THE ART OF CHARTS

Choosing the Right Visualization To Tell Your Story

William Schwab, CPA, CGMA

Edwin Harvey, PhD

January 31, 2024

ima®

The Association of Accountants and Financial Professionals in Business

YOUR PART-TIME CONTROLLER®

The NONPROFIT accounting specialists™

Featured Presenters

William Schwab, CPA, CGMA
Director of Data Visualization
Your Part-Time Controller, LLC

Edwin Harvey, PhD
Data Visualization Manager
Your Part-Time Controller, LLC

ABOUT YPTC

Your Part-Time Controller®
The NONPROFIT accounting specialists™

- Professional services firm specializing in nonprofit financial management
- Nationwide: 11 regional offices (and counting!)
- Services include accounting, reporting, data visualization, and best practices
- YPTC Anywhere®: Working remotely and from client offices nationwide
- 1,800+ clients and 650+ staff
- 3+ decades of nonprofit expertise

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AGENDA

01 Core Concepts and Essential Elements

02 Types of Charts

03 Case Studies

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LEARNING OBJECTIVES

Recognize **core concepts** and **essential elements** that contribute to effective data visualization and storytelling graphics.

Distinguish between different types of **commonly used charts**.

Identify which **chart types to select** based on the data and the story that needs to be told.

Explain how to Illustrate data visualization storytelling through **case study examples**.

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CORE CONCEPTS & ESSENTIAL ELEMENTS

that contribute to effective data visualization and storytelling graphics

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PACKAGE IT CAREFULLY

Your Part-Time Controller®
The NONPROFIT accounting specialists™

You Deliver Great Information.

Your Audience Needs Help Receiving It.

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BUSINESS GRAPHICS TELL THE STORY

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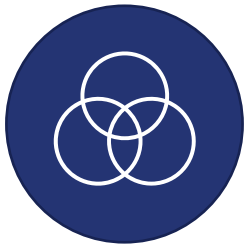
Organizations ask for graphics all the time!



The CFO

"I really need the **E.D.** to understand the variance and address it."

The Executive Director

"This growth since last year—we need to emphasize this to the **Board.**"

A Board Member

"I see we have about **$1M in cash.** Is that enough, or too much?"

A Development Director

"We need to trumpet these stats to our funders."

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CONSIDER A DATA VIZ WHEN A QUANTIFIABLE COMPARISON SUPPORTS

- Raising an alarm
- Trumpeting a success
- Recommending an action

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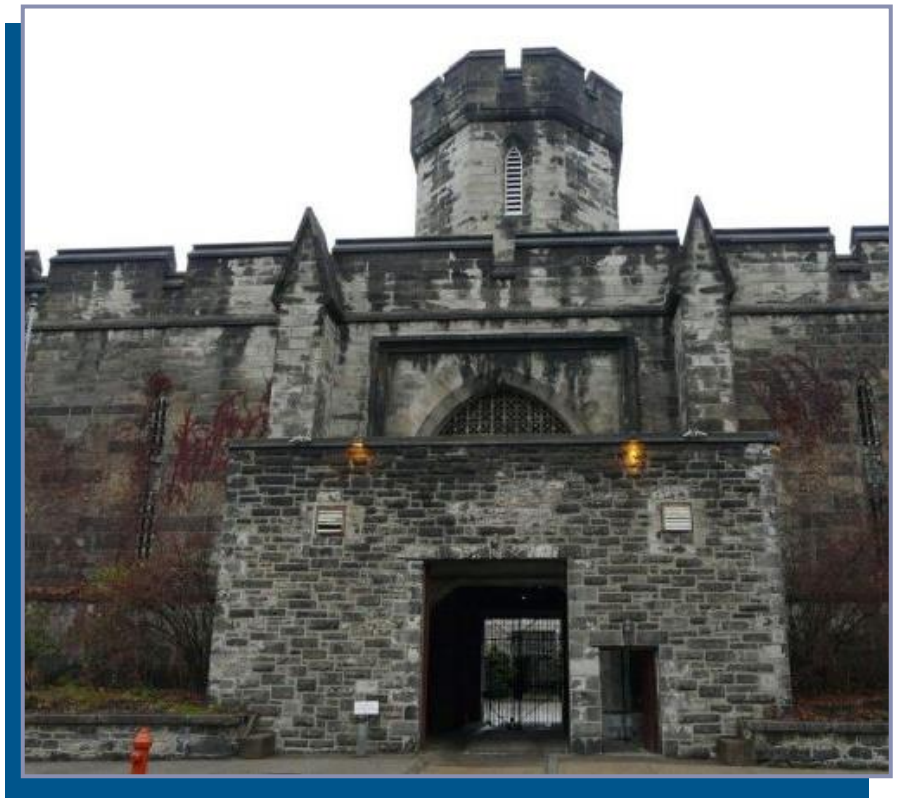
INVITE YOUR READER IN

Foreboding



Inviting

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Poll Question 1:

In which of the following scenarios could a data visualization be effective?

a. Raising an alarm
b. Trumpeting a success
c. Recommending an action
d. All of the above

Poll Question 1 Results: (Placeholder)

TUNE OUT THE NOISE, TURN UP THE STORY

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TUNE OUT THE NOISE, TURN UP THE STORY

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TYPES OF GRAPHICS: STATIC VS. DYNAMIC

STATIC

Total Revenue is Trending Up...

