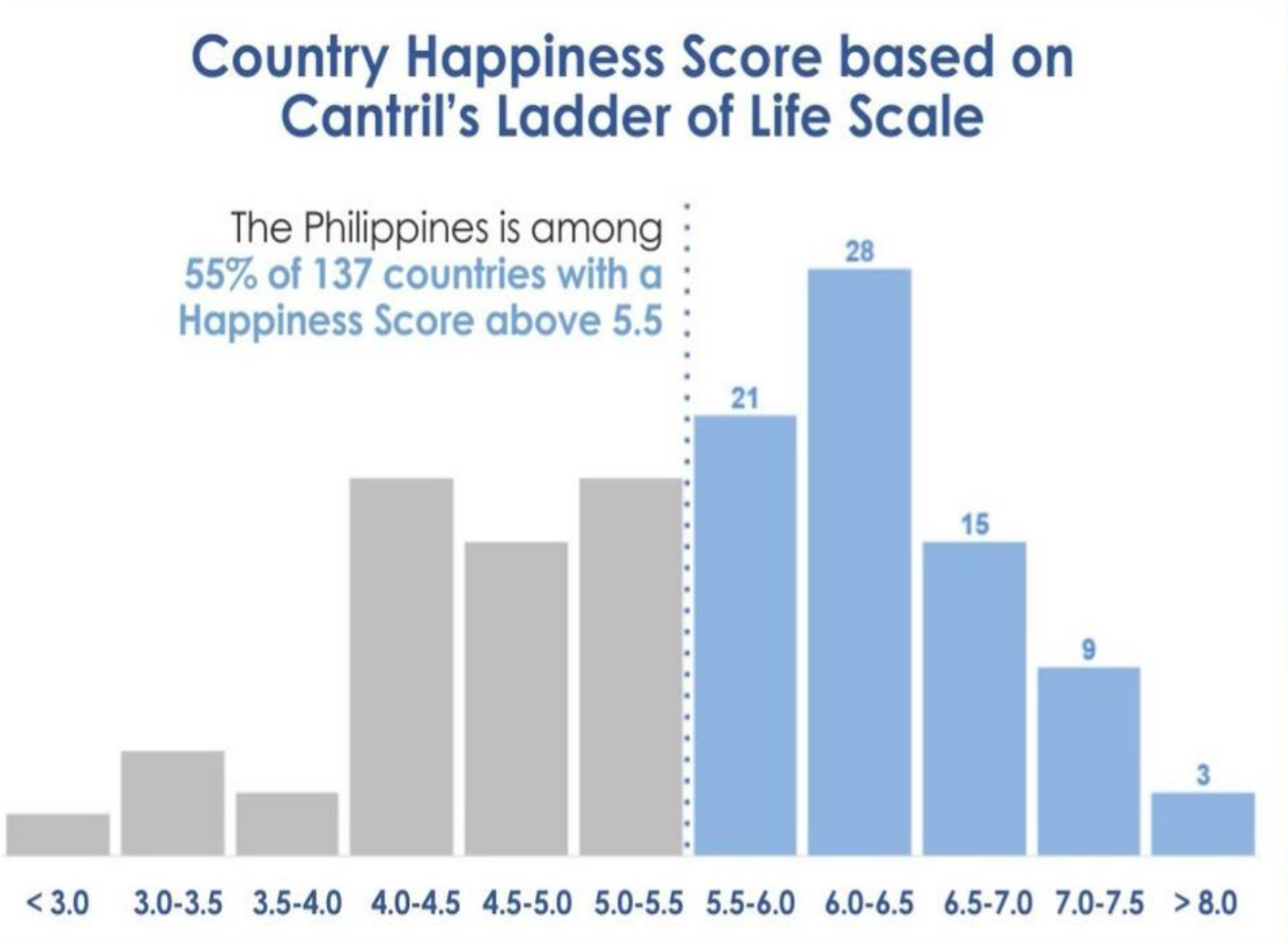
Ideal For:

- Bar Charts
- Dot Plots
- Bullet Graphs
- Ranked Lists



2. DISTRIBUTIONS

Show how data values are spread across a dataset.

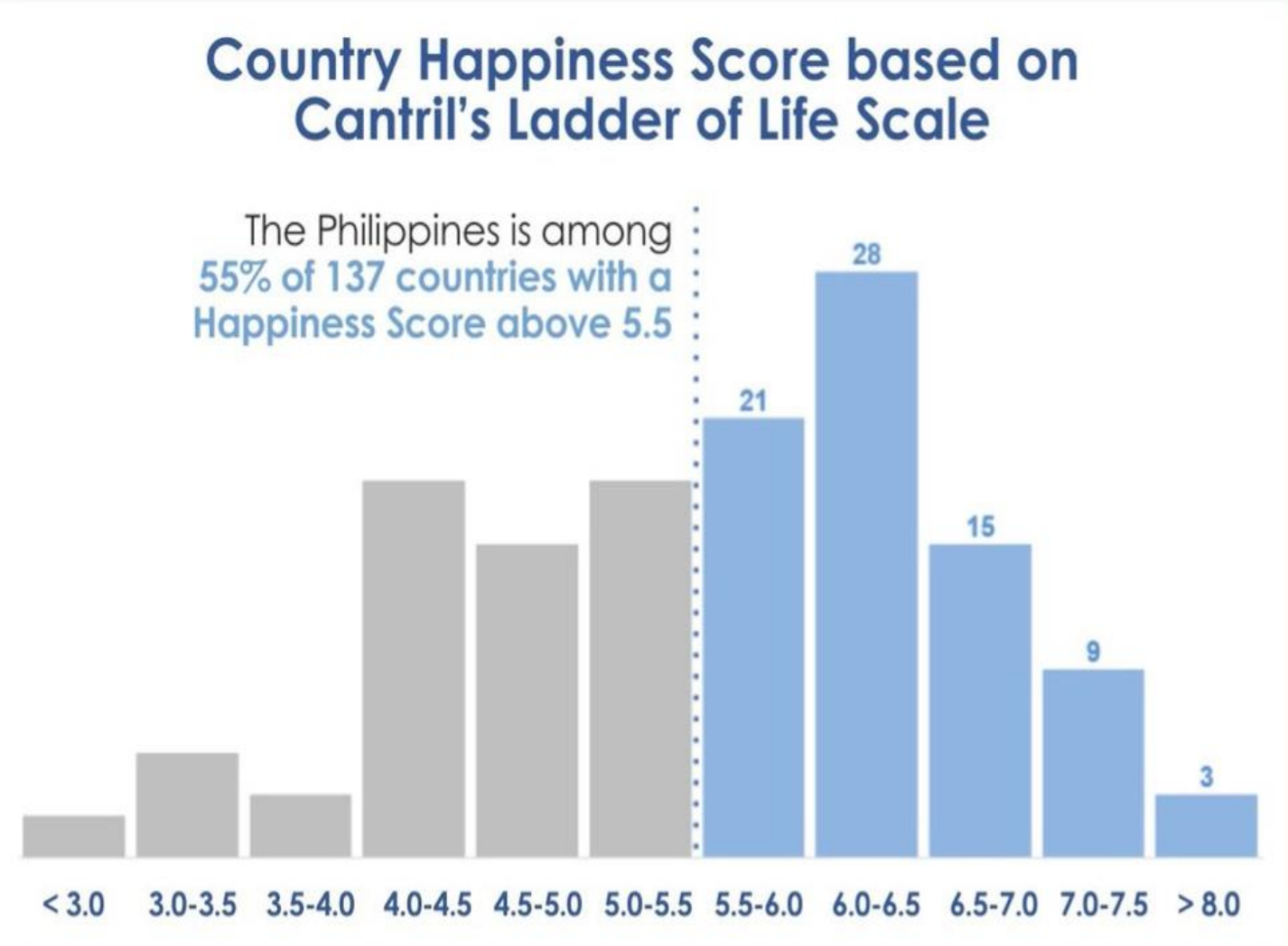


2. DISTRIBUTIONS

Show how data values are spread across a dataset.

- ✓ Looks at frequency and patterns of different values
- ✓ Indicated by shape of the data distribution
- ✓ Generate insightful descriptive stats

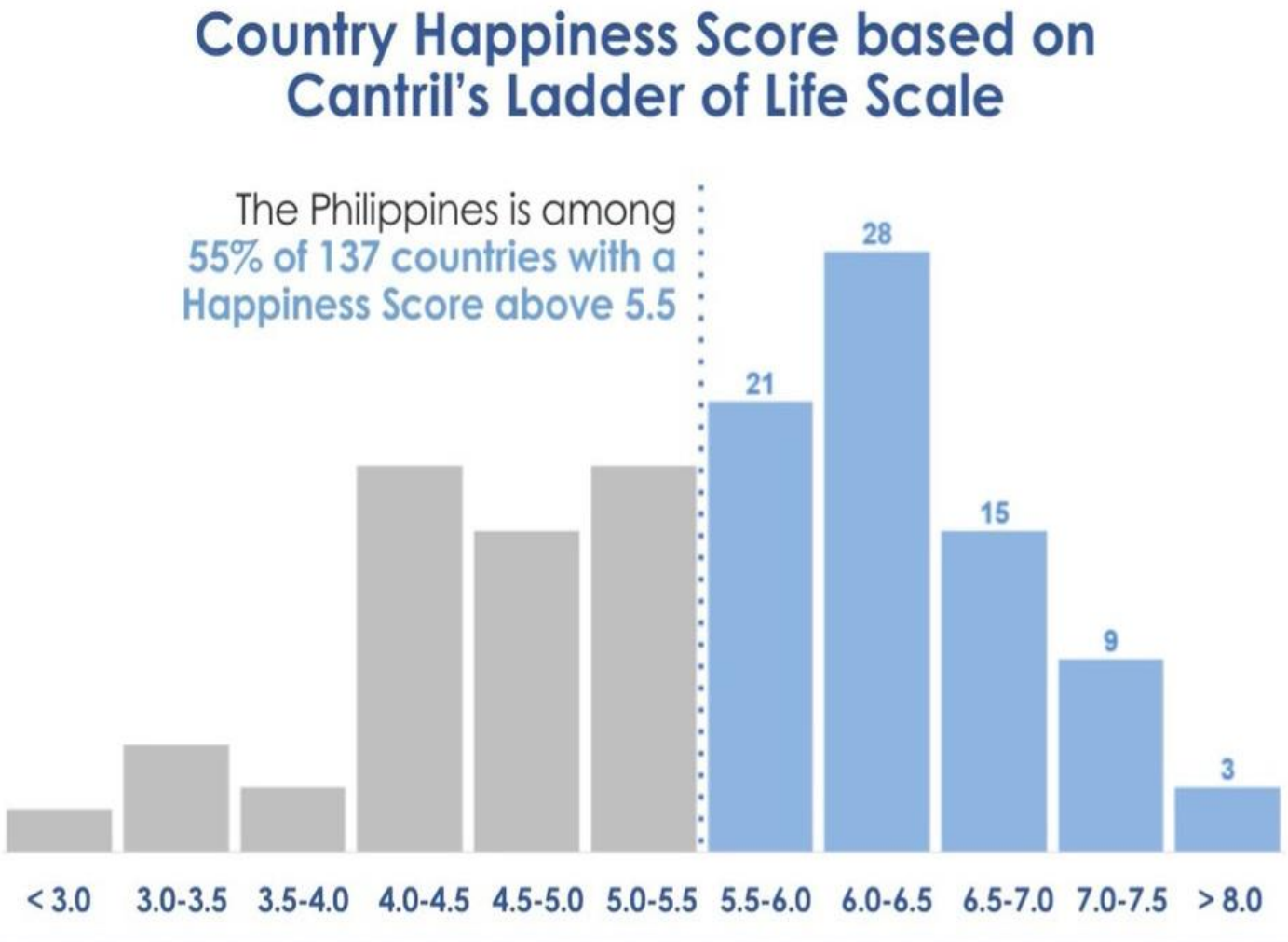
2. DISTRIBUTIONS



Answers Questions:

- What is the **range** of values?
- What is the **mean, median, mode**?
- What is the **standard deviation/spread of values**?

2. DISTRIBUTIONS

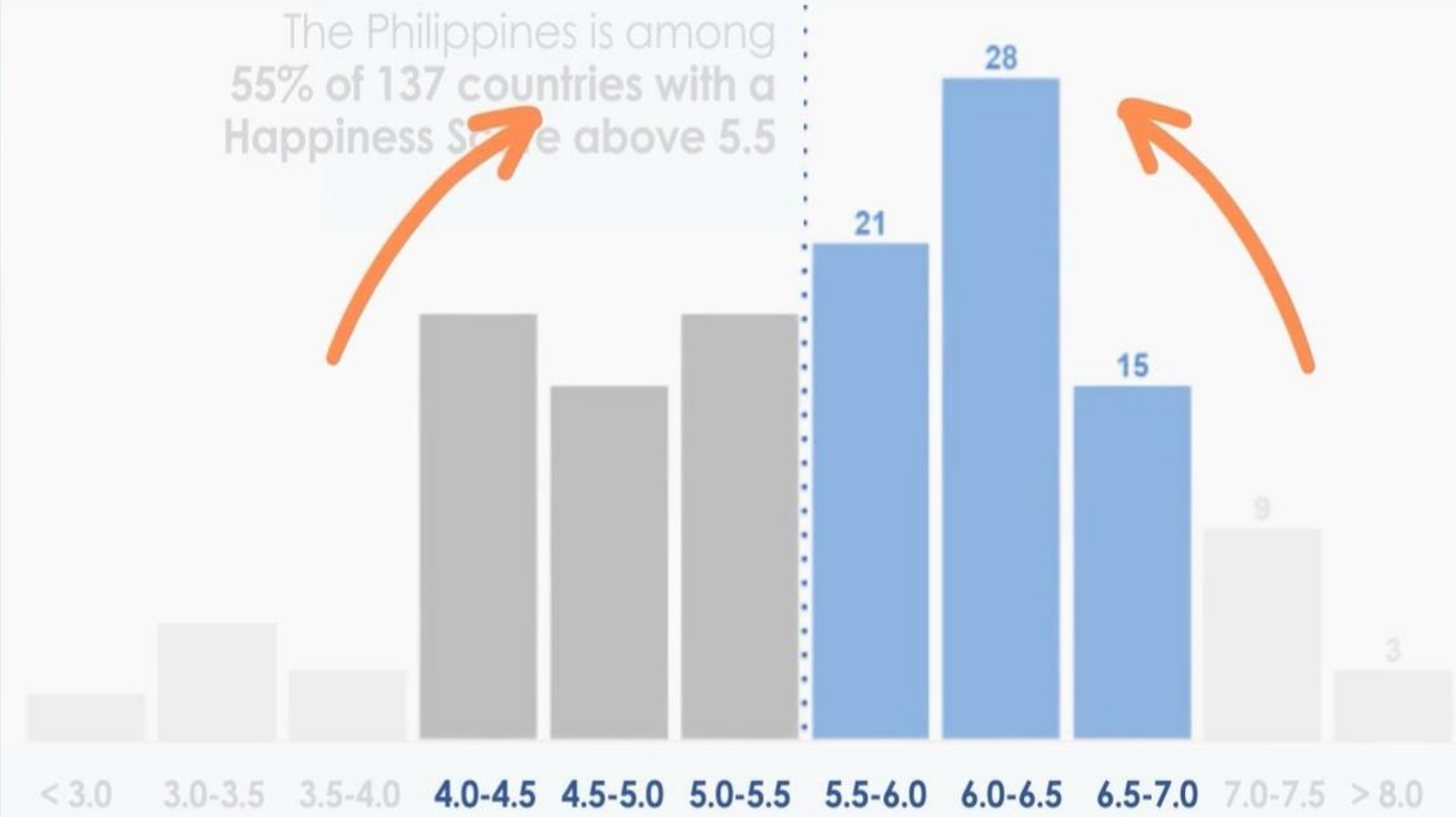


Ideal For:

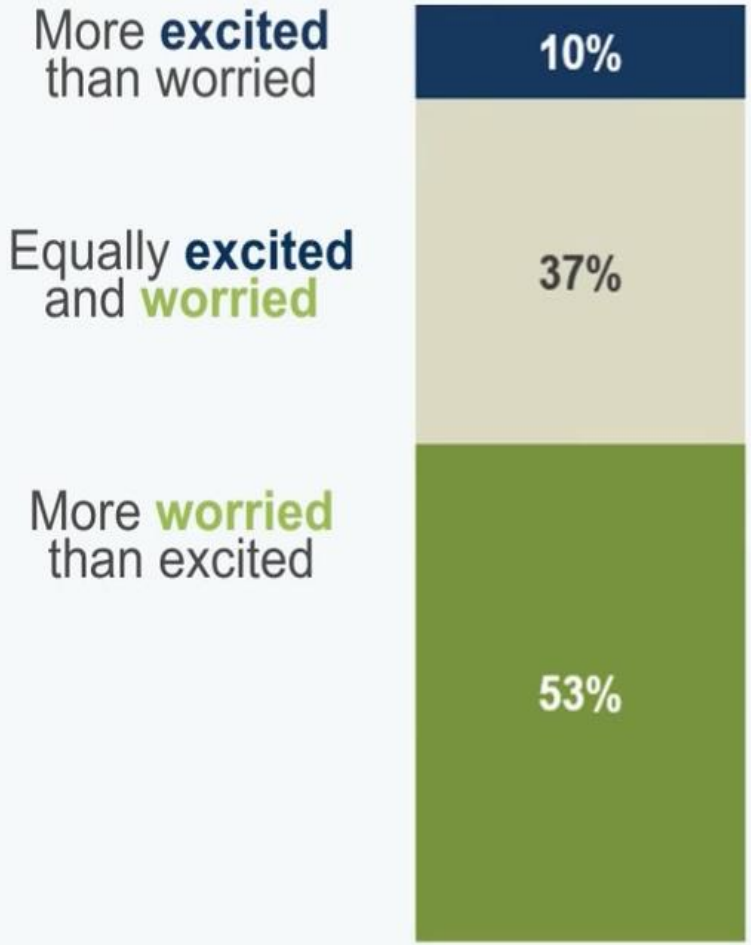
- Histograms
- Box Plots
- Frequency Polygons

2. DISTRIBUTIONS

Country Happiness Score based on Cantril's Ladder of Life Scale

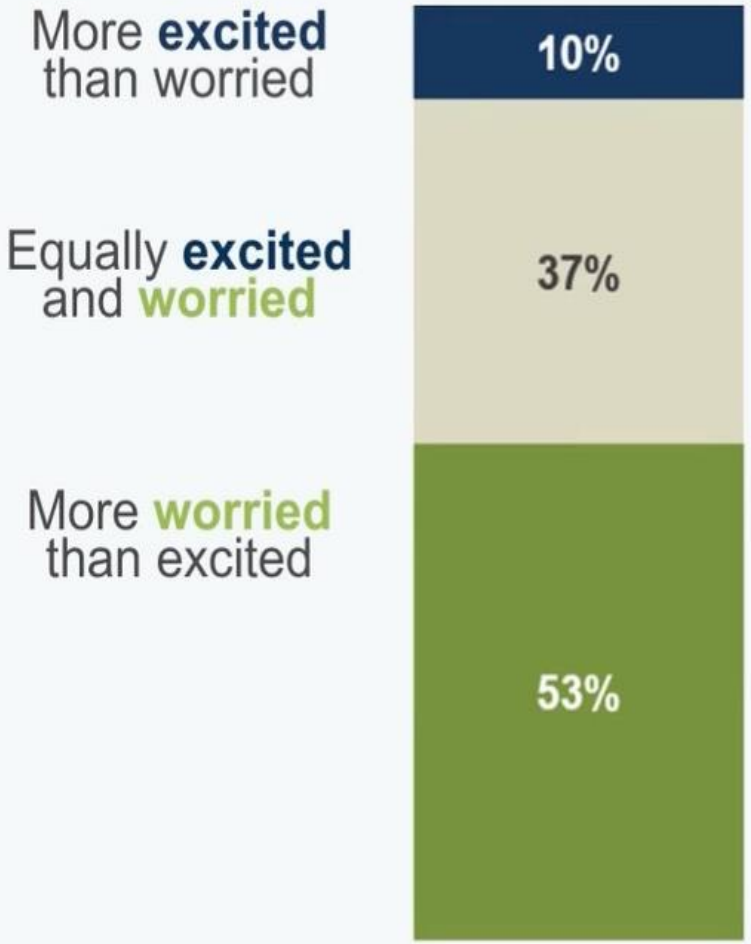


Employee perception about the impact of Artificial Intelligence on their job.



3. PROPORTIONS

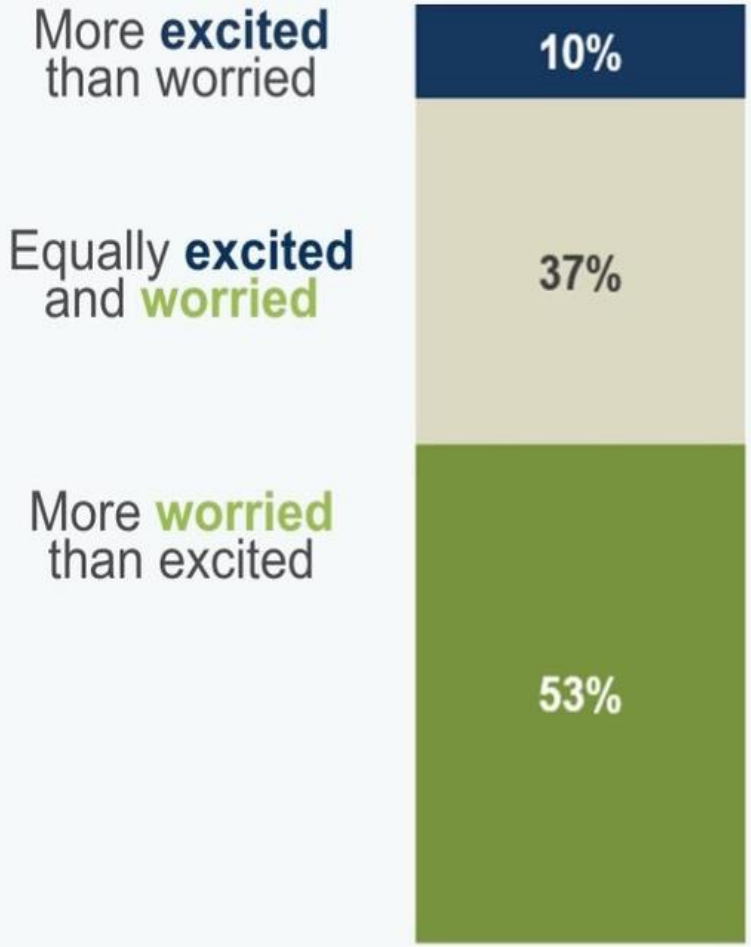
Employee perception about the impact of Artificial Intelligence on their job.



3. PROPORTIONS

Analyzes the relative size or share of a specific category within a dataset.

Employee perception about the impact of Artificial Intelligence on their job.

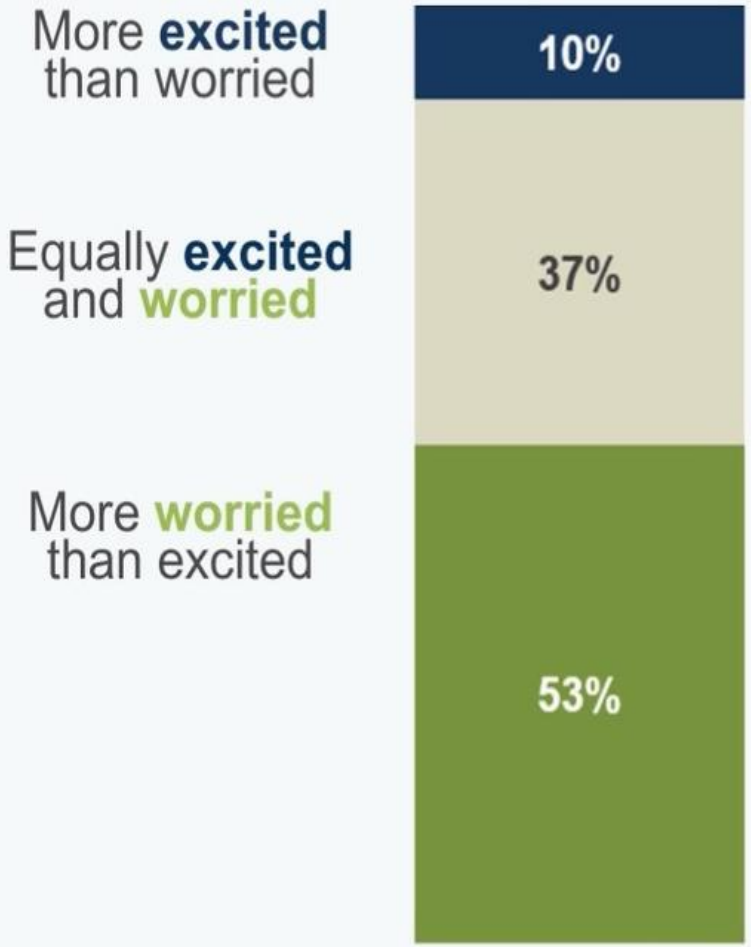


3. PROPORTIONS

Analyzes the relative size or share of a specific category within a dataset.

- ✓ Frequency of an outcome in relation to total observations
- ✓ Identify a part of a whole
- ✓ Shows you which variable or factor contributes more

Employee perception about the impact of Artificial Intelligence on their job.

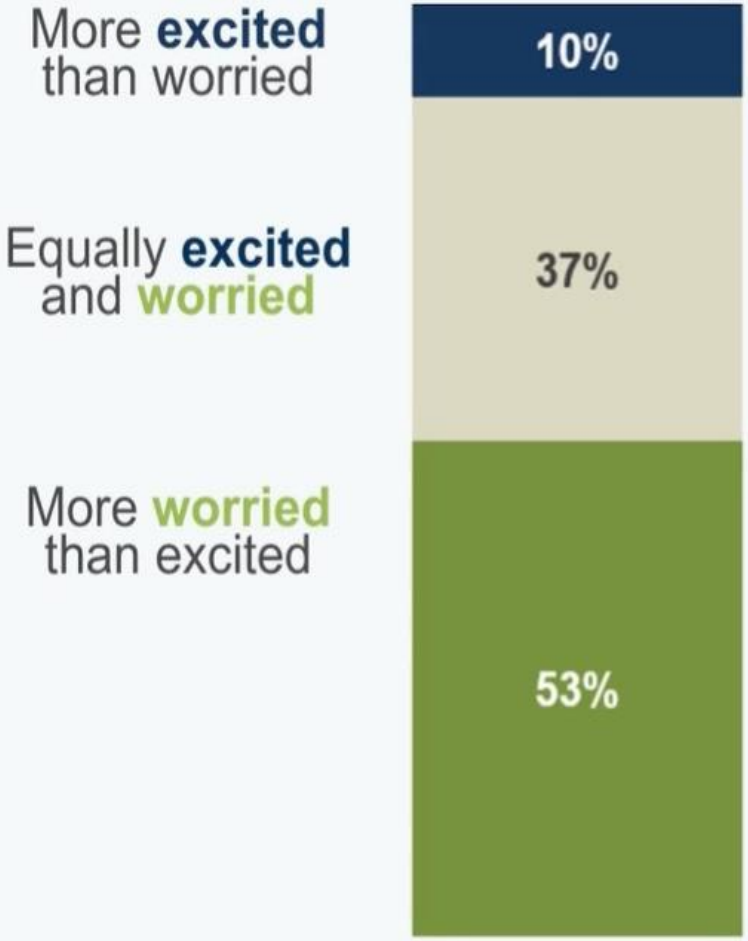


3. PROPORTIONS

Answers Questions:

- Which has the largest or lowest relative **contribution**?
- Which has the largest or lowest relative **weight**?

Employee perception about the impact of Artificial Intelligence on their job.

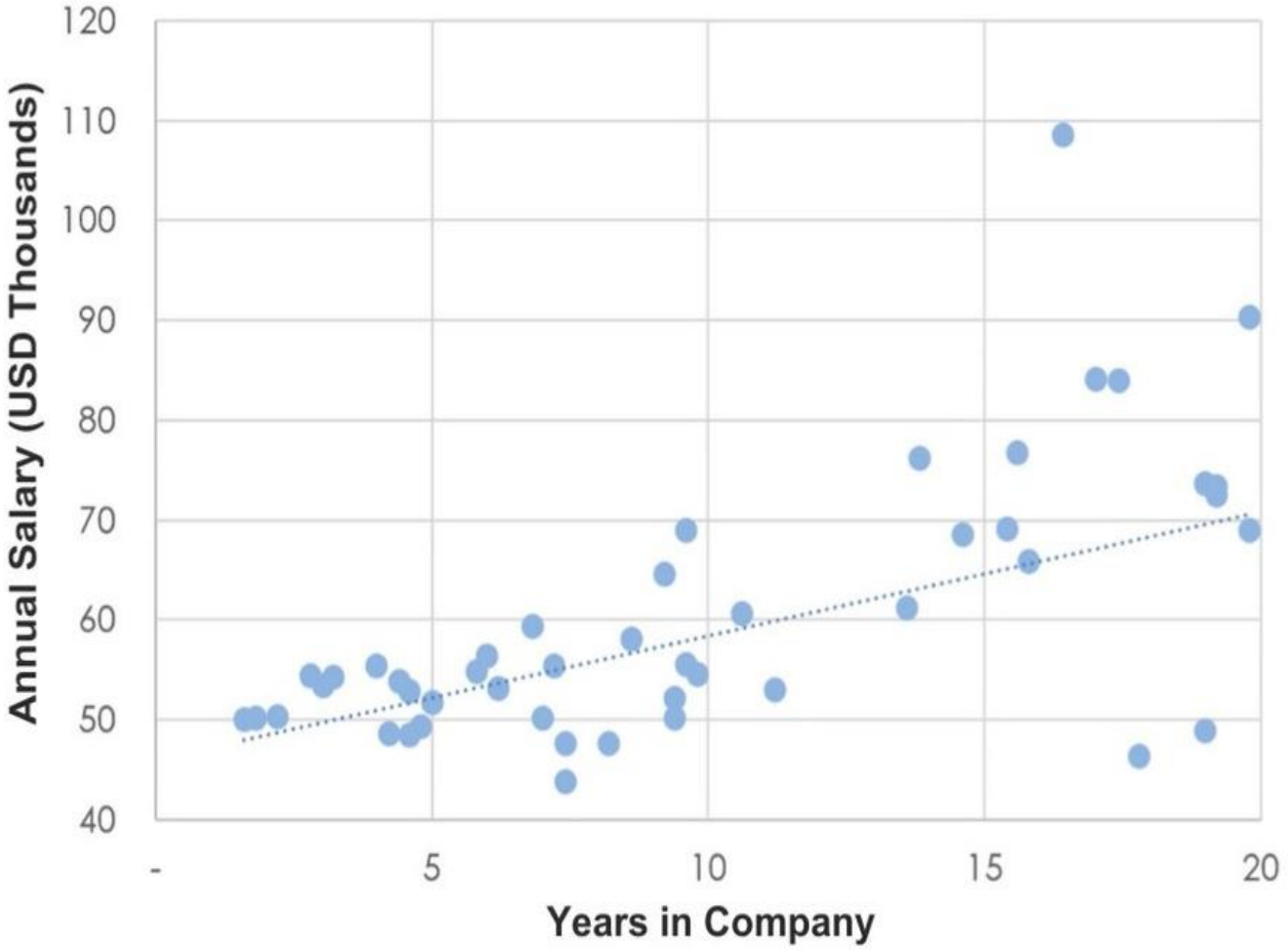


3. PROPORTIONS

Ideal For:

- Pie Charts
- Bar Charts
- Stacked Bar Charts
- Treemaps

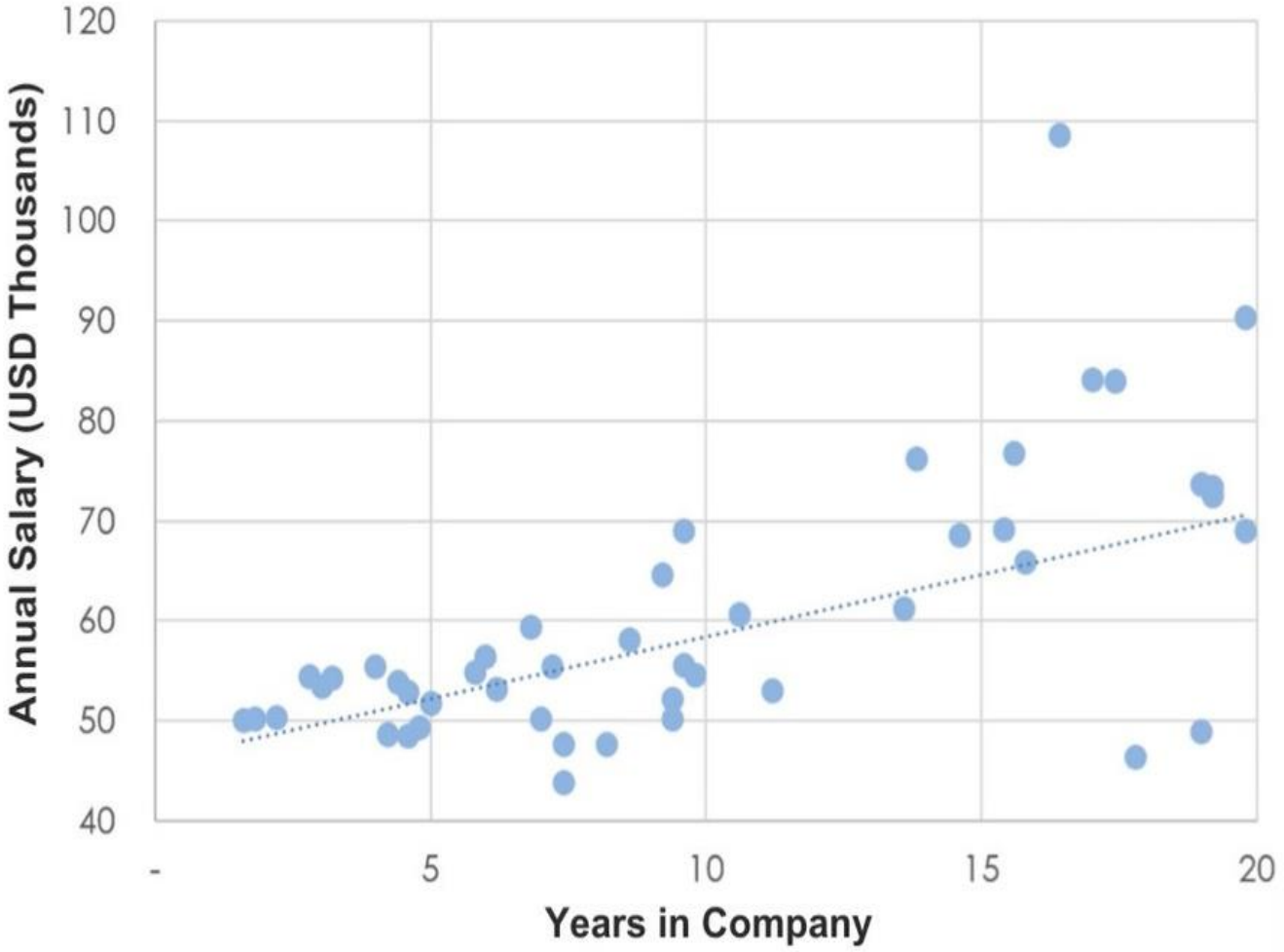
In general, **annual salary increases with tenure**, as highly experienced personnel are given more critical roles with performance-based compensation.



4. CORRELATIONS

Examines the statistical relationship between two or more variables

In general, **annual salary increases with tenure**, as highly experienced personnel are given more critical roles with performance-based compensation.



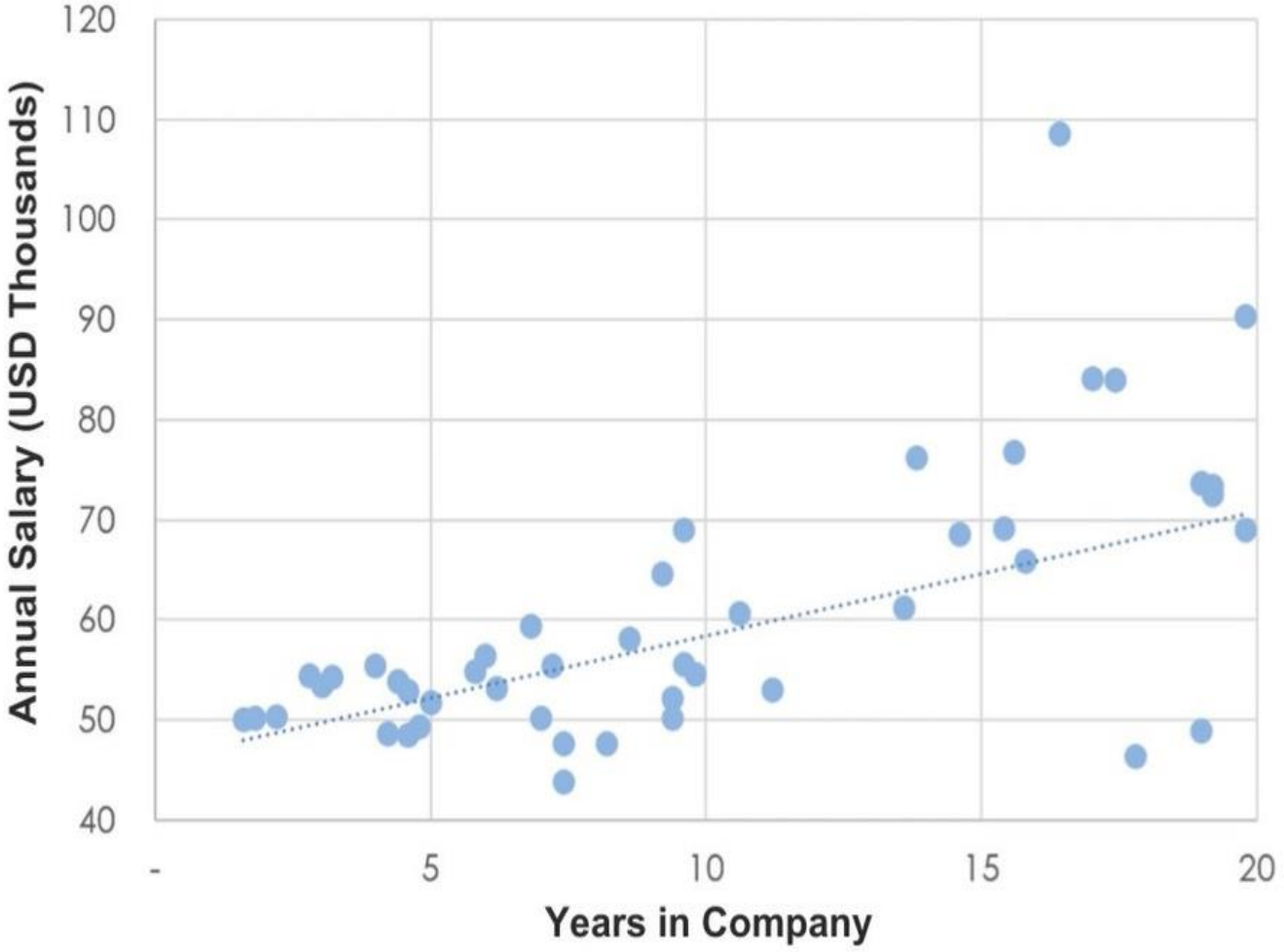
4. CORRELATIONS

Examines the statistical relationship between two or more variables

- ✓ Identify patterns and connections within datasets
- ✓ Reveal strength and direction of relationship between variables

"If I control this variable, I can increase/decrease the output."

In general, **annual salary increases with tenure**, as highly experienced personnel are given more critical roles with performance-based compensation.



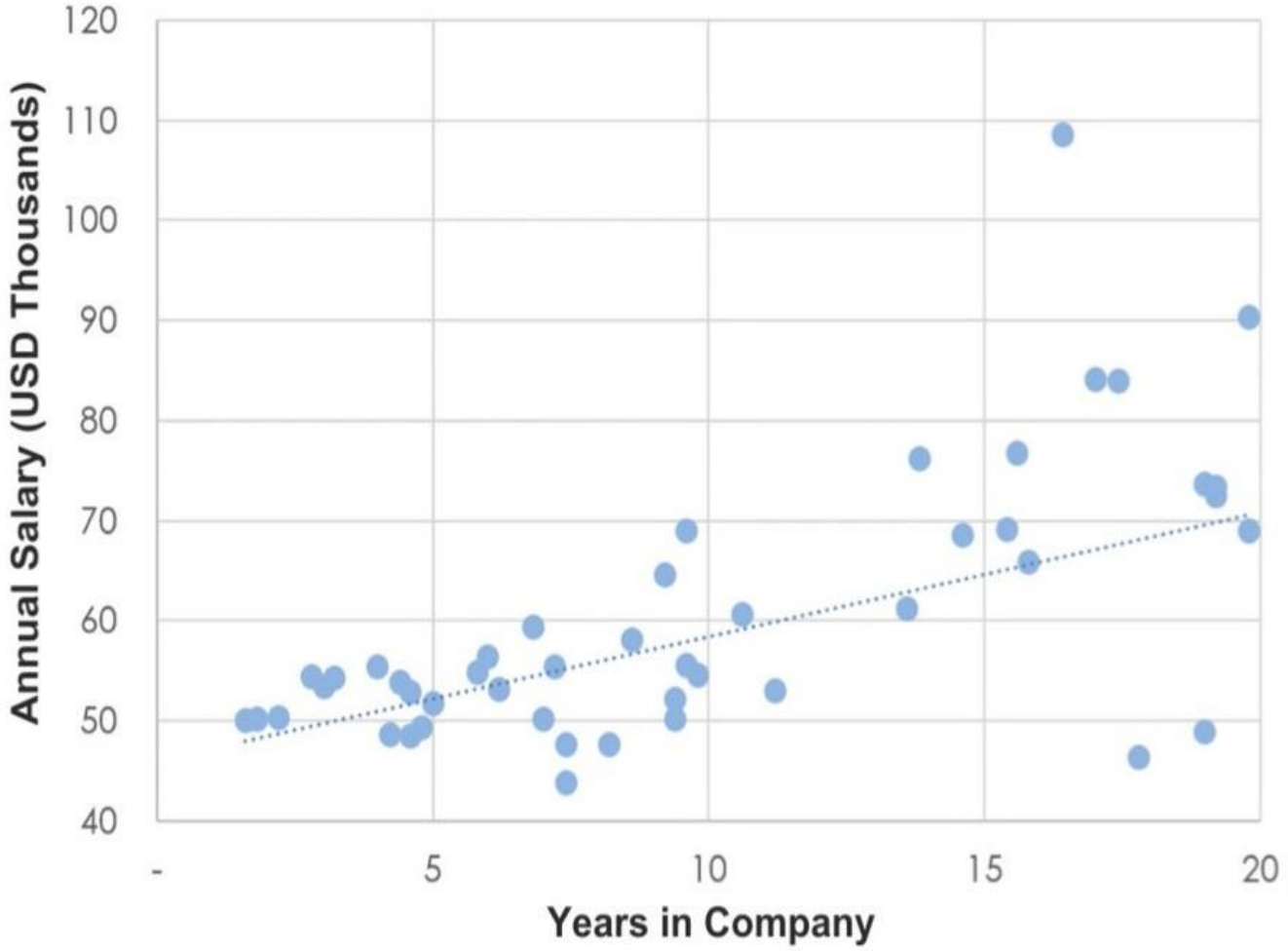
4. CORRELATIONS

Answers Questions:

- Which factors have a **positive/ negative relationship** with the result?
- Which factors have a **weak/no relationship** with the result?

4. CORRELATIONS

In general, **annual salary increases with tenure**, as highly experienced personnel are given more critical roles with performance-based compensation.

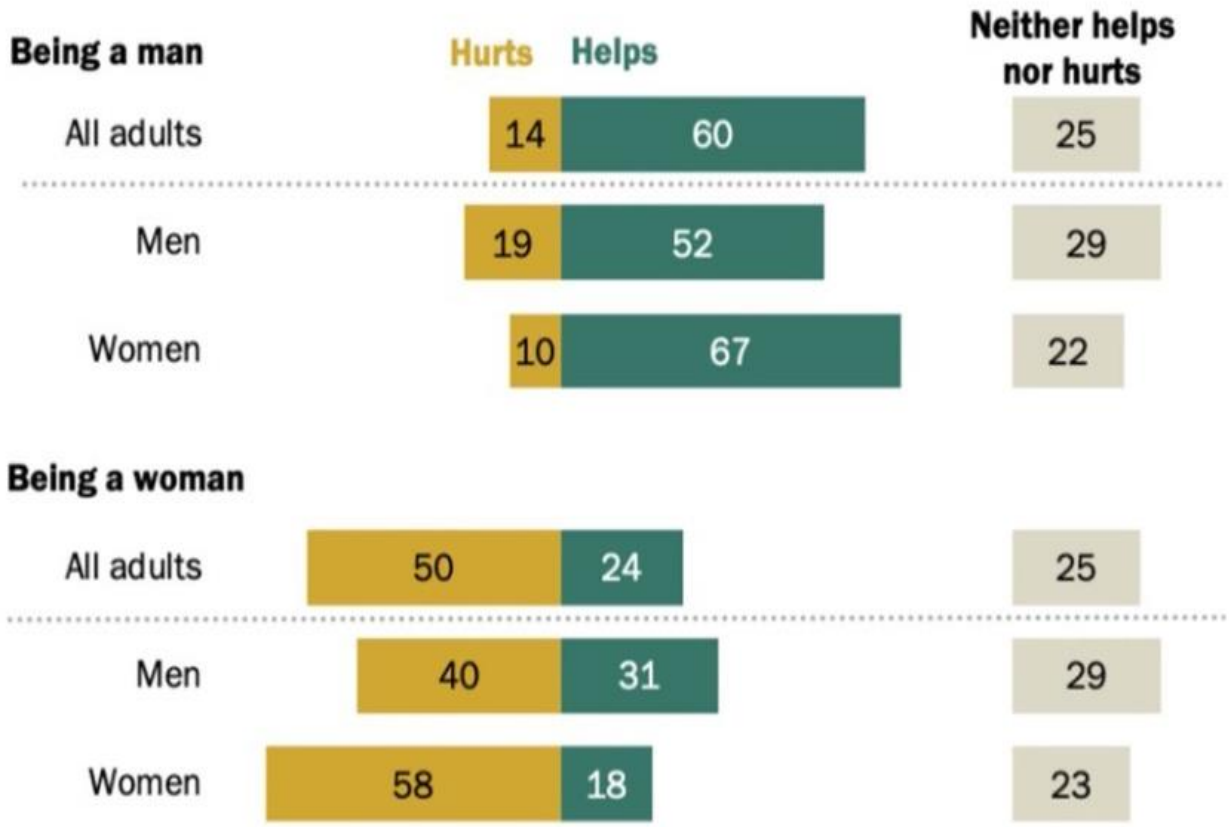


Ideal For:

- Scatterplots
- Line Graphs
- Heatmaps
- Bubble Charts

Women are more likely than men to say being a man helps and being a woman hurts a person's ability to get ahead in the U.S.