The success of our programs has been rewarded with increasing support from funders. As shown below, our total annual revenue has increased from $1.5M in 2017 to nearly $2M in 2022. **We are currently projected to earn $2.11M in 2023!**

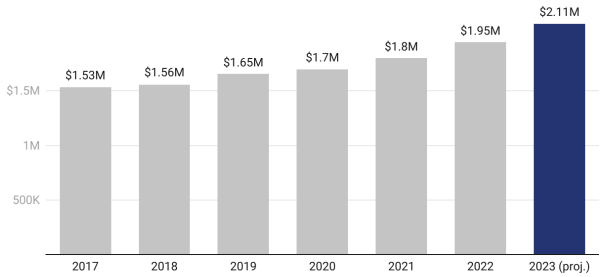
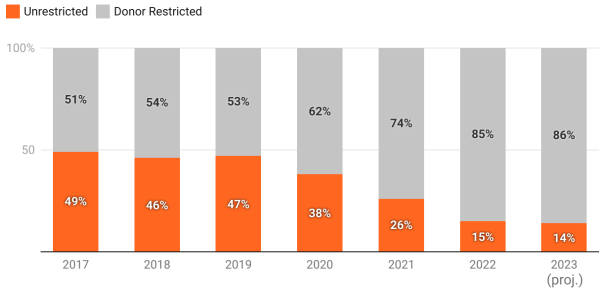


Chart: Staff Artist / YPTC • Source: QuickBooks Online

...But *Unrestricted* Revenue Isn't Keeping Pace

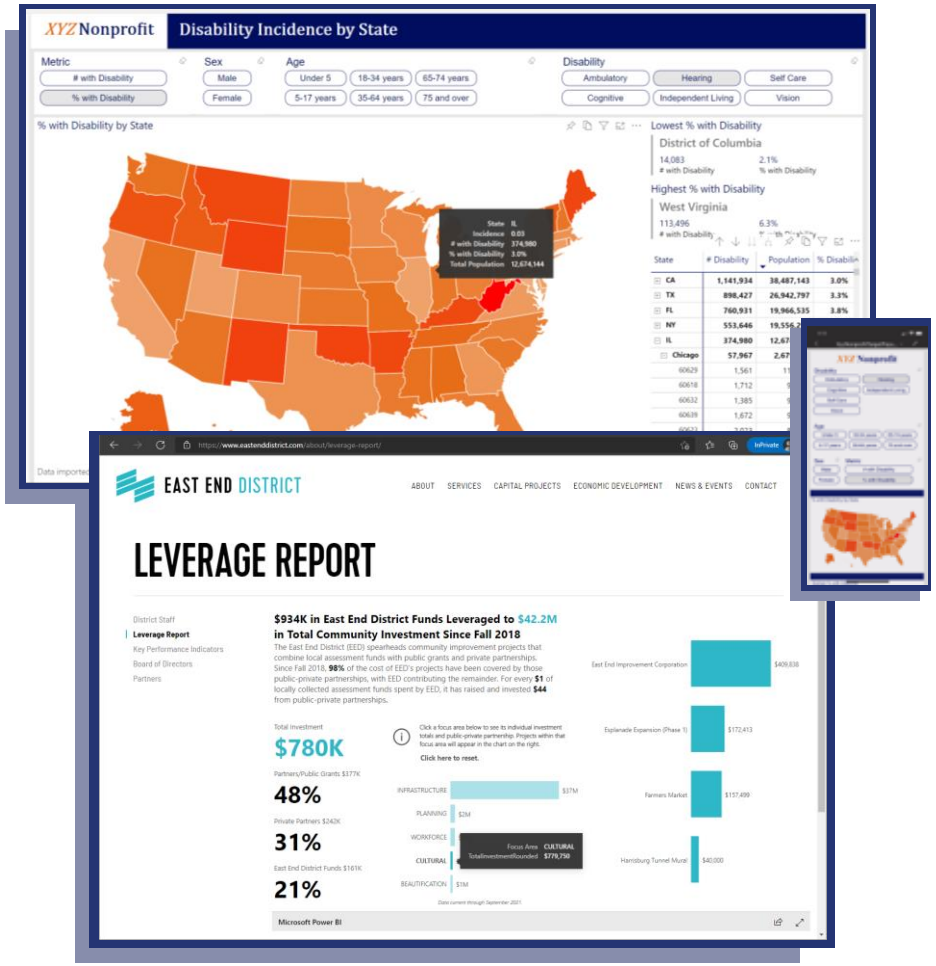
As expected, our overhead costs are increasing in step with our program growth. Yet our revenue is increasingly restricted only to programs. **In 2017, 49% of our revenue was unrestricted; by 2022, that number had fallen to 15%.** We are projected to be even lower in 2023. *In order to continue covering the essential overhead functions that enable our programs, we must raise more unrestricted funds.*



Accounting is also collaborating with program directors to optimize our allocation of overhead costs to programs.