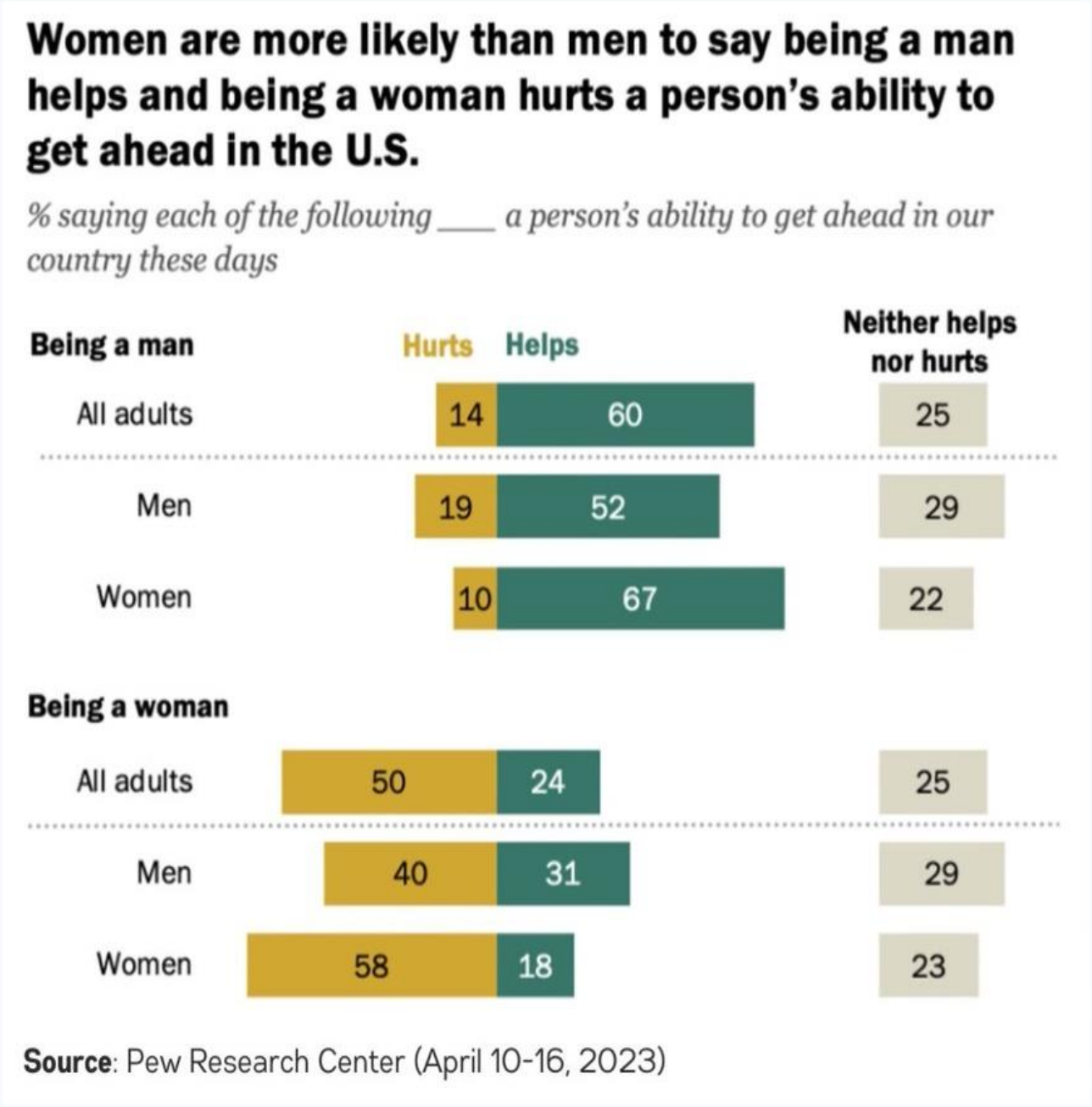
% saying each of the following ___ a person's ability to get ahead in our country these days



Source: Pew Research Center (April 10-16, 2023)

5. COMPARISONS

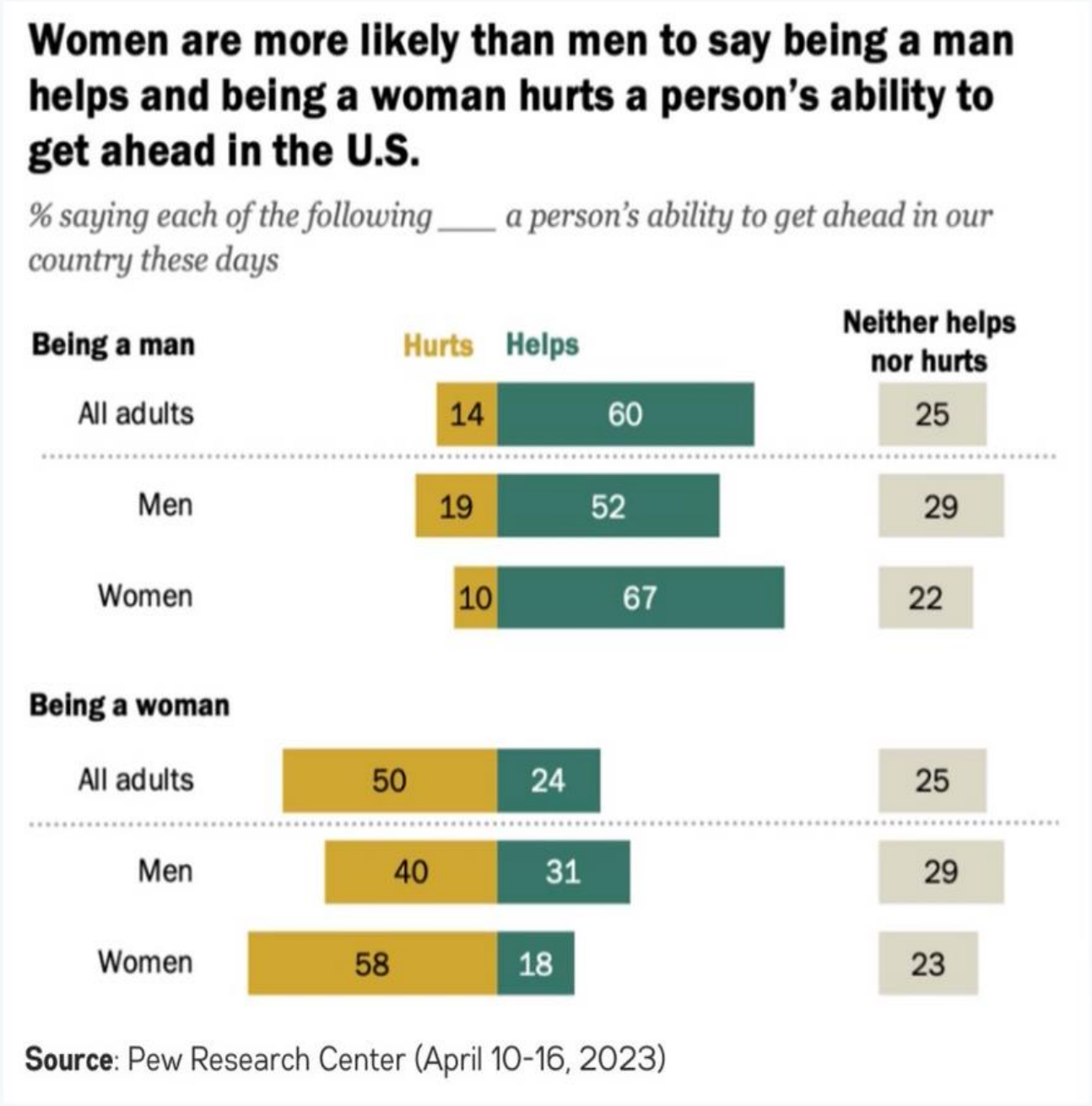
Examining and contrasting different variables to identify similarities, differences, or patterns.



5. COMPARISONS

Examining and contrasting different variables to identify similarities, differences, or patterns.

- ✓ Highlight relationships and trends between the compared elements
- ✓ Provide valuable insights for decision-making

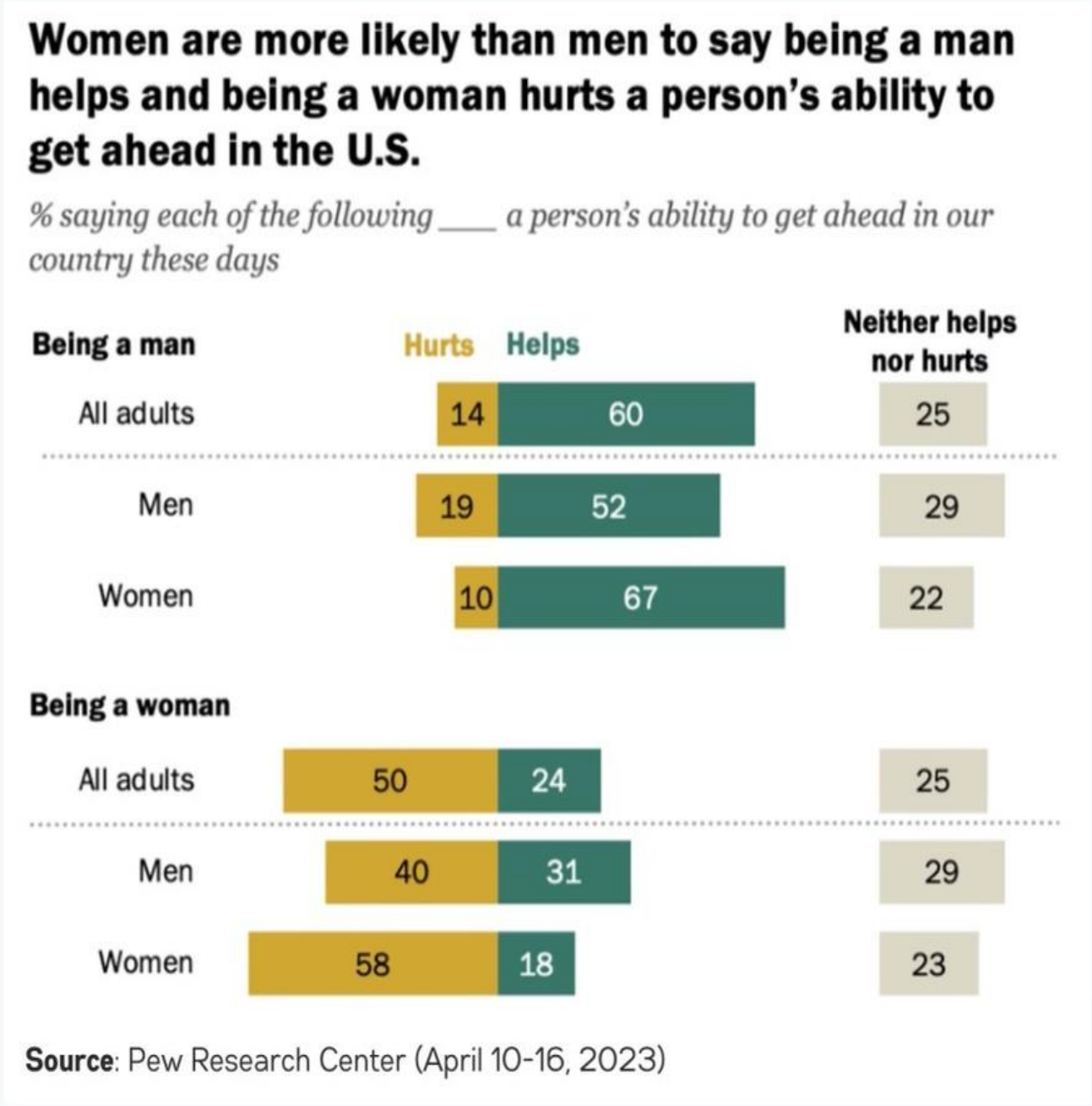


5. COMPARISONS

Answers Questions:

- How does each item/category or entity/class differ in terms of:
  - Ranking
  - Distribution
  - Composition/contributing factors
  - Correlation of selected factors
  - Change in behavior or attribute values over time

5. COMPARISONS



Ideal For:

- Bar Charts
- Line Graphs
- Pie Charts
- Stacked Bar Charts

The Philippines has experienced a general decline in population growth over the past 6 decades.

6. CHANGE OVER TIME

Focuses on how a particular variable or set of variables evolves and varies over a specific period

The Philippines has experienced a general decline in population growth over the past 6 decades.

6. CHANGE OVER TIME

Focuses on how a particular variable or set of variables evolves and varies over a specific period

- ✓ Understand patterns, trends, and changes that occur in data over time
- ✓ Informs decisions and strategies based on historical data

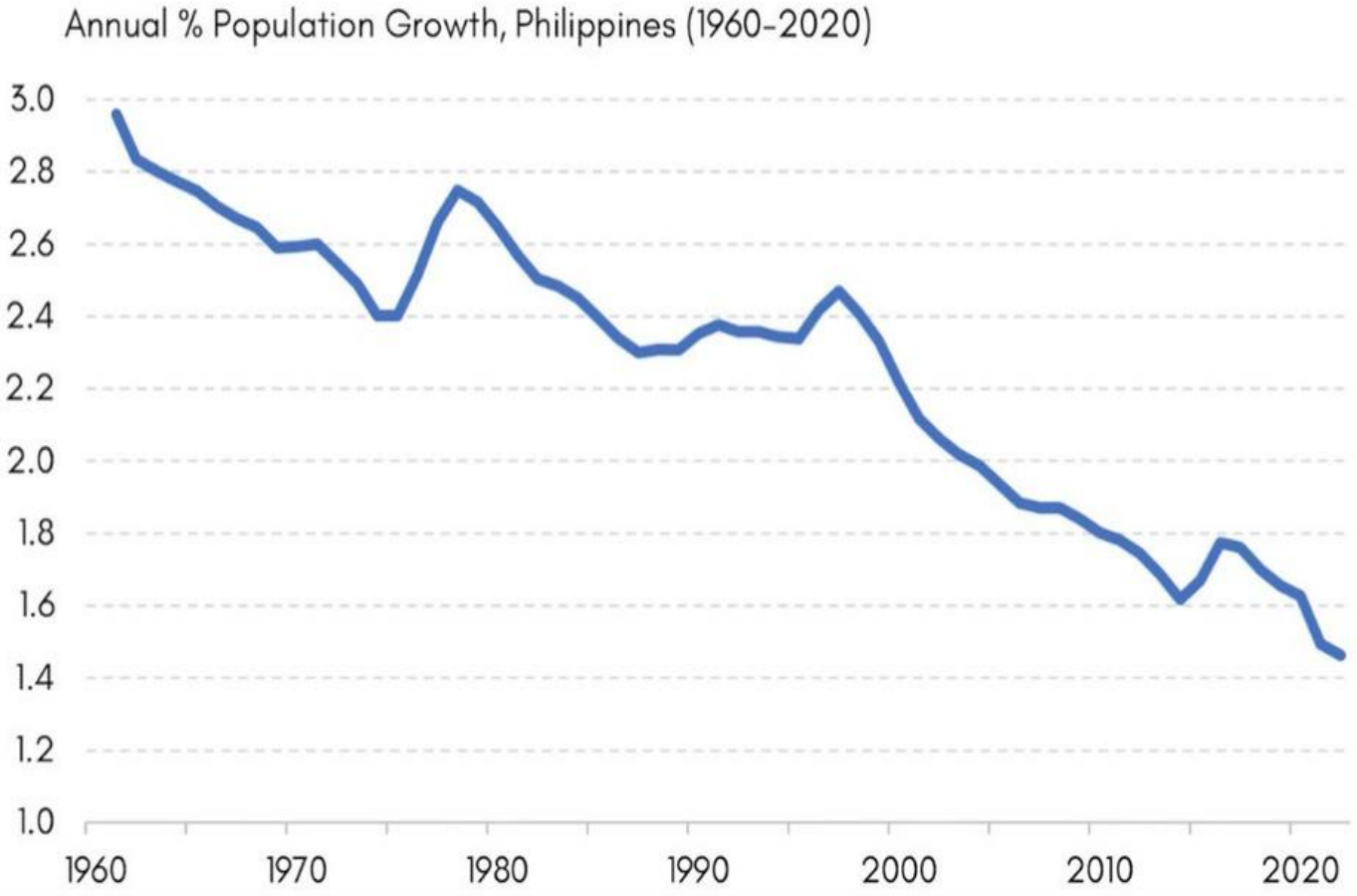
The Philippines has experienced a general decline in population growth over the past 6 decades.

6. CHANGE OVER TIME

Answers Questions:

- Is the trend consistently **increasing/decreasing/random**?
- Is there a **seasonal** pattern?
- Was there a **change** in:
  - Ranking
  - Distribution
  - Proportions
  - Correlation

The Philippines has experienced a general decline in population growth over the past 6 decades.



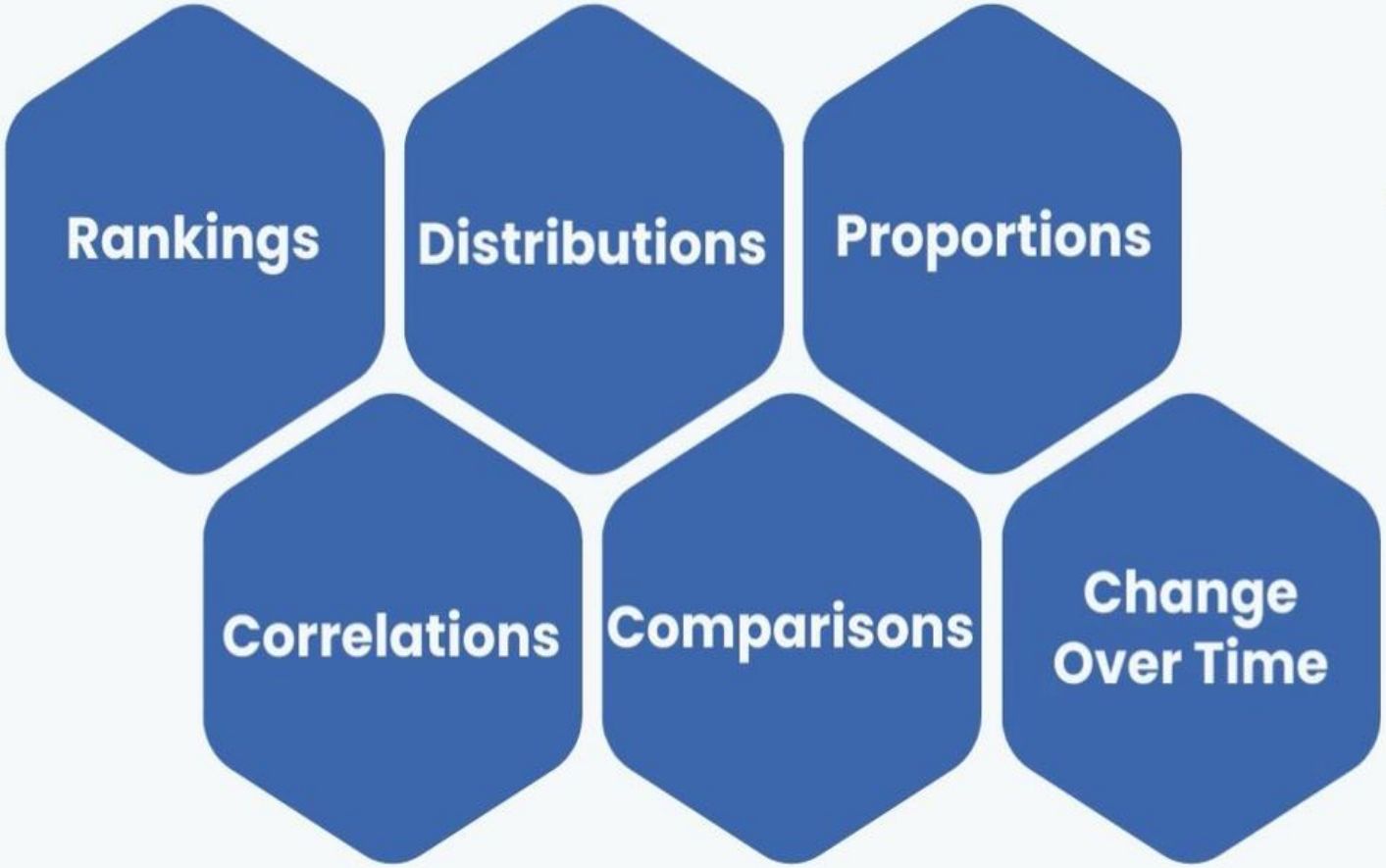
Source: The World Bank IBRD IDA

6. CHANGE OVER TIME

Ideal For:

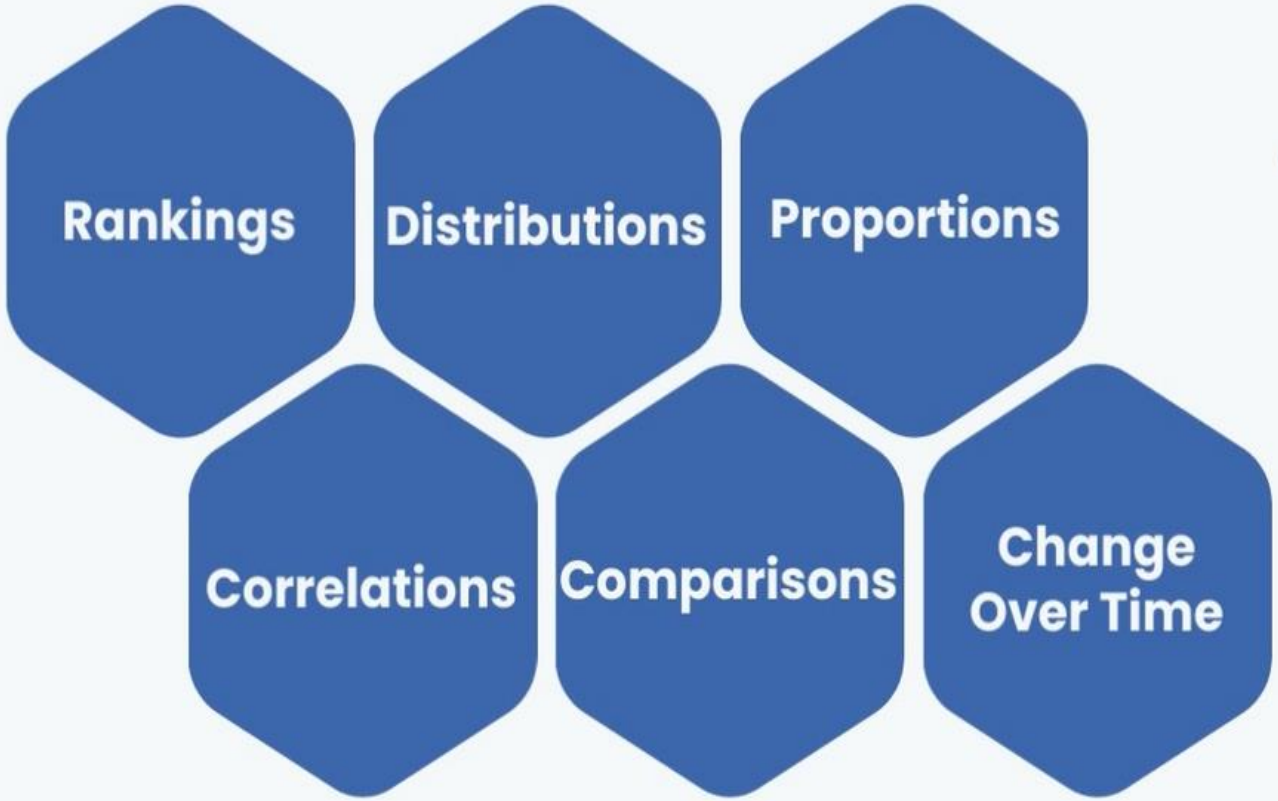
- Line Graphs
- Bar Charts
- Time Series
- Area Charts
- Scatterplots
- Heatmaps

6 Types of Data Stories



6 Types of Data Stories

The first step to knowing which visual would be ideal for your data story!



Core Example:

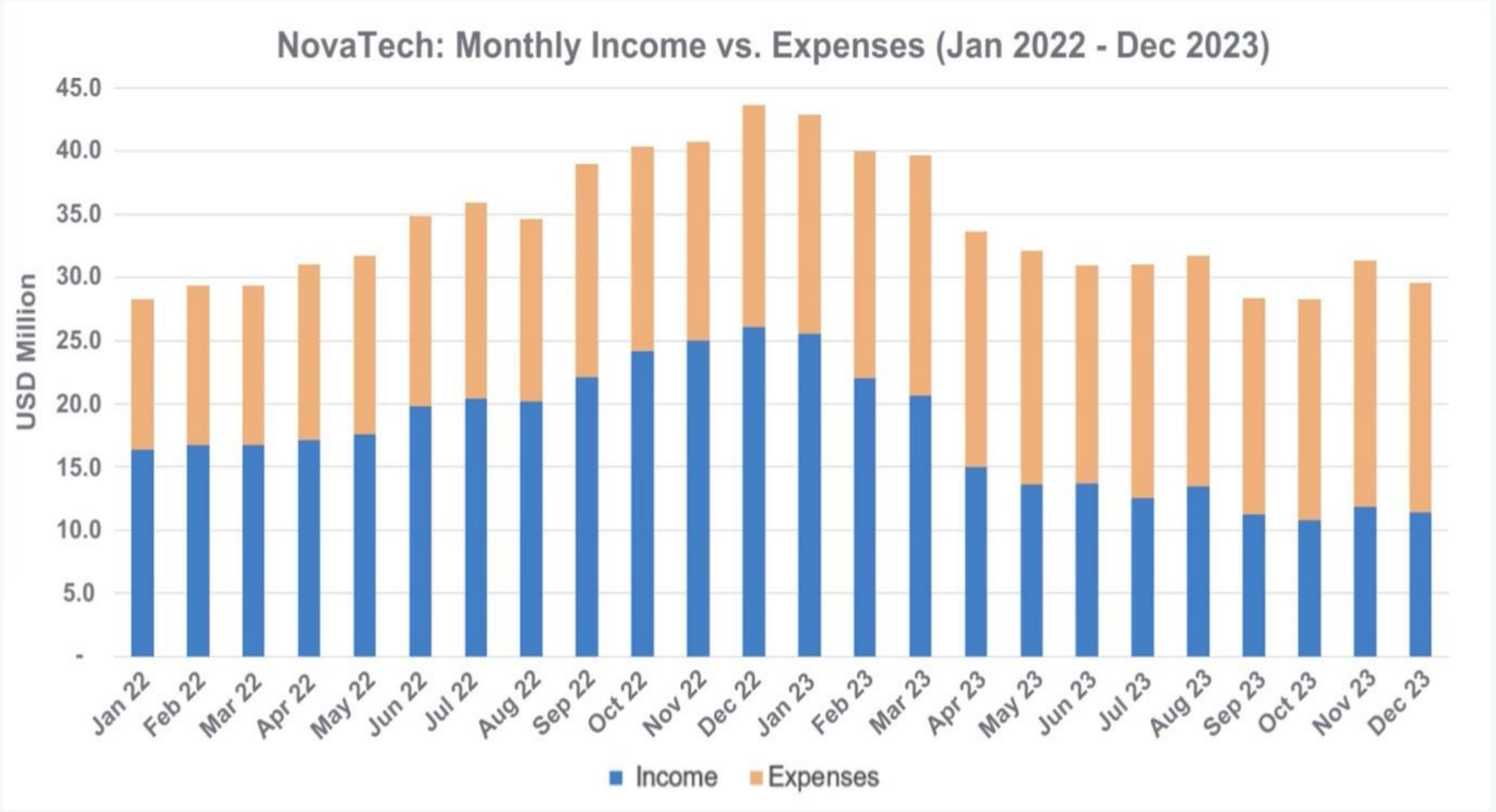
Choosing the Right Visual

6 Types of Data Stories

Types of Data Visuals

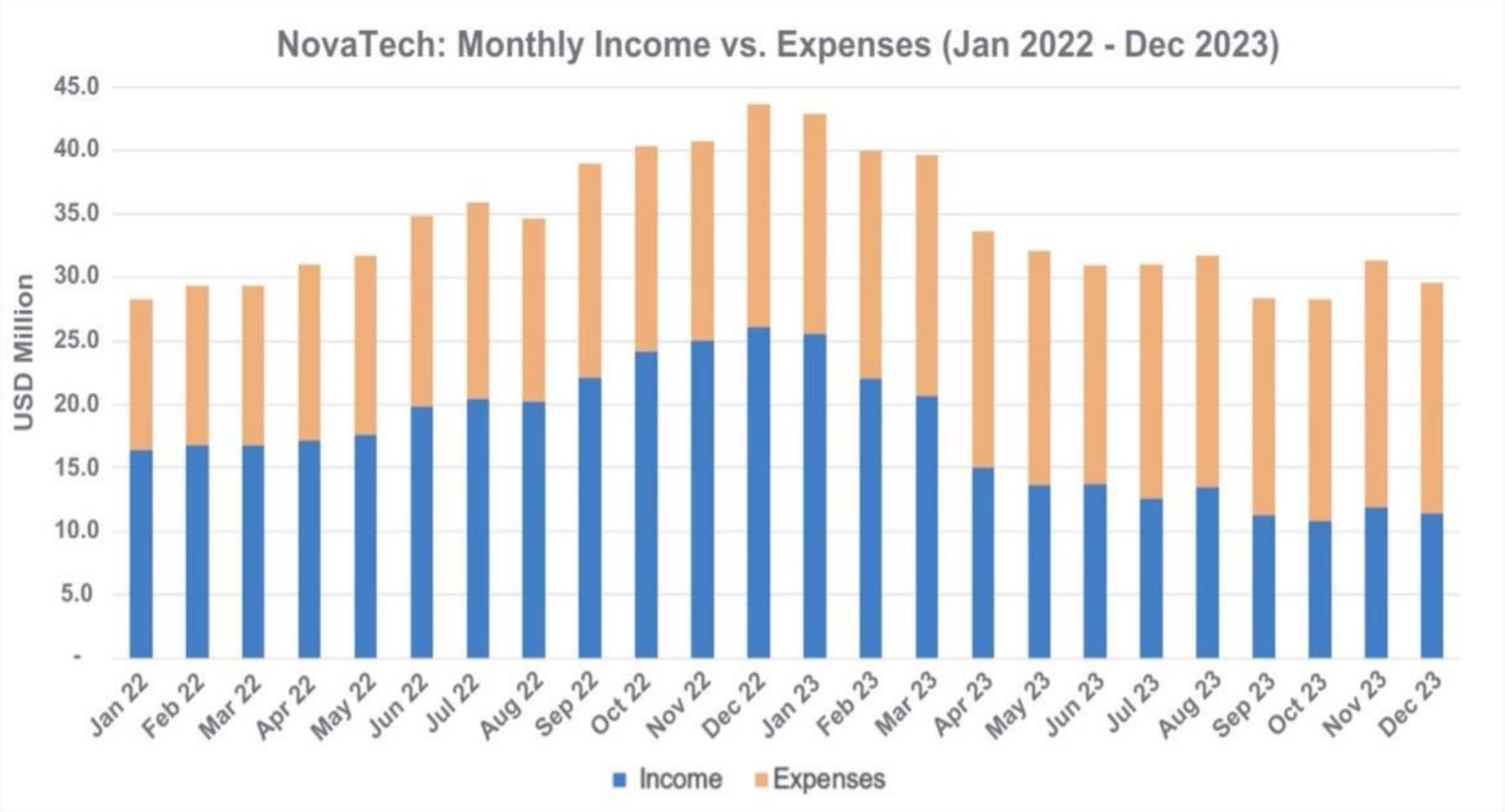
Core Example:

NovaTech Company's Stacked Bar Chart



Core Example:

NovaTech Company's Stacked Bar Chart

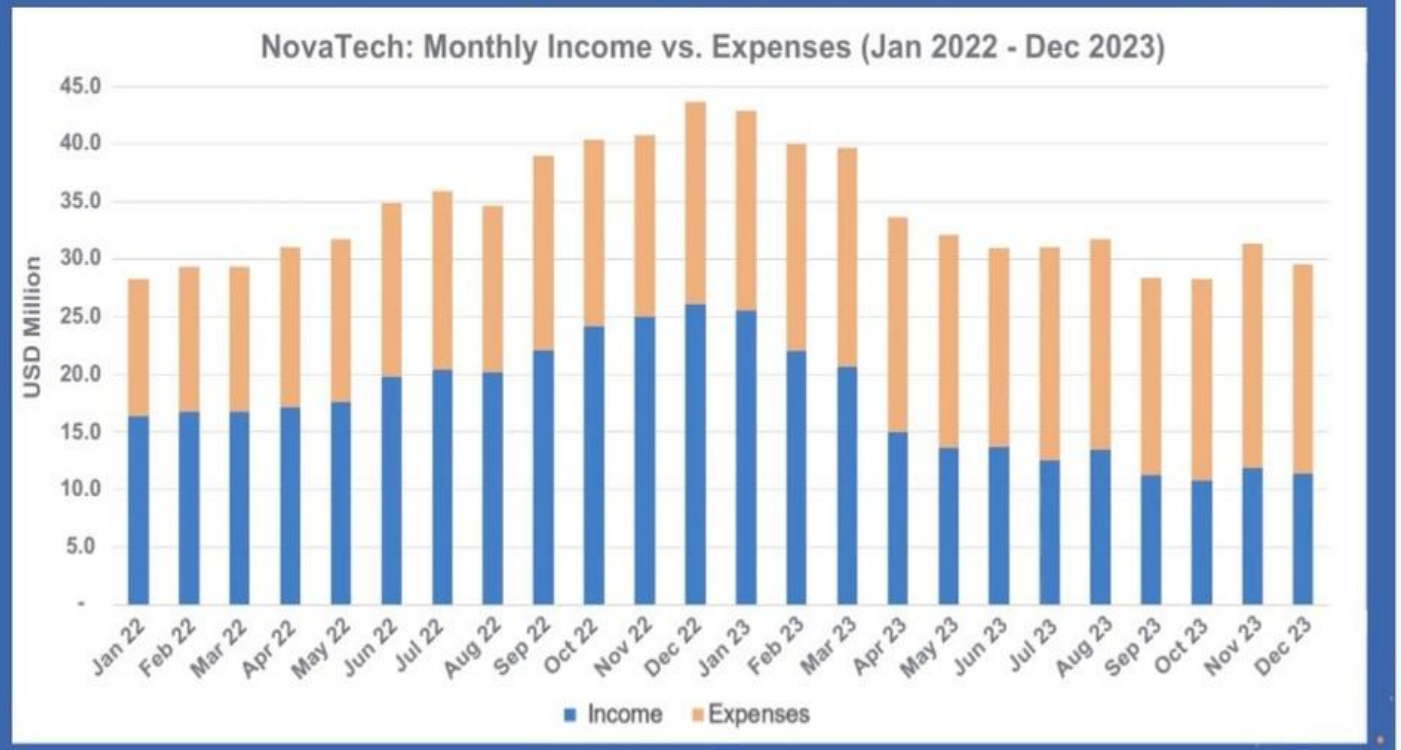


✗ Story is **NOT** clear

✗ Key insight is **NOT** visible

Core Example:

NovaTech Company's Stacked Bar Chart

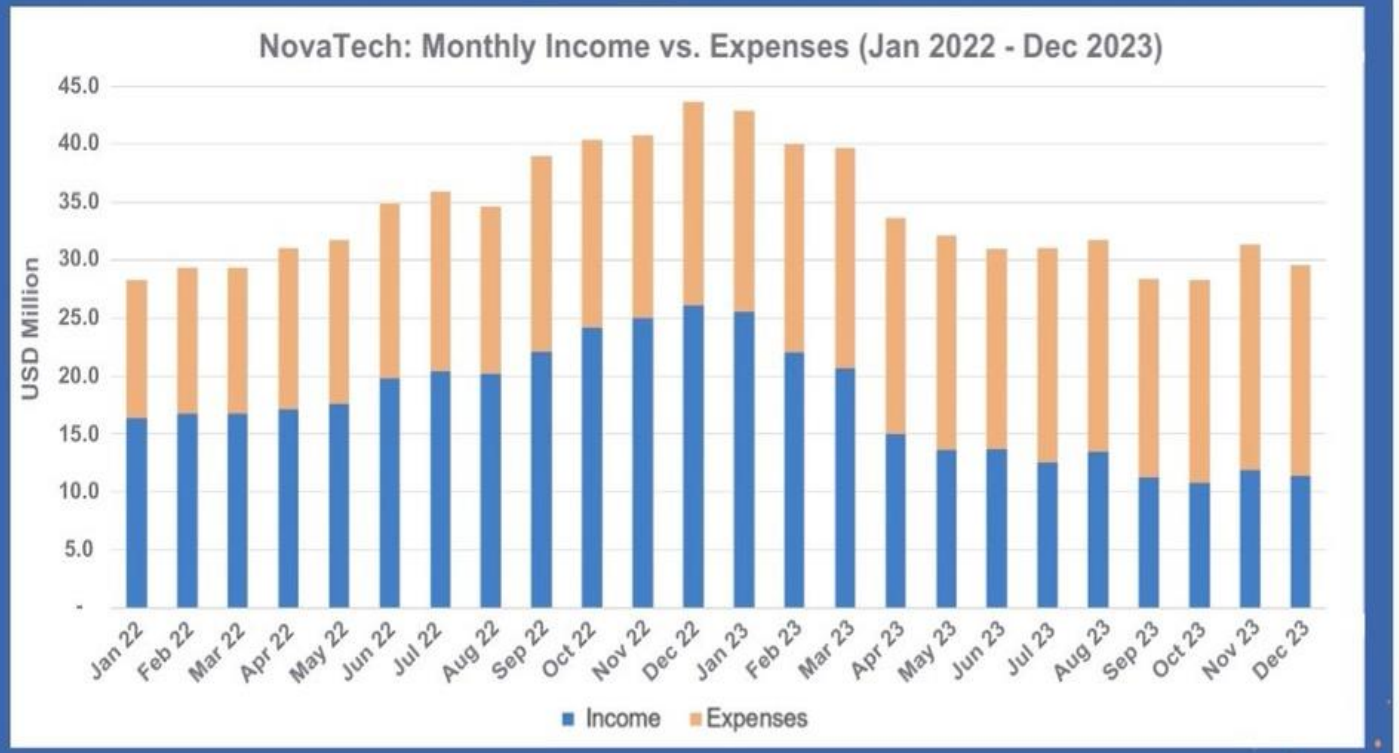


Which Type of Data Story?

Which Type of Data Story?

Core Example:

NovaTech Company's Stacked Bar Chart



What We Know:

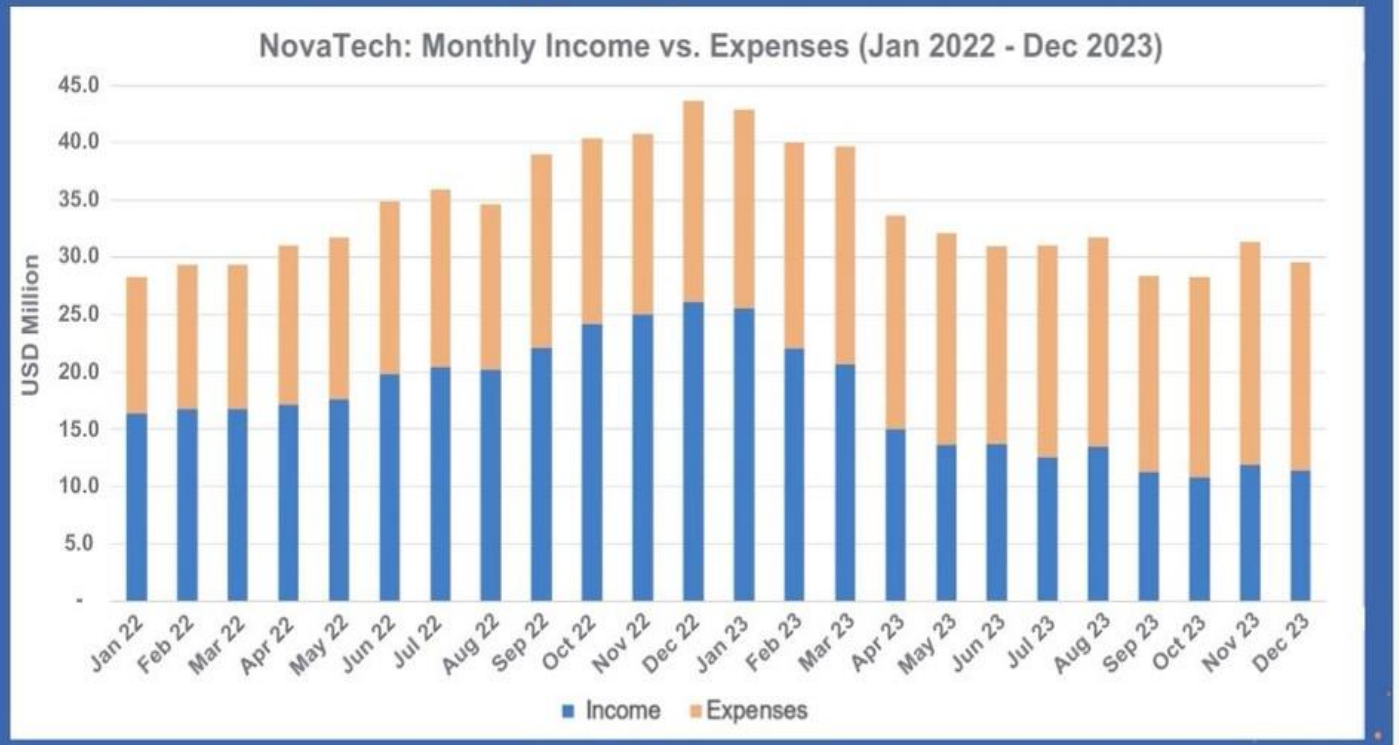
Jan 2022 – Oct 2022

- Income is consistently higher than Expenses
- Stable profits from Model A and B

Which Type of Data Story?

Core Example:

NovaTech Company's Stacked Bar Chart



What We Know:

November 2022

- Launch of new Model C
- Halted sales of Model A and B

Which Type of Data Story?

Core Example:

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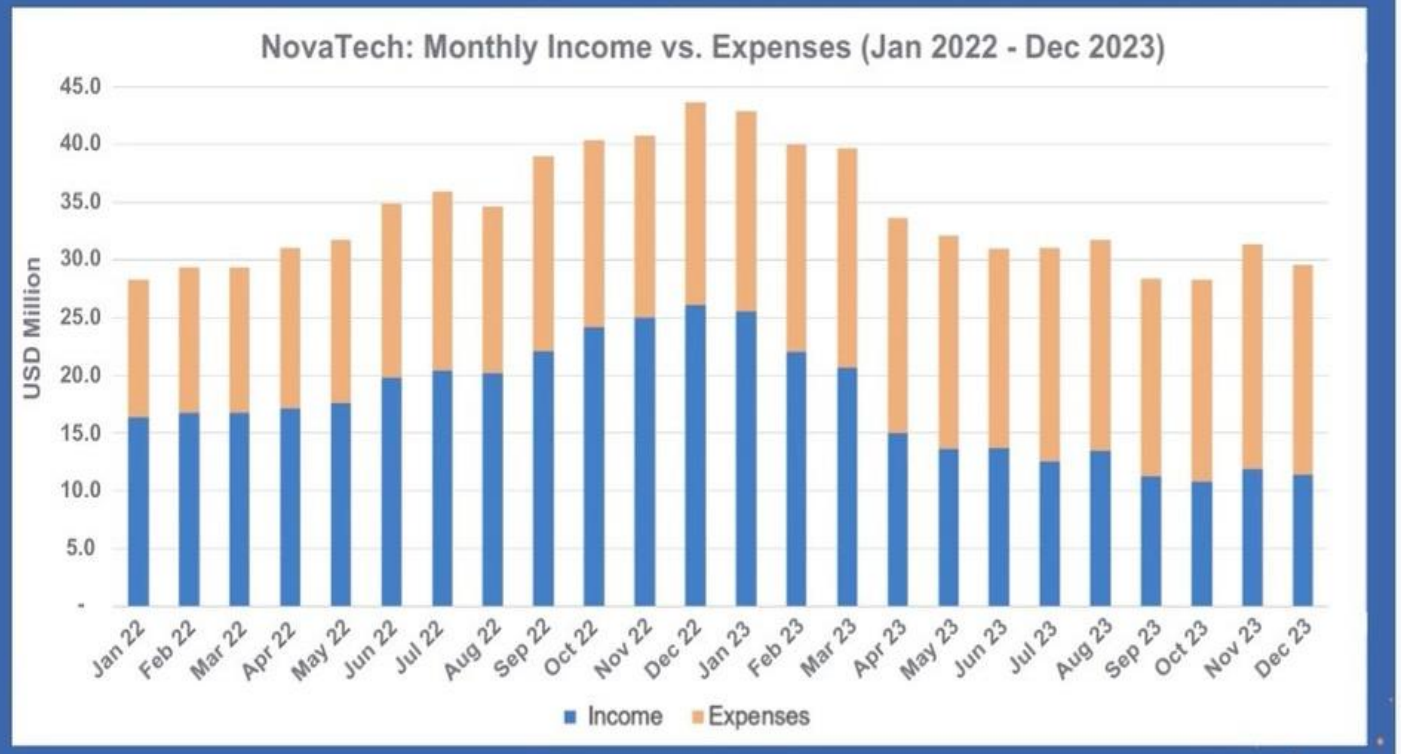


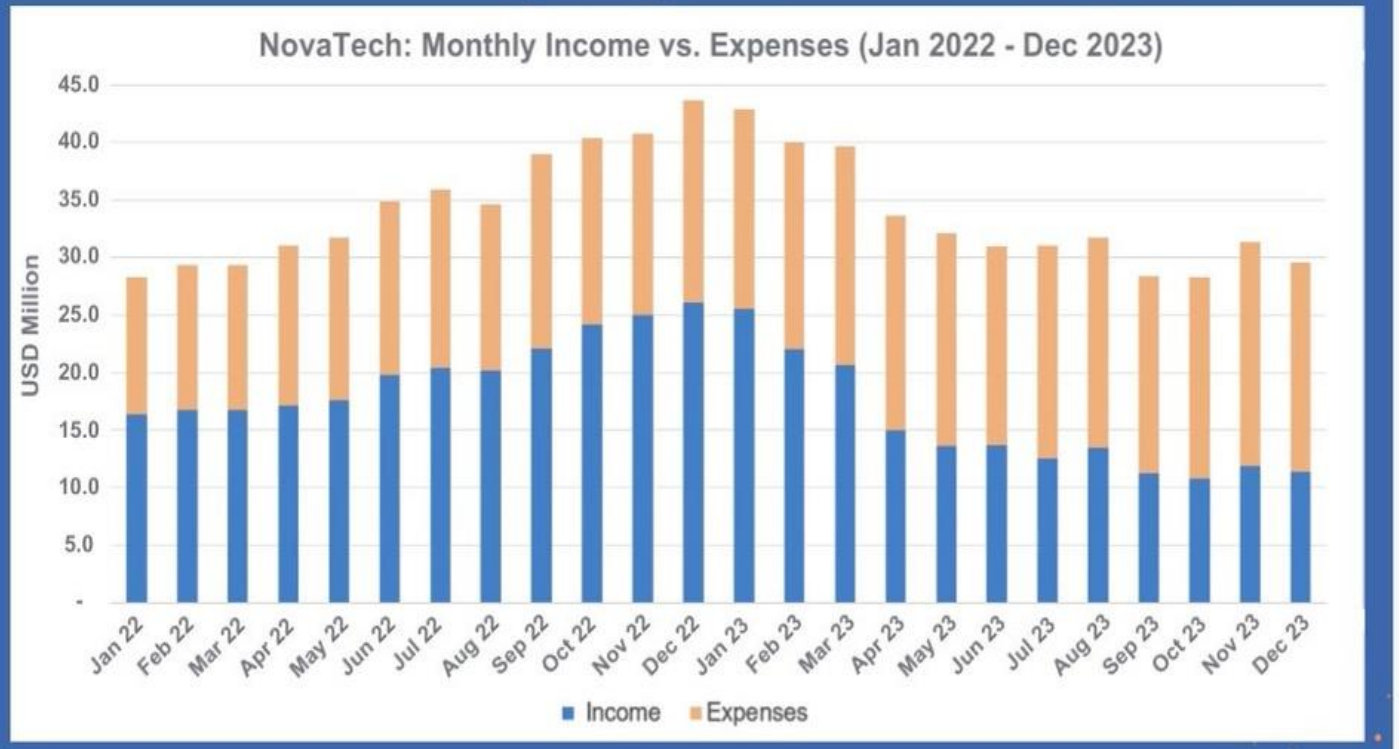
What We Know:

Model C was unsuccessful

- Downward trend of losses Nov 2022 onward

Core Example:

NovaTech Company's Stacked Bar Chart



Which Type of Data Story?

✓ **Time Series Data**

- Income and Expenses over 2 years

✓ **Trend or Pattern**

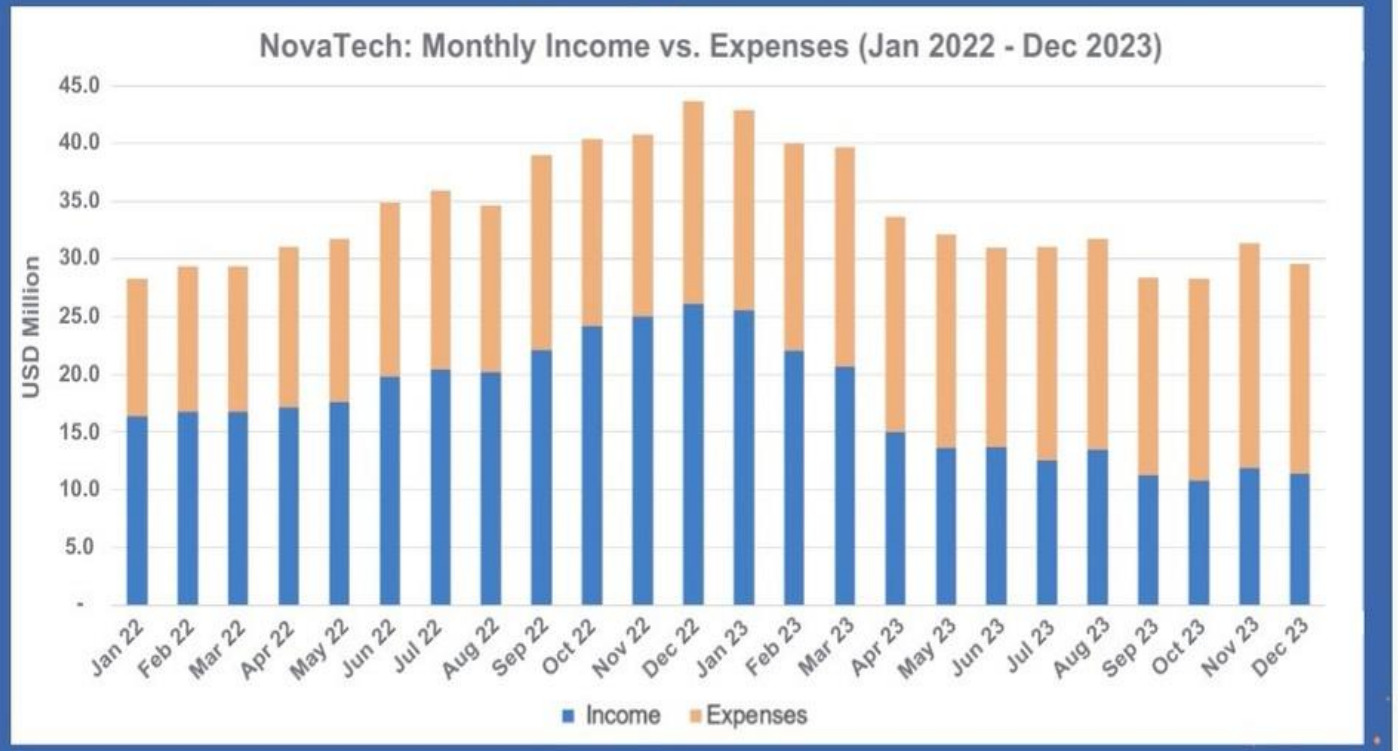
- Movement of Income and Expenses

✓ **Change over Time**

- Before and after the new strategy

Core Example:

NovaTech Company's Stacked Bar Chart

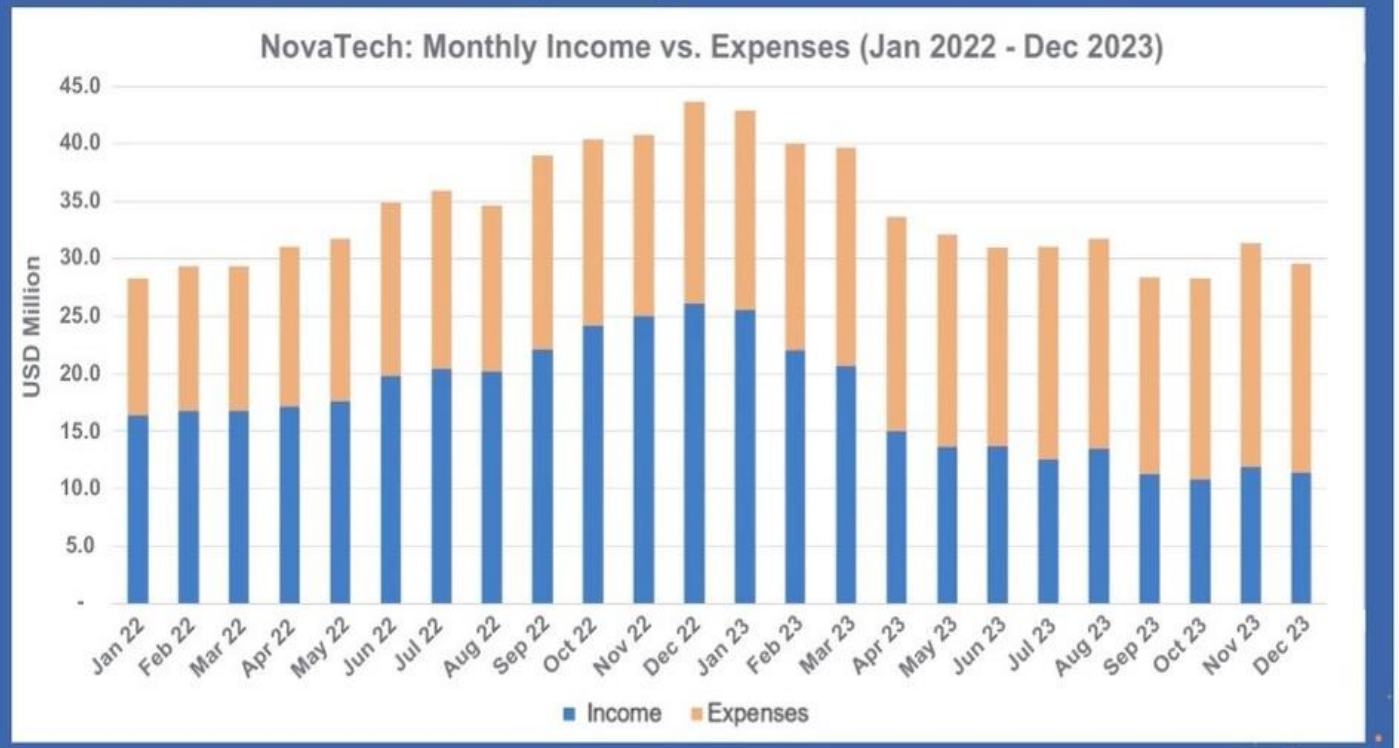


Which Type of Data Story?

- Rankings
- Distributions
- Proportions
- Correlations
- Comparisons
- Change Over Time

Core Example:

NovaTech Company's Stacked Bar Chart

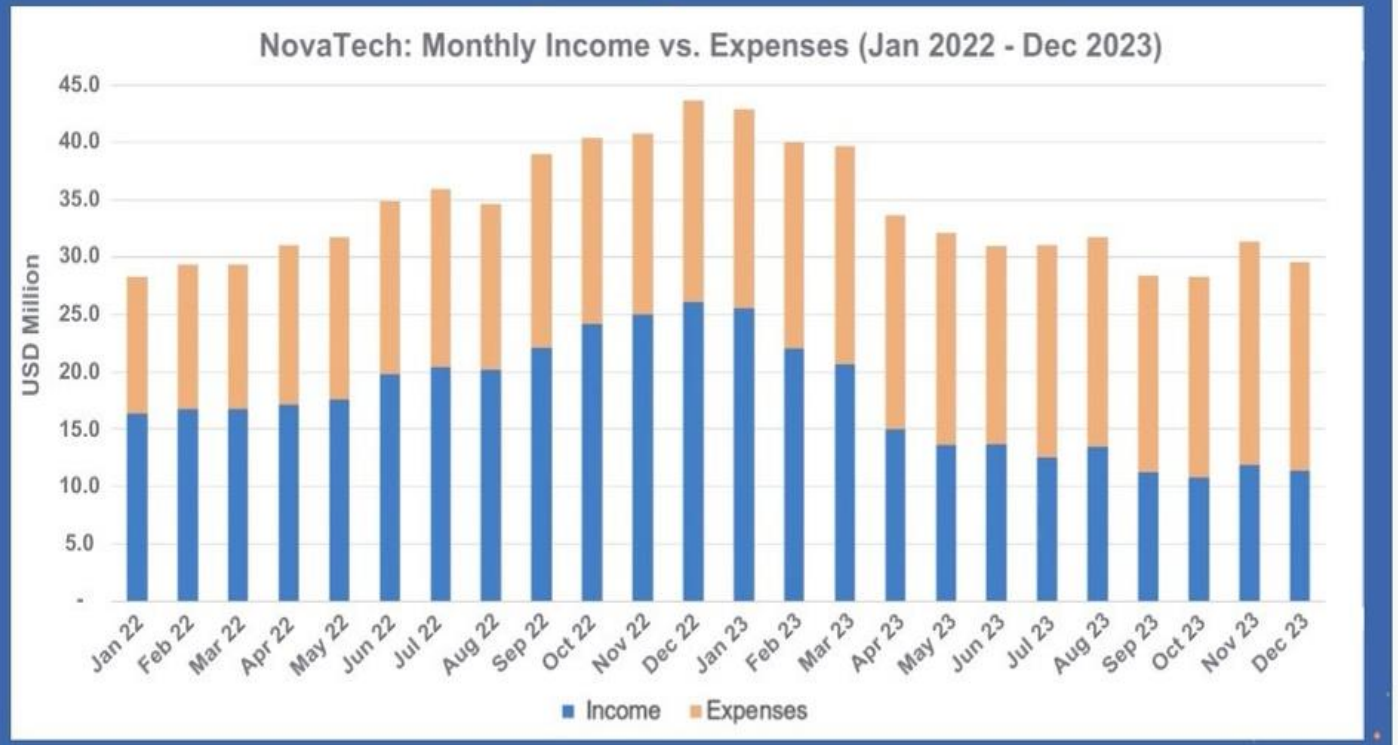


Which Type of Data Story?

Change Over Time

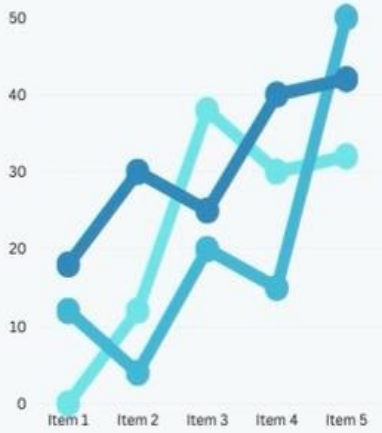
Core Example:

NovaTech Company's Stacked Bar Chart



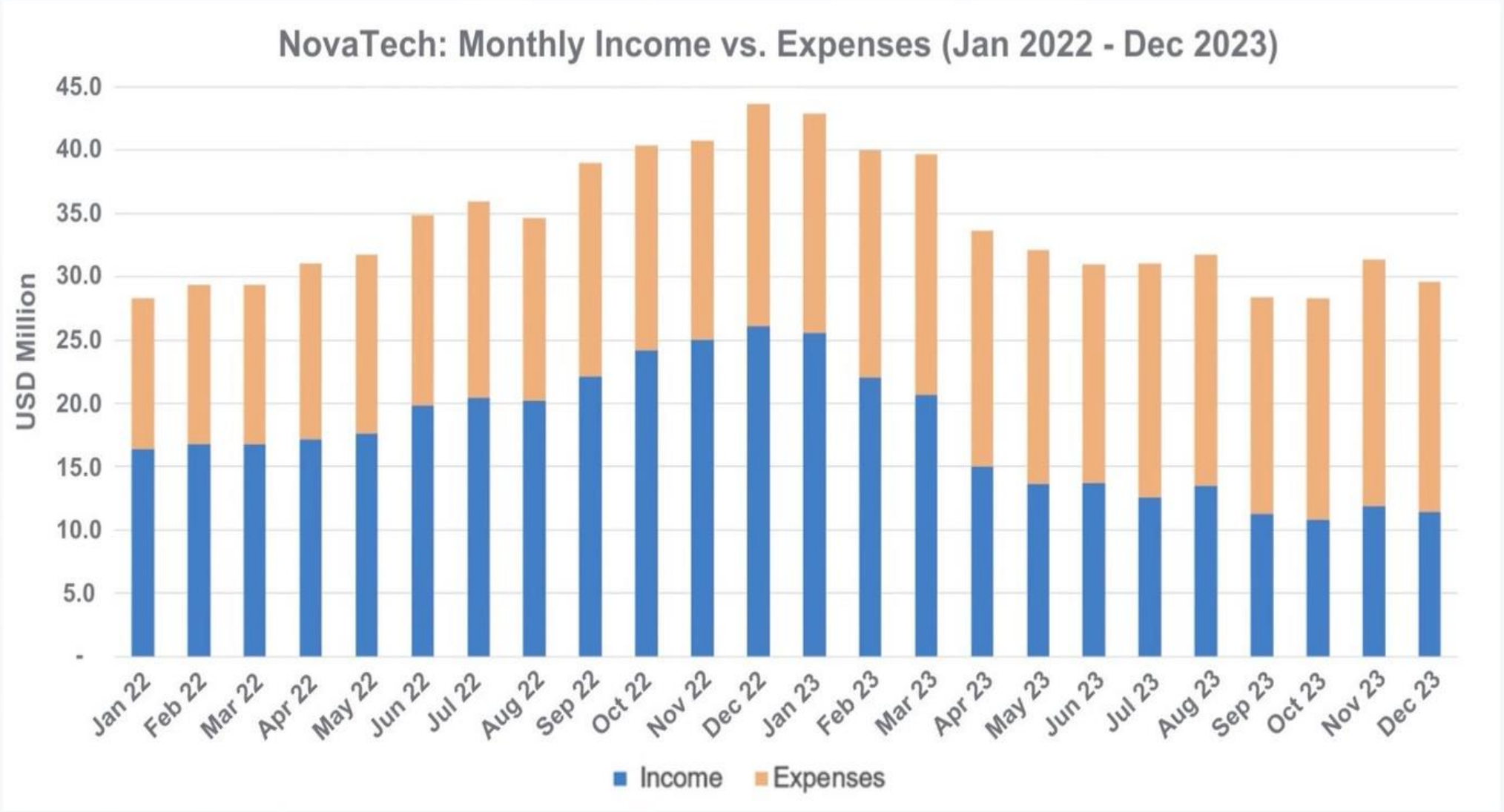
Change Over Time

Line Graph

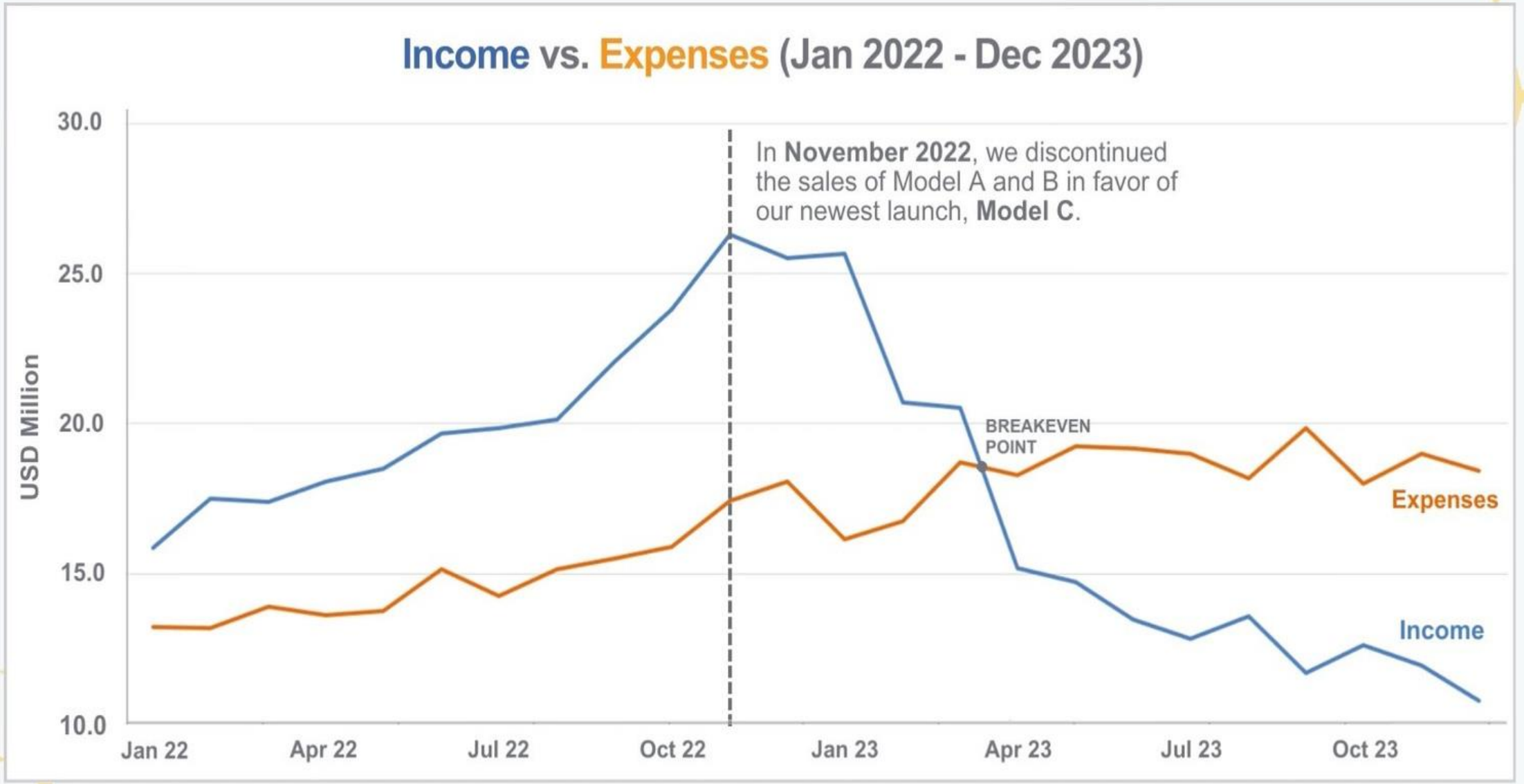


Transform Your Visual with Data Storytelling!

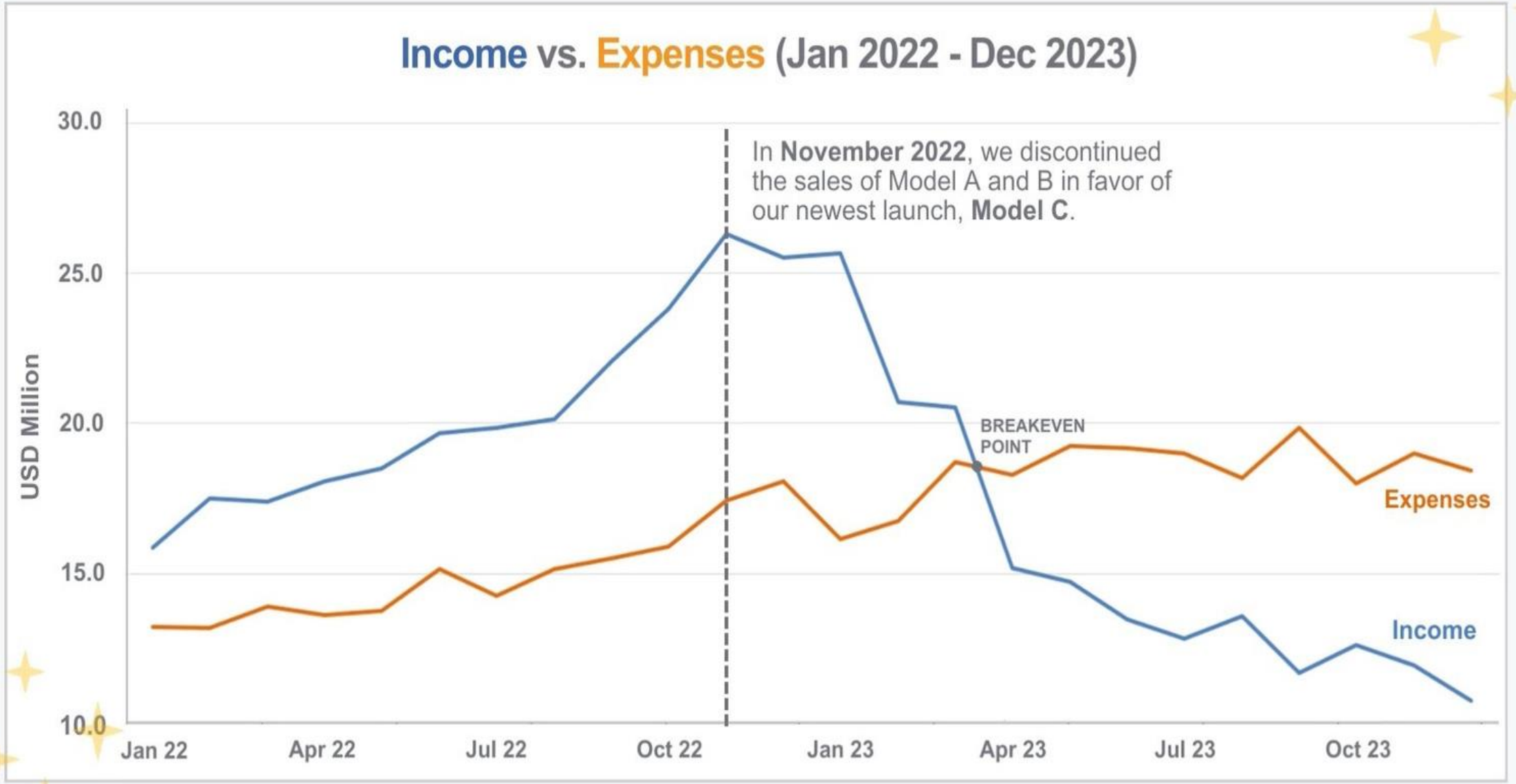
Core Example: **BEFORE**



Core Example: **AFTER**

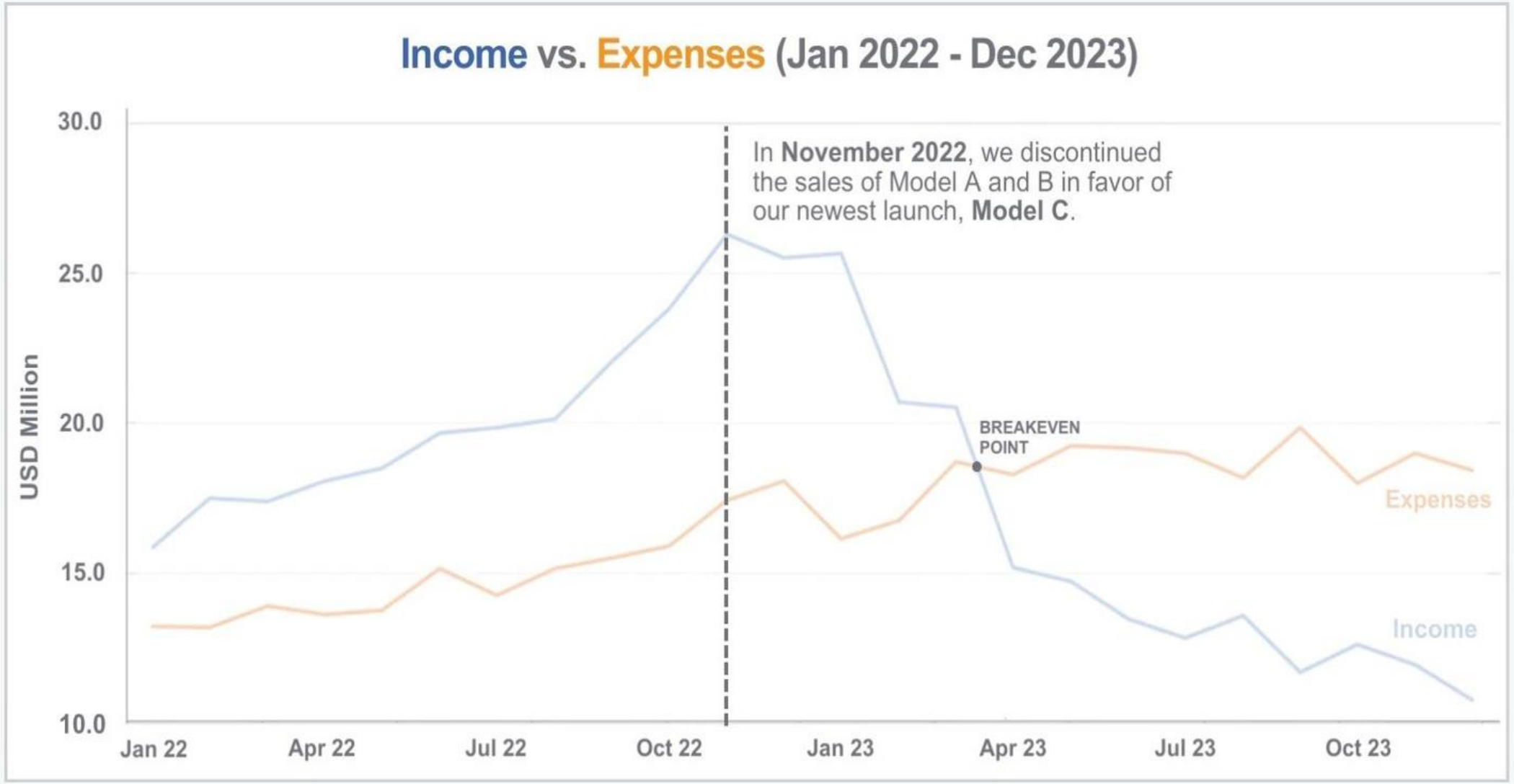


Same Story, Told Better!



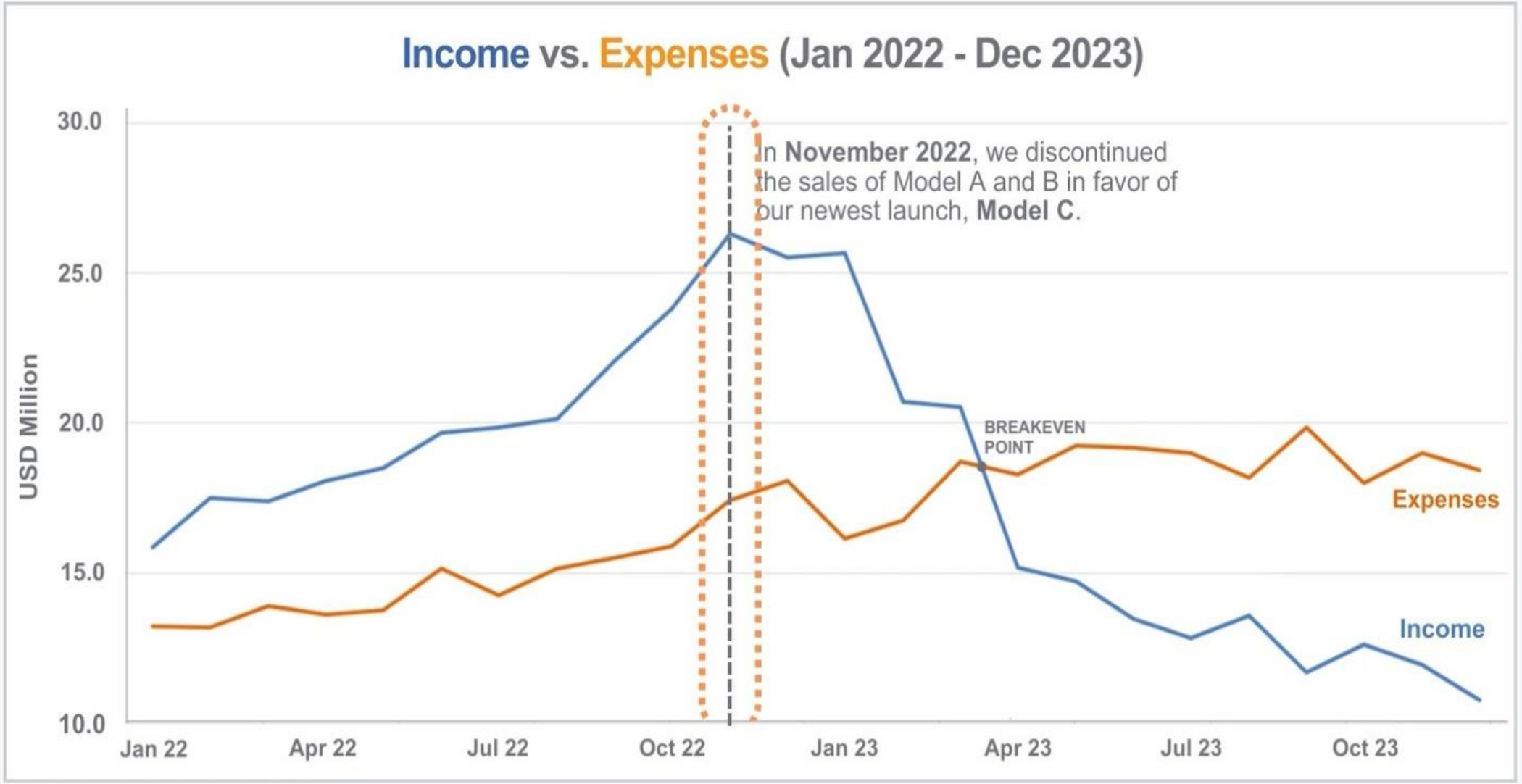
Graph Type: Multiple series line graph

- Analyzing change over time



Colored Lines: Income (***blue***) & Expenses (***orange***)

- Profits were consistent for a time

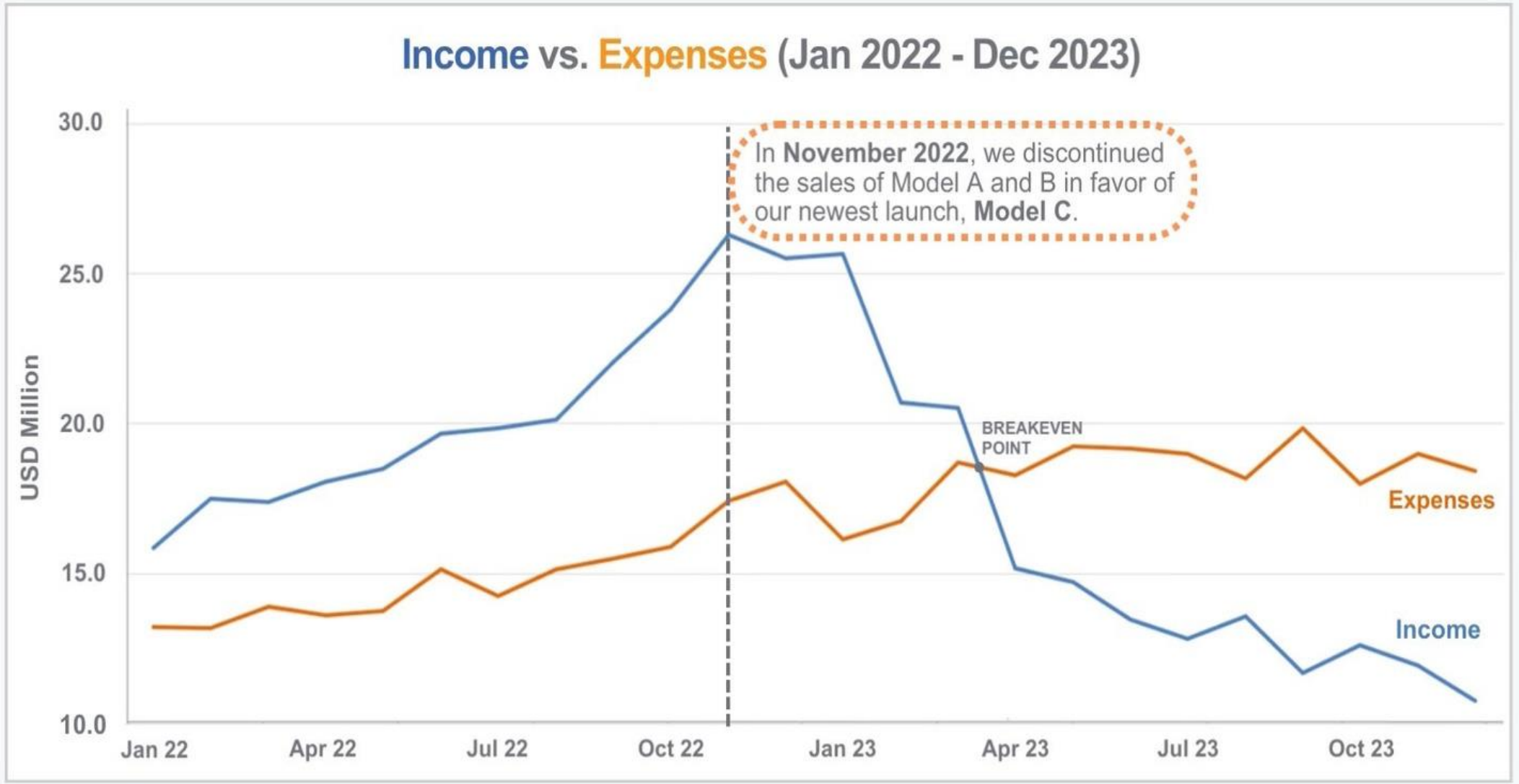


Dotted Line: New Strategy Implemented (Nov 2022)

- Net losses past **Breakeven Point**

Dotted Line: New Strategy Implemented (Nov 2022)

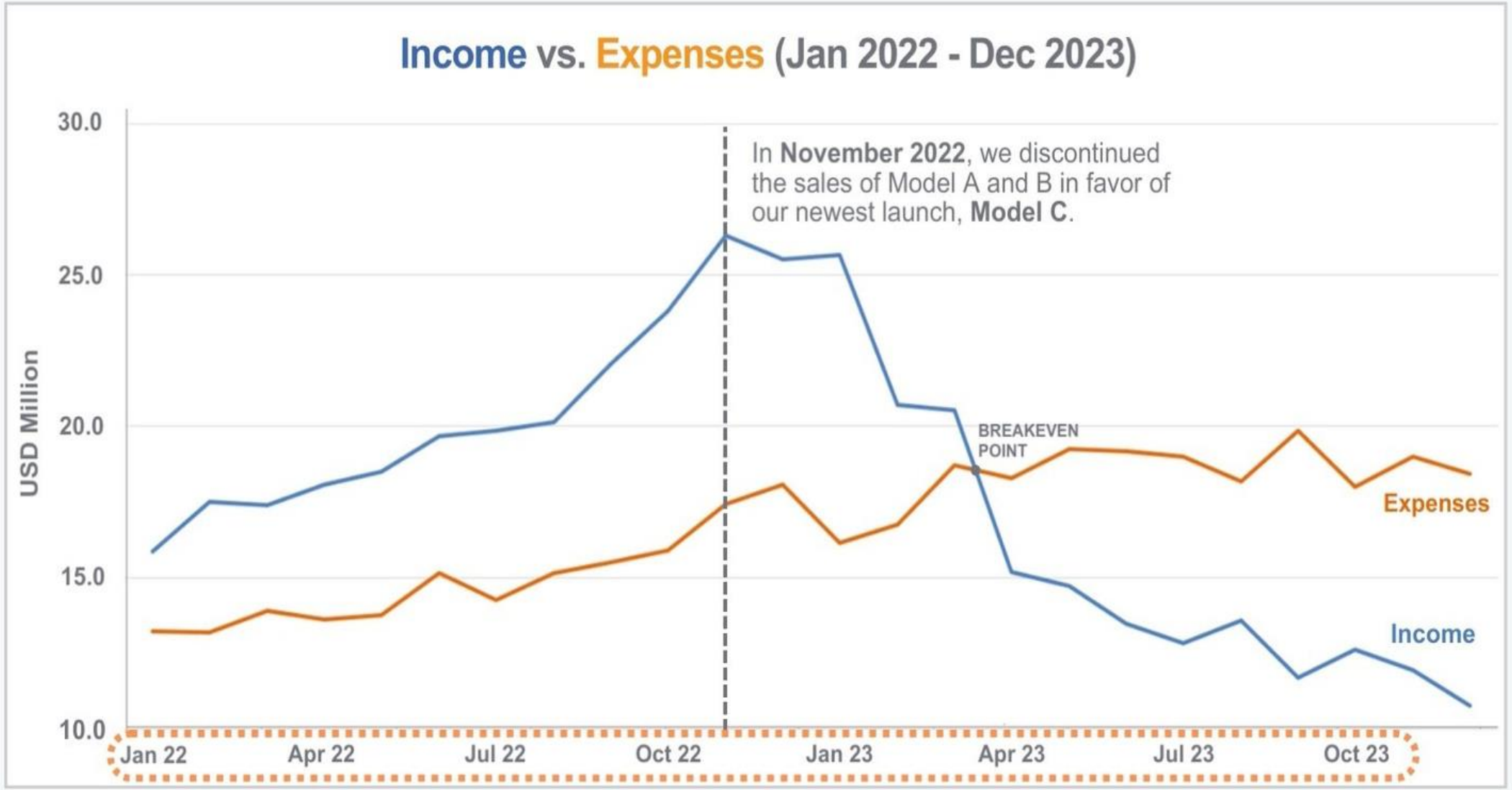
- Net losses past **Breakeven Point**



Annotations: Explain Cause of Net Losses

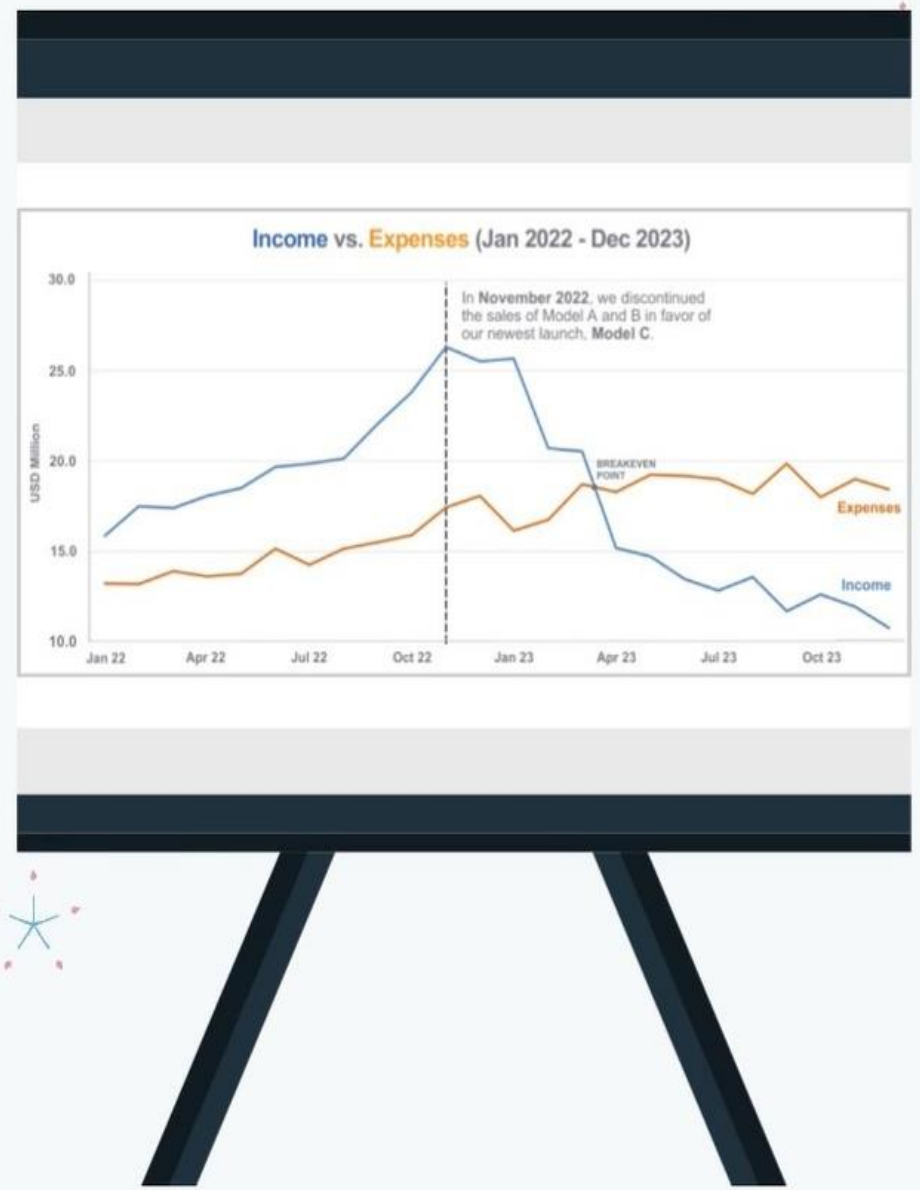
- Discontinued **Models A & B** in favor **Model C**

Design: Clean Lines, Two Colors, Good Spacing



Labels: Months indicated on x-axis = **every 3 months**

Choosing the right visuals that fit the right type of data story makes all the difference in bringing your data story to life.

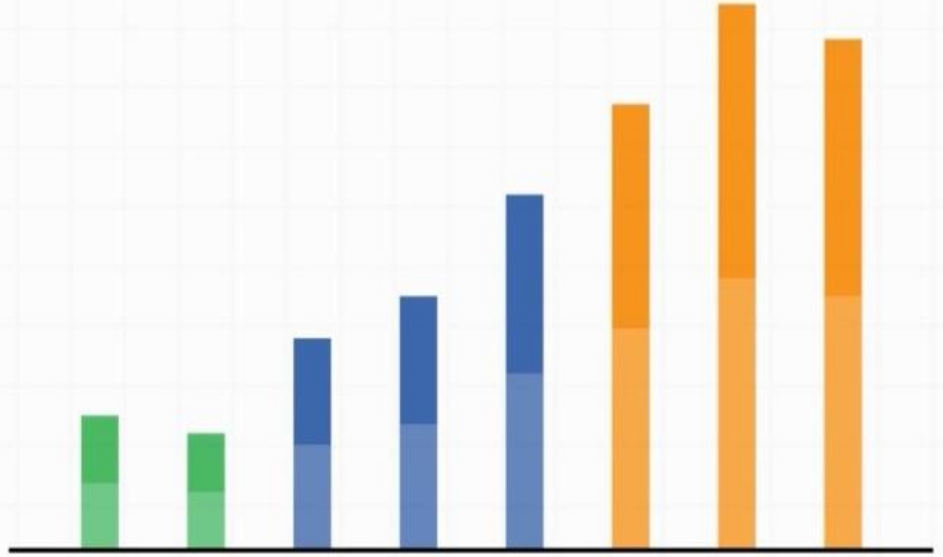


II. Visualizing the Story

C. Clarifying Your Message: Hybrid Titles

HYBRID TITLES

- ✓ Contemporary approach to titling
- ✓ Multifunctional purpose



3 Components of a Hybrid Title

Insight

Call to Action

Legend

Example:

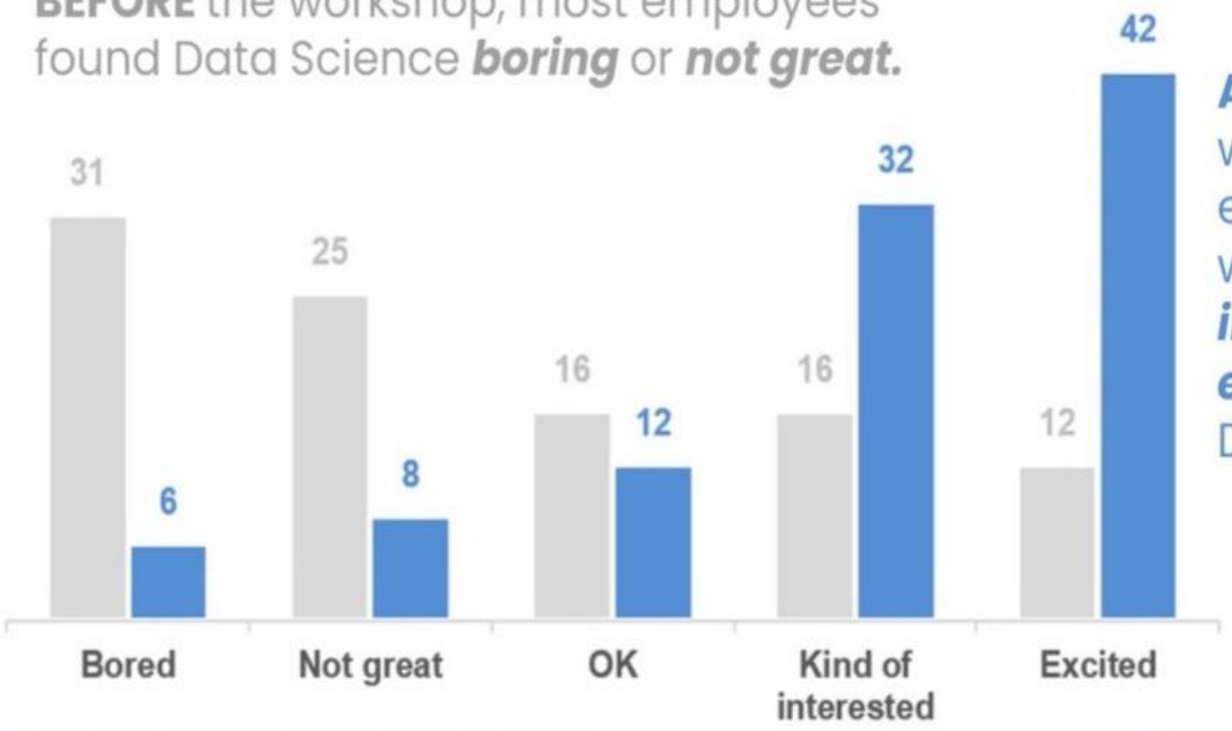
Data Science Workshop Feedback

The first run of the Data Science Workshop was successful!

We recommend including this as a standard training.

More employees are interested in data science **after** the workshop vs. **before**.

BEFORE the workshop, most employees found Data Science ***boring*** or ***not great.***



AFTER the workshop, most employees were ***kind of interested*** and ***excited*** about Data Science.

Hybrid Title

1 Insight

"The first run of the Data Science Workshop was successful!"

Example:

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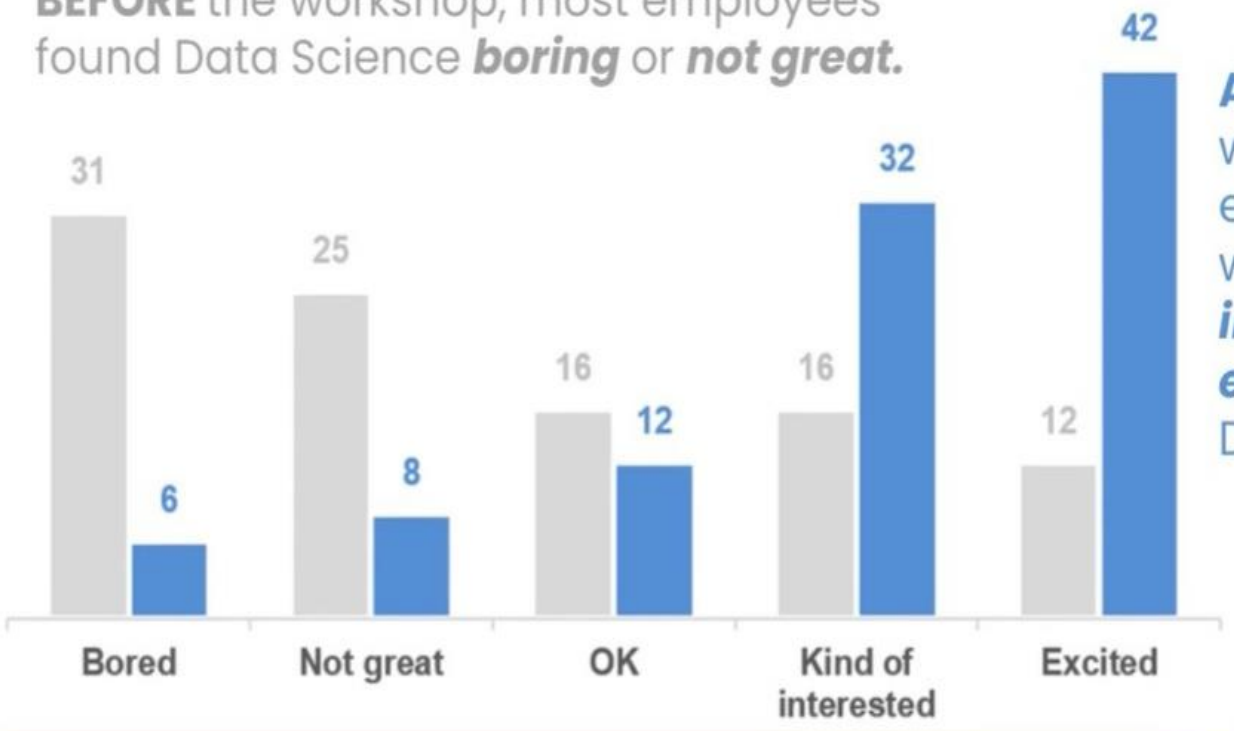

AFTER the workshop, most employees were ***kind of interested*** and ***excited*** about Data Science.

Hybrid Title

2 Call to Action

"We recommend including this as a standard training."

Example:

Data Science Workshop Feedback

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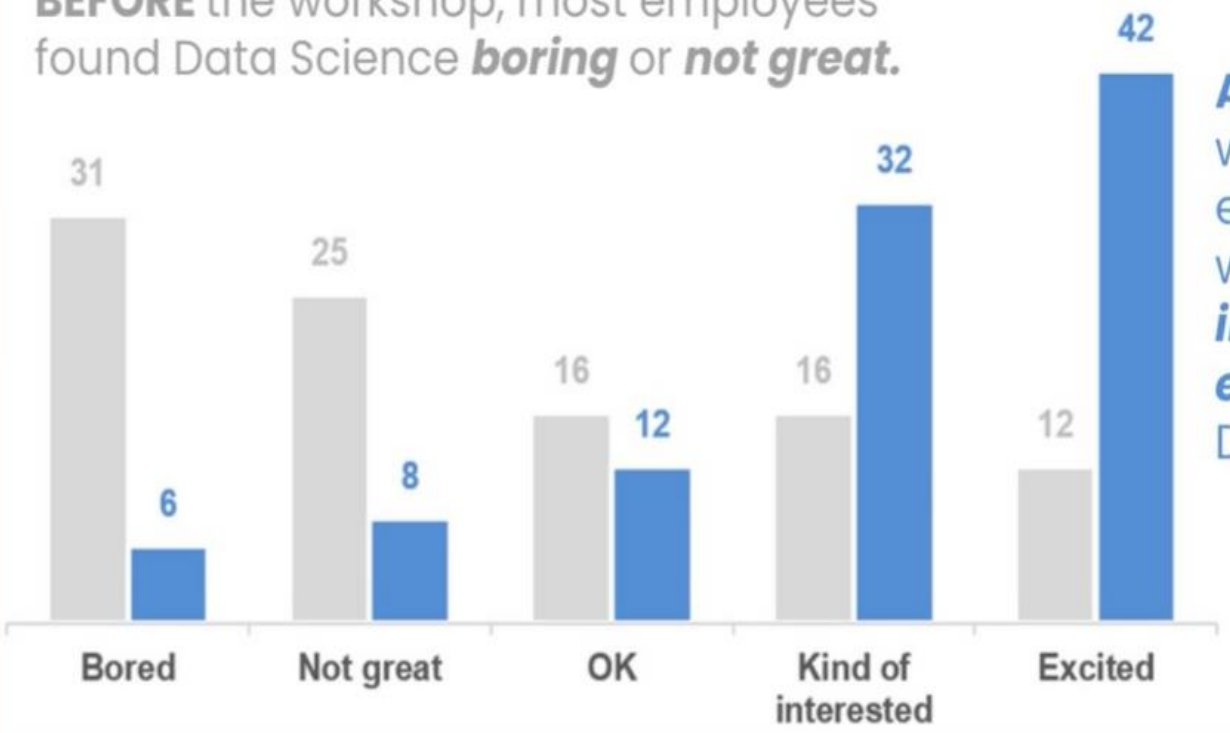

AFTER the workshop, most employees were ***kind of interested*** and ***excited*** about Data Science.

Hybrid Title

3 Legend

*"More employees are interested in data science **after** the workshop vs. **before.**"*

Example:

Data Science Workshop Feedback

The first run of the Data Science Workshop was successful!
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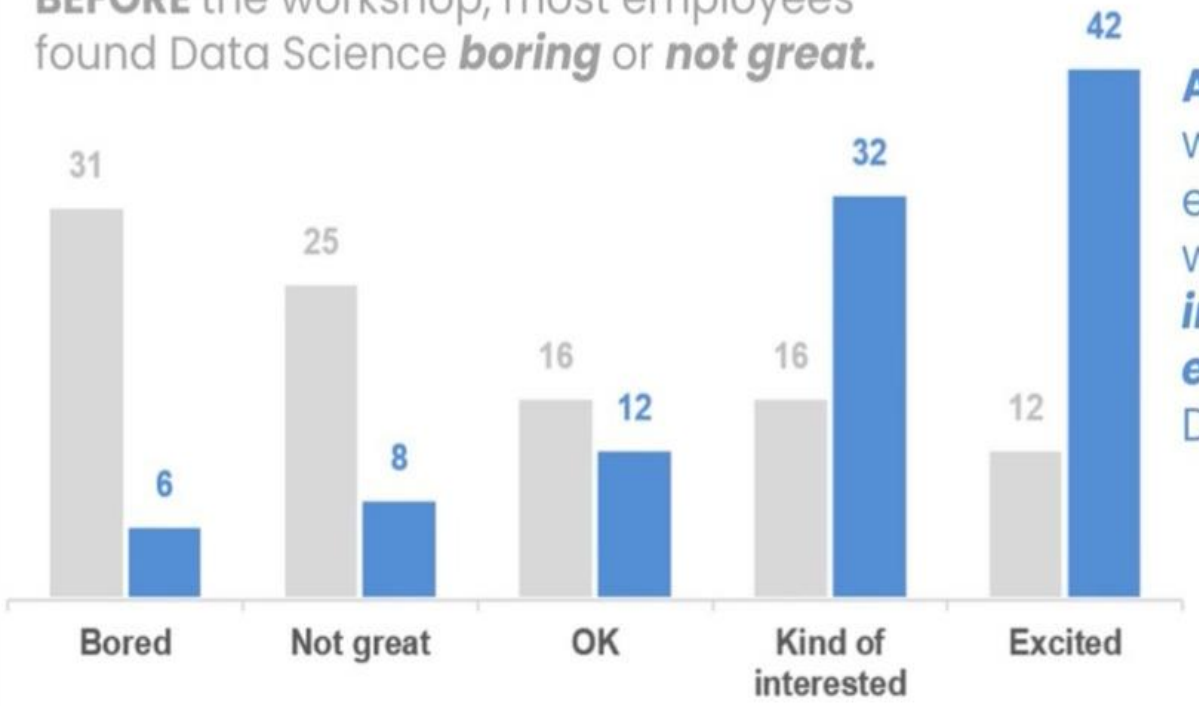
More employees are interested in data science **after** the workshop vs. **before**.

BEFORE the workshop, most employees found Data Science ***boring*** or ***not great.***

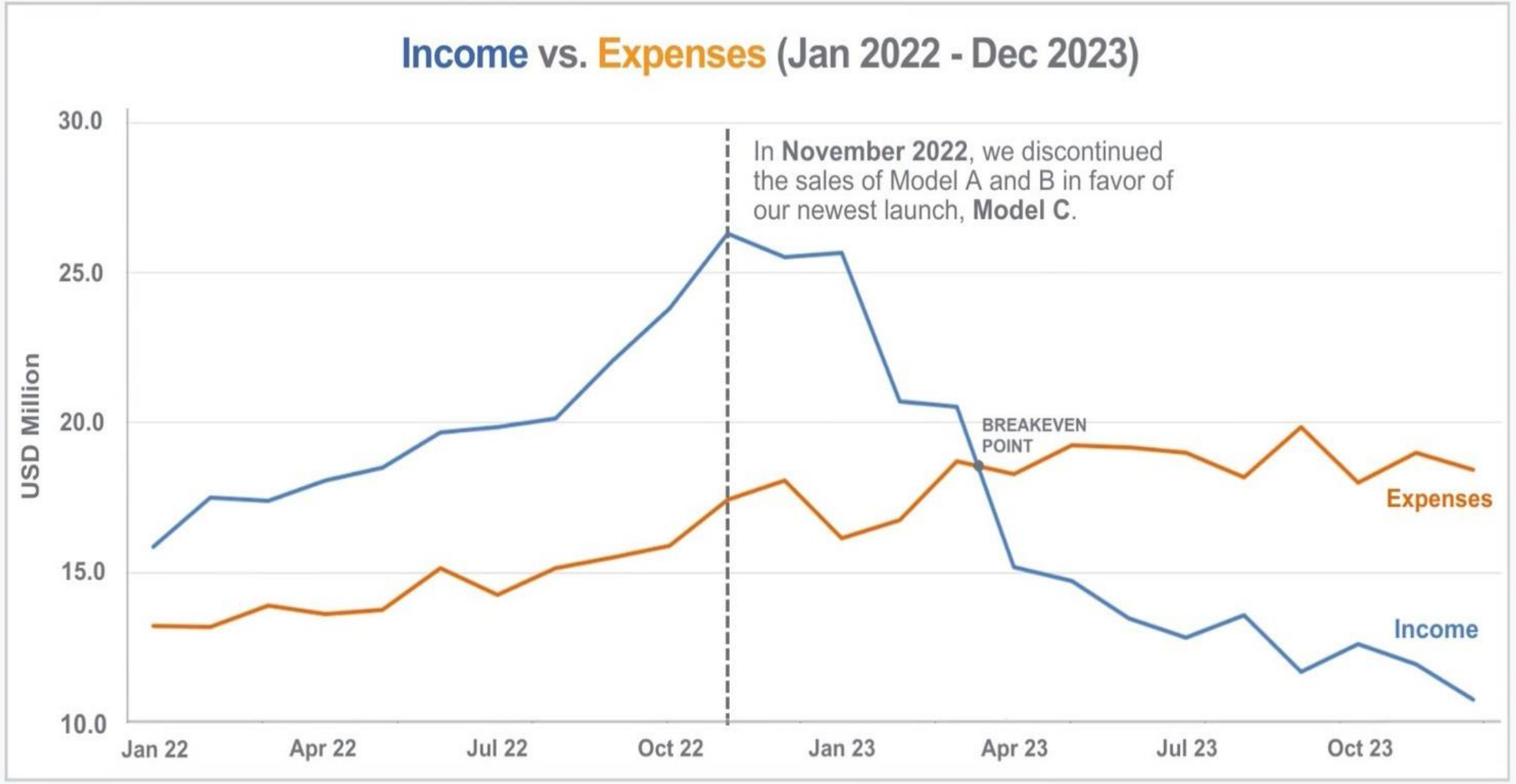


AFTER the workshop, most employees were ***kind of interested*** and ***excited*** about Data Science.

Hybrid Title

1. Insight
2. Call to Action
3. Legend

Core Example: **NovaTech Company**

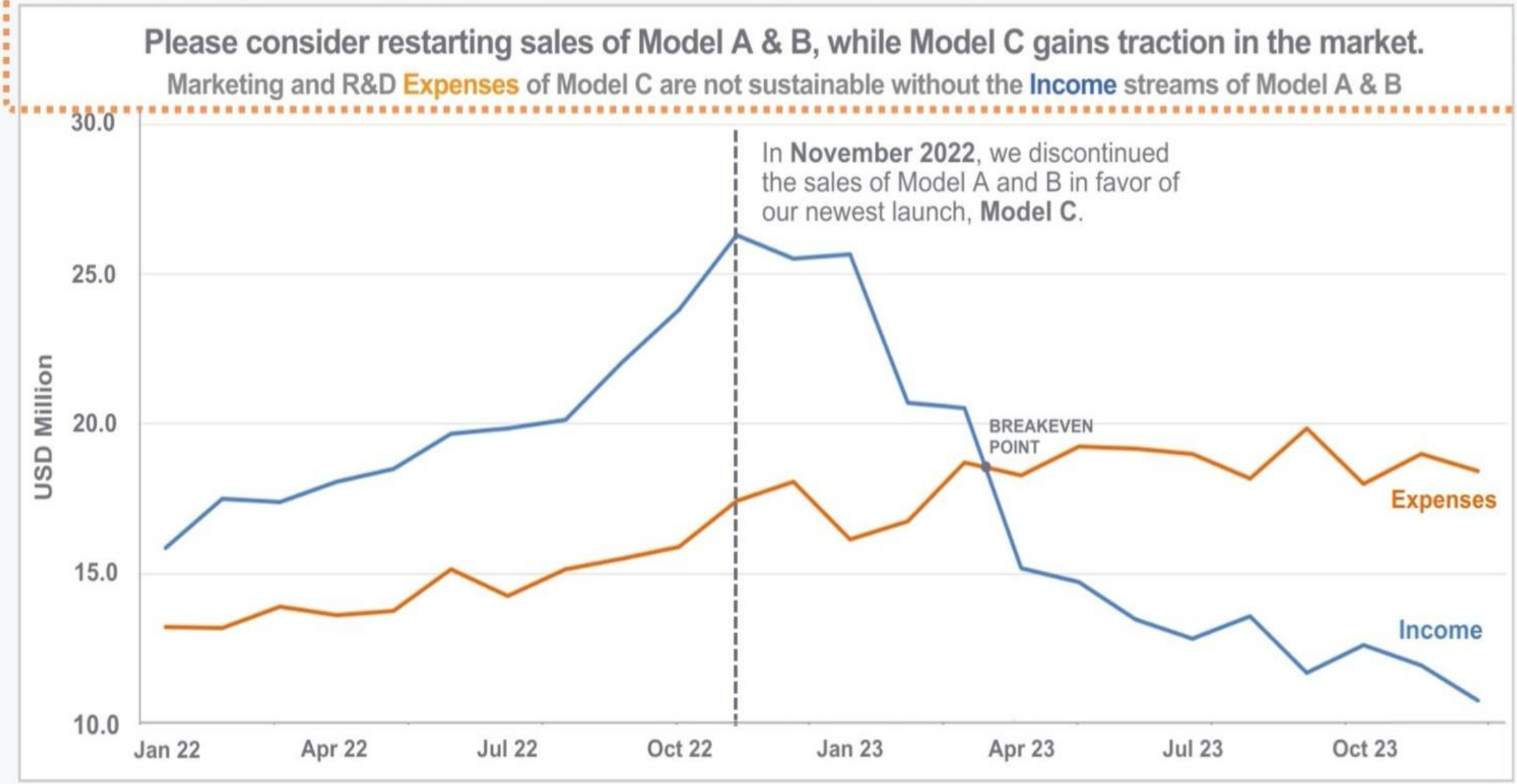


Core Example: **NovaTech Company's Hybrid Title**

Expenses are greater than **income** due to our change in strategy.

Please consider restarting sales of Model A & B, while Model C gains traction in the market.

Marketing and R&D **Expenses** of Model C are not sustainable without the **Income** streams of Model A & B



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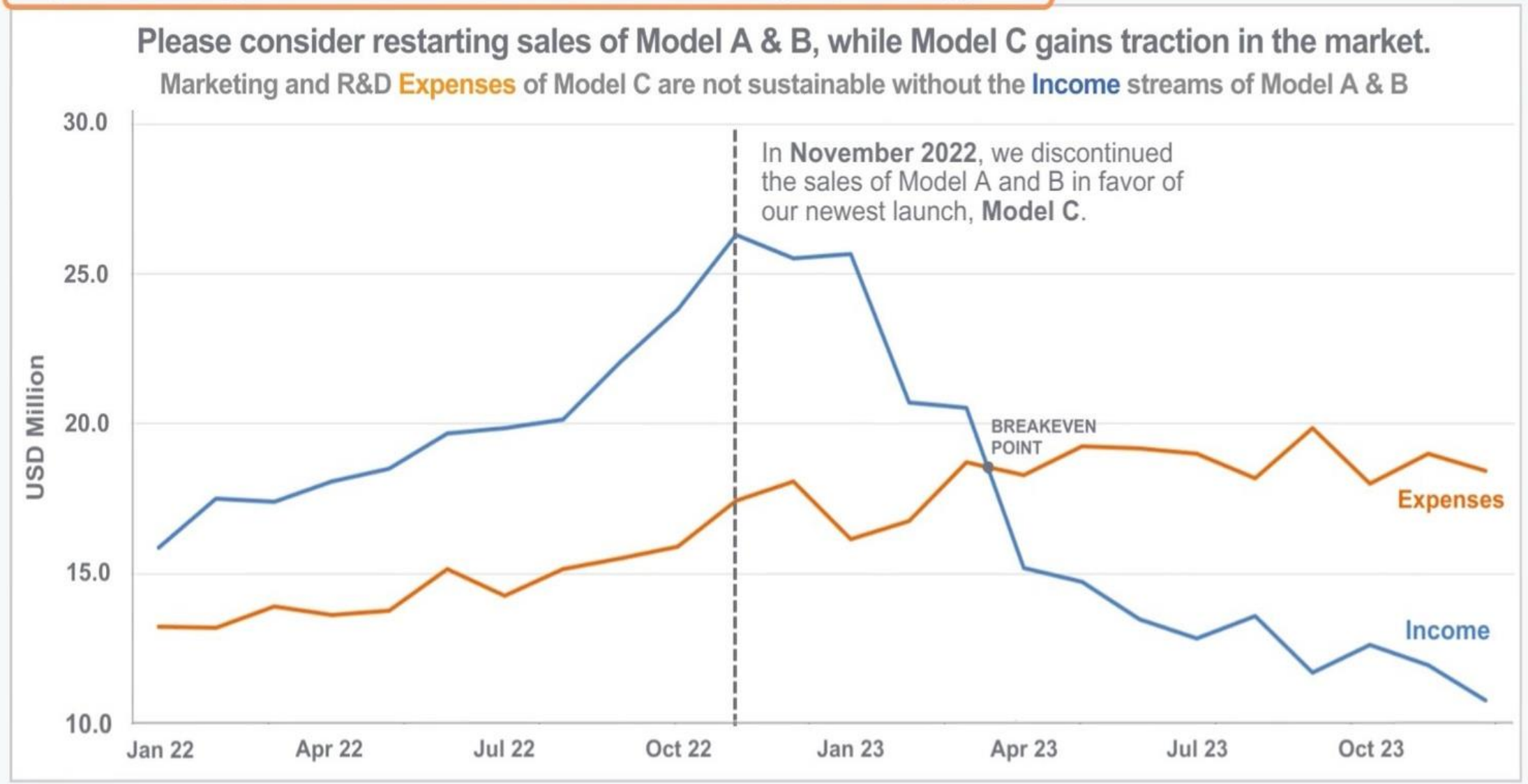

1 Insight

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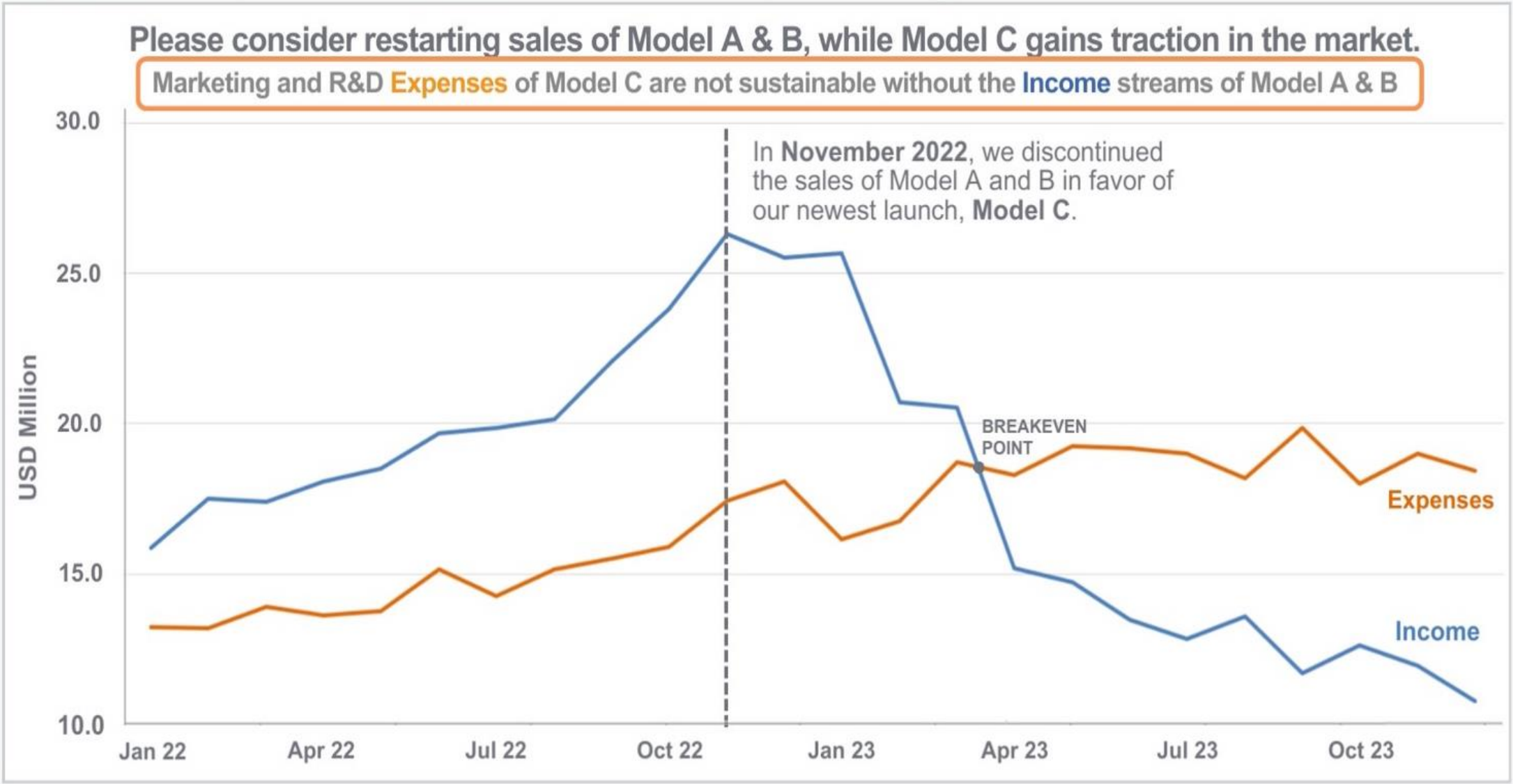
Marketing and R&D Expenses of Model C are not sustainable without the Income streams of Model A & B



1 Insight

*Marketing and R&D **Expenses** of Model C are not sustainable without **Income** streams of Model A & B*

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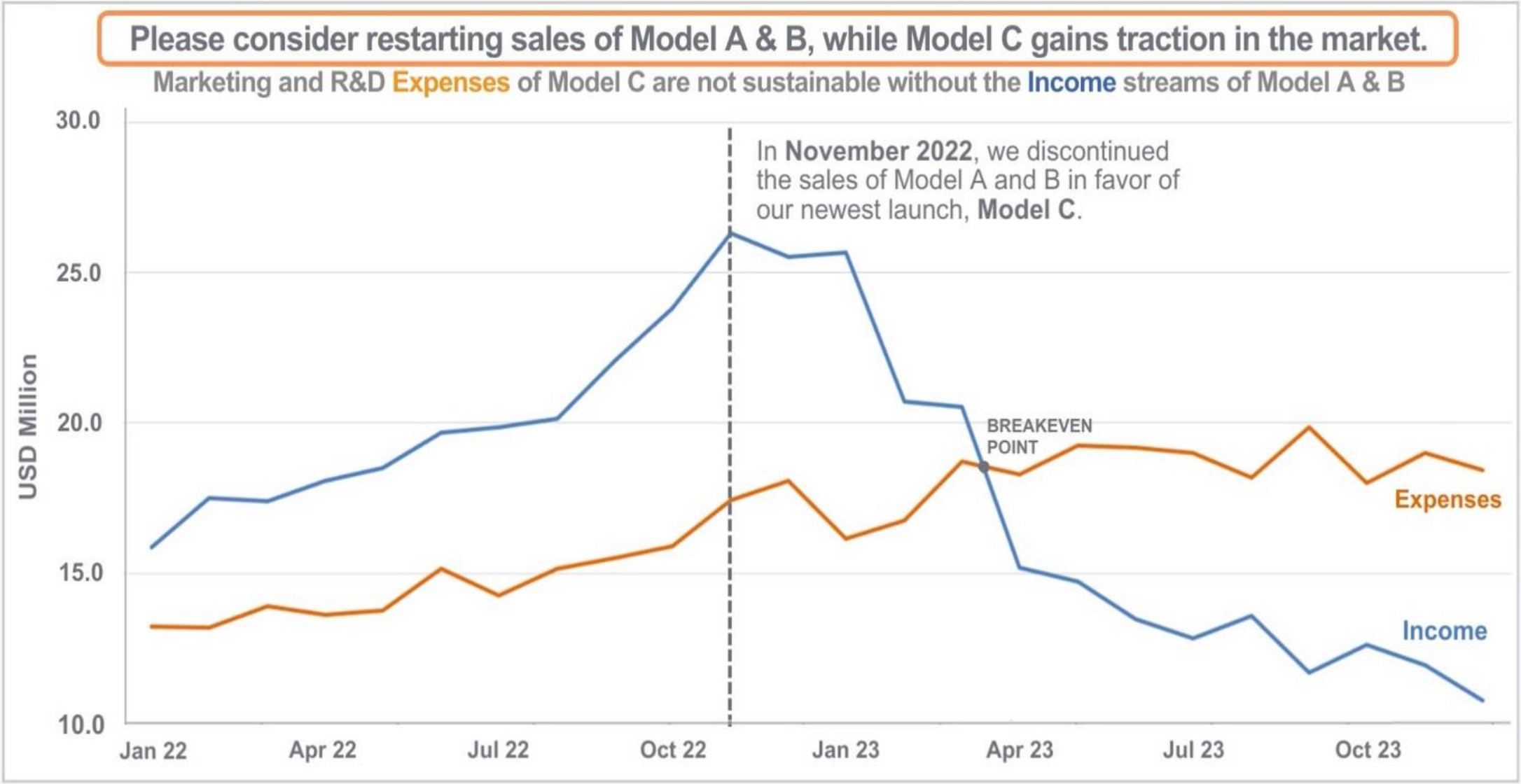

2 Call to Action

Please consider restarting sales of Model A & B, while Model C gains traction in the market

Expenses are greater than **income** due to our change in strategy.

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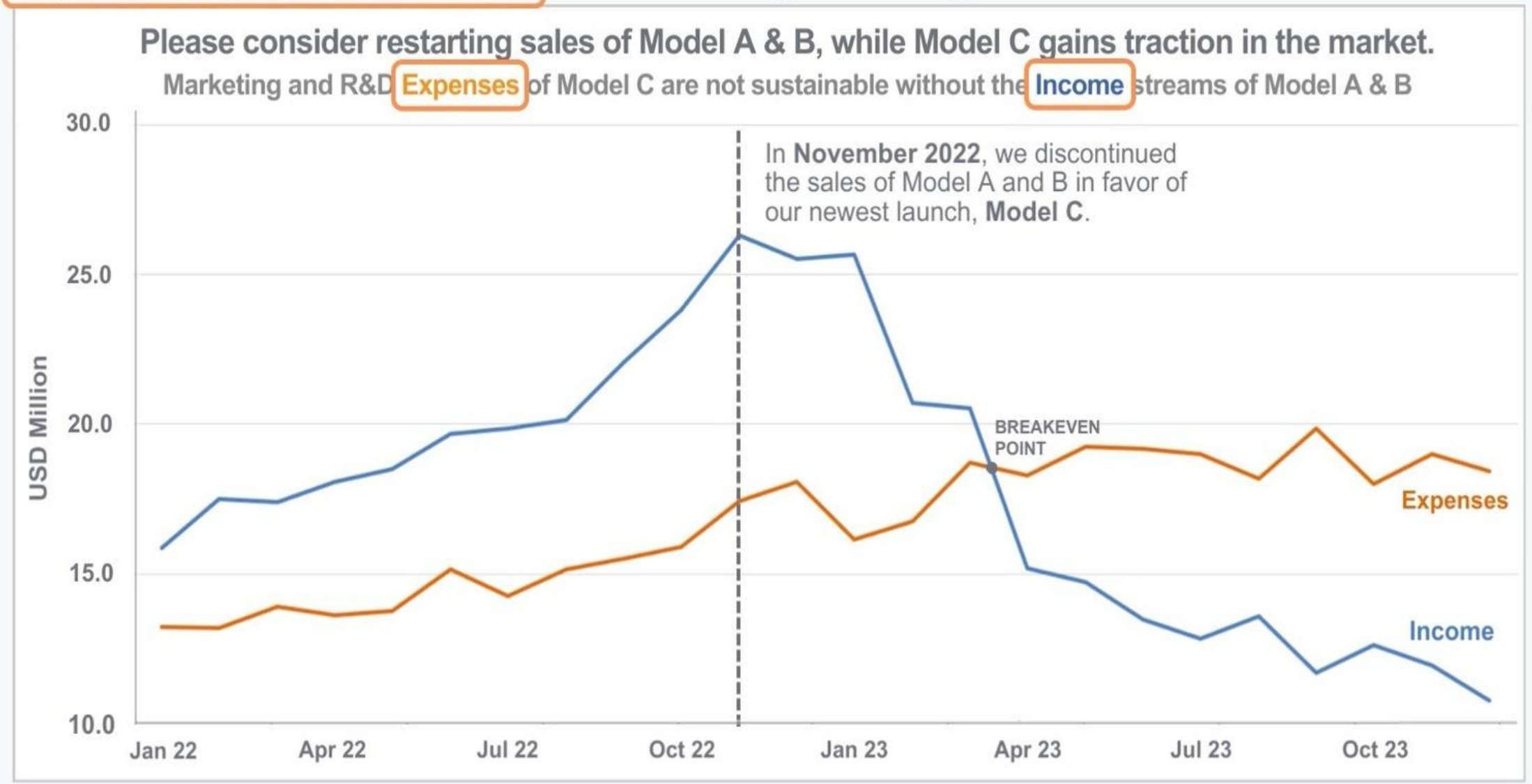
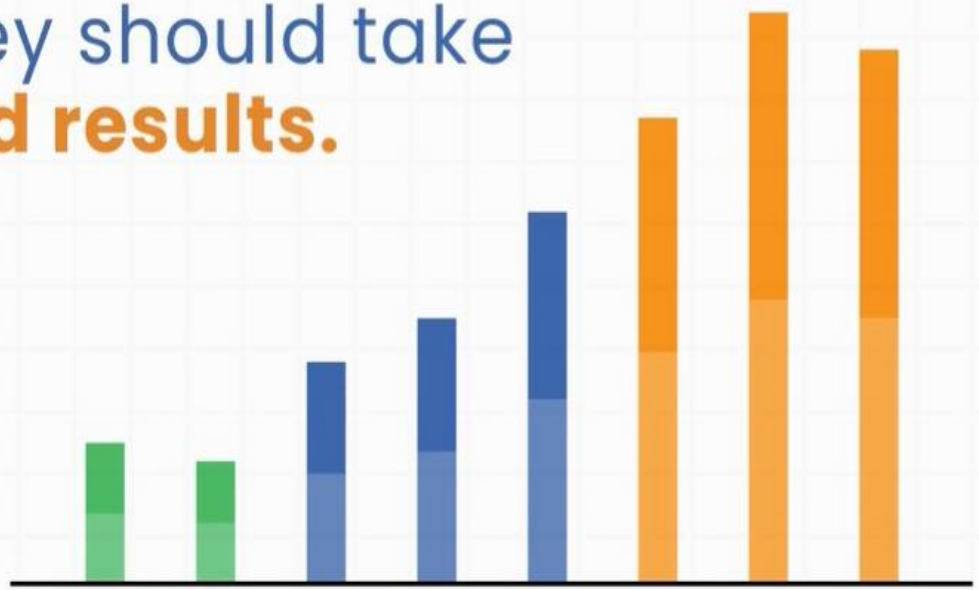
Marketing and R&D **Expenses** of Model C are not sustainable without the **Income** streams of Model A & B



3 Legend *Expenses & Income*

HYBRID TITLES

clarify your **key data insight** and provide the audience with the **next steps** they should take to achieve **desired results.**



How is HYBRID TITLE different from THE MAIN POINT?

HYBRID TITLE

VS.

MAIN POINT

- Main title of your data visual
- Should be concise
- First thing your audience reads

- Summarizing conclusion
- Explains insight and recommendation
- Placed after data visual

HYBRID TITLE

+

MAIN POINT

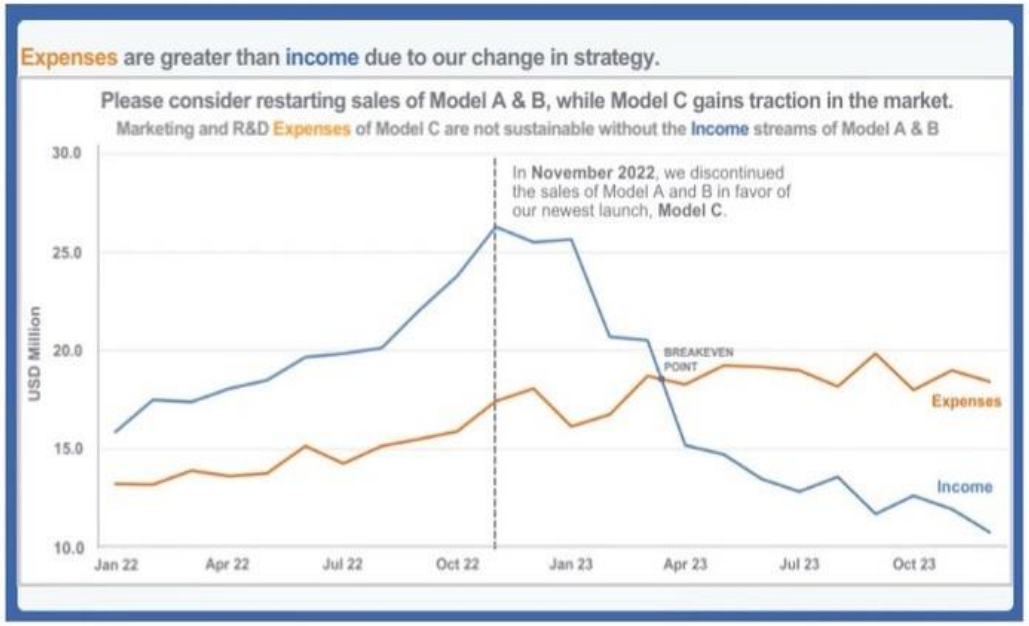
Expenses are greater than **income** due to our change in strategy.

Please consider restarting sales of Model A & B, while Model C gains traction in the market.

Marketing and R&D **Expenses** of Model C are not sustainable without the **Income** streams of Model A & B

Our new **Model C has not been profitable** and the losses we incurred are **no longer sustainable**, because of this failure we recommend **reintroducing revenue streams** from Model A & B; **please approve of this strategic shift.**

SLIDE 1



HYBRID TITLE

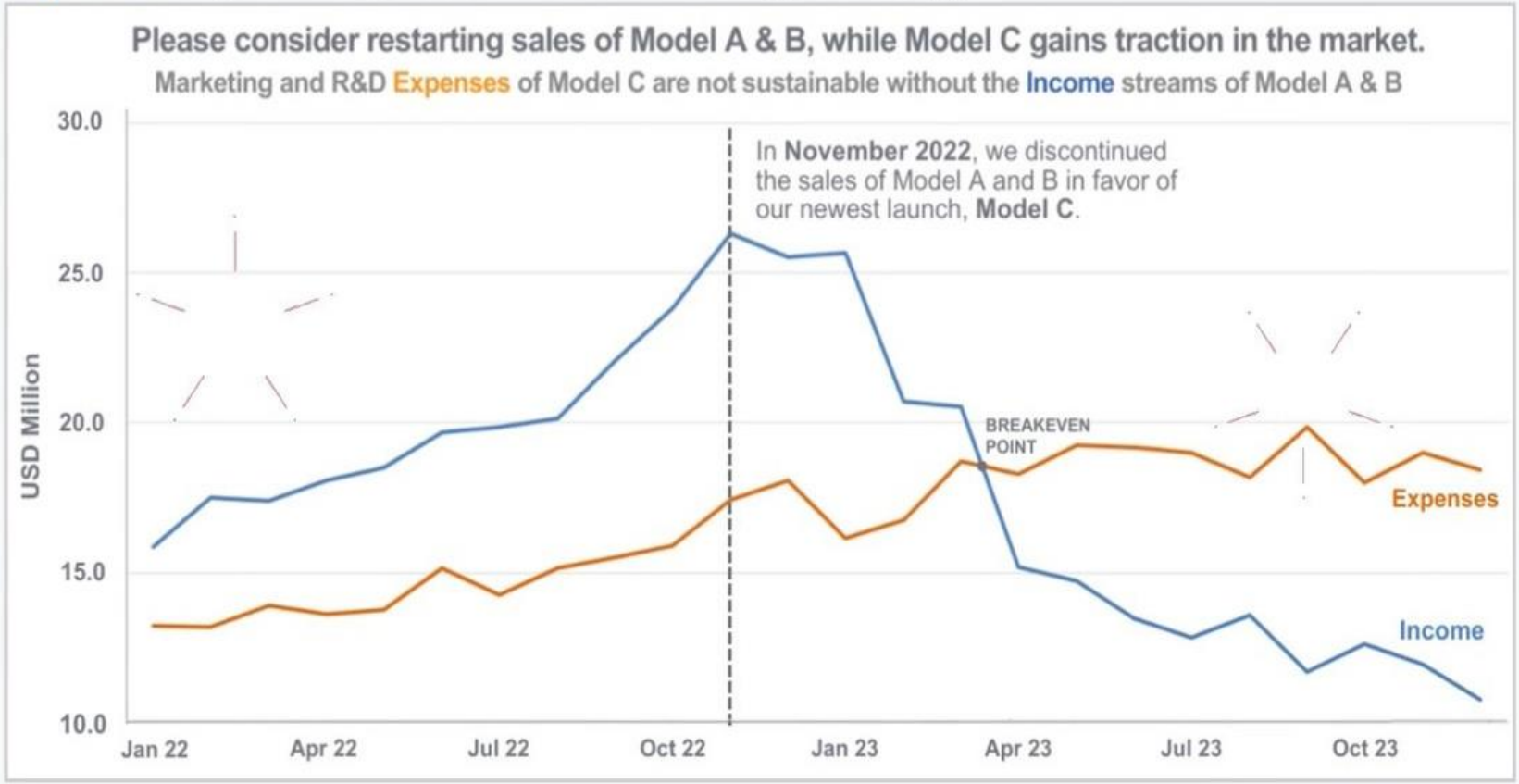
MAIN POINT

SLIDE 2

Our new **Model C has not been profitable** and the losses we incurred are **no longer sustainable**, because of this failure we recommend **reintroducing revenue streams** from Model A & B; **please approve of this strategic shift.**

Your Data Visual...

Expenses are greater than income due to our change in strategy.



...completed and elevated by DATA STORYTELLING!

LEARNING ROADMAP:

Navigating Your Path to Success

Course 1:
Driving Change and Action through Insight

Course 1:
Unearthing Stories in Data

Course 2:
3 C's of Building Your Data Story

Course 3:
The Value of Visuals

COMPLETED

Course 3:
Visualizing the Story

5

6

Course 4:
Secrets to Effective Visuals

Quick
Pitstop
II. Visualizing the Story