Chart: Staff Artist / YPTC • Source: QuickBooks Online

DYNAMIC



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TYPES OF GRAPHICS: STATIC VS. DYNAMIC

STATIC	DYNAMIC
Tells a more specific story	More open to interpretation
Minimizes reader effort	Rewards interactivity
What you see is what you get	Drill-downs, filters, links
Sized for delivery	Built to adapt

LINKS TO DYNAMIC DASHBOARD EXAMPLES:

www.yptc.com/data-visualization
www.eastenddistrict.com/about/leverage-report/

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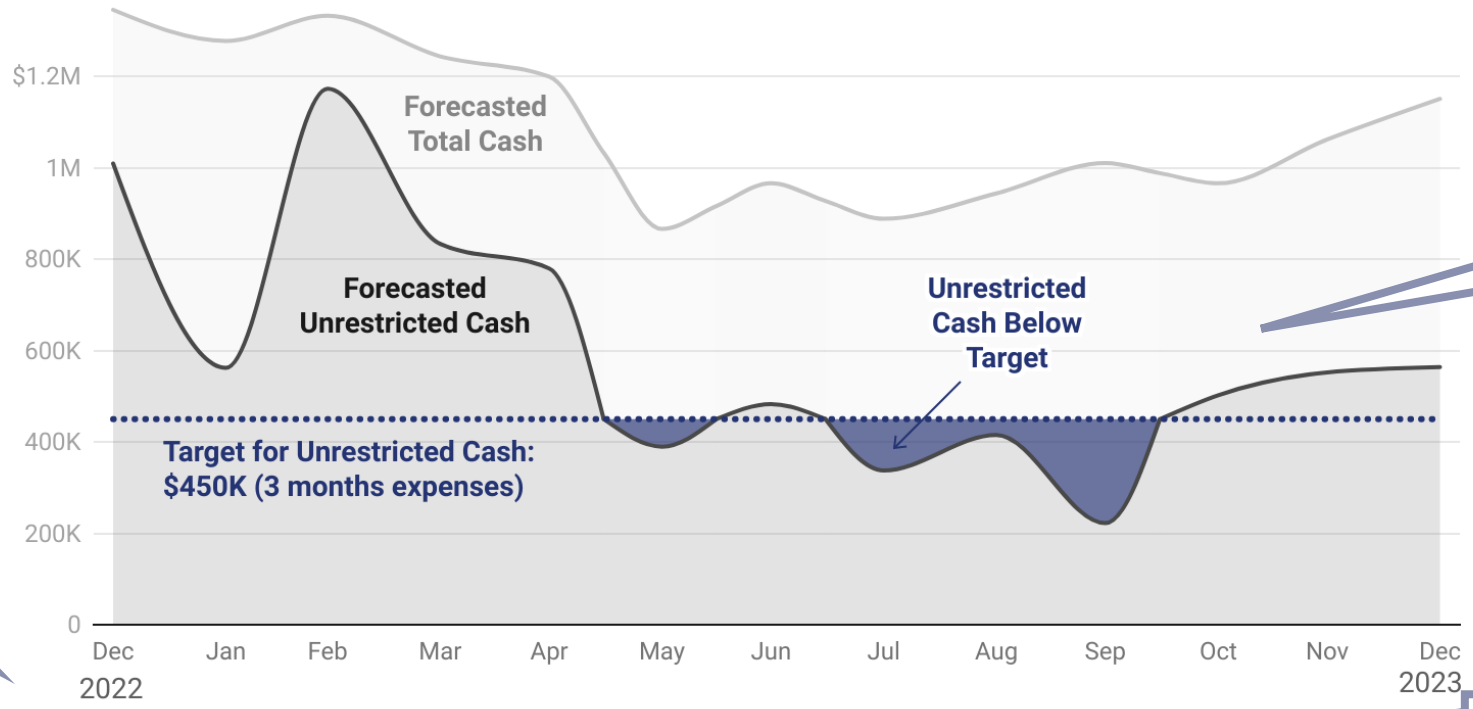
STATIC GRAPHICS: FIVE ESSENTIAL ELEMENTS

1. HEADLINE

New Revenue Required to Prevent Dip into Donor-Restricted Funds

2. INTERPRETATION

Our FY2023 cash forecast revealed that new revenues are needed to remain above our target minimum amount of $450K in unrestricted cash. Total cash is forecasted to remain above $800K throughout FY2023, and unrestricted cash is projected to recover to nearly $600K by year-end. However, **we are currently forecasted to be "under water" from May to October,** during which time we may be unable cover the cost of operations in the event of unexpected expenses or reduced revenues.



3. GRAPH

4. CREDIT

Chart: Staff Artist / YPTC • Source: Actual month-end balances from Sage to March 31st; Forecast month-ends balances from YPTC

5. SOURCE

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STATIC GRAPHICS: TWO OPTIONAL ELEMENTS

Service Fees Averaging Over $50K Per Month, Consistently Supplementing Contributions

Our income from service fees has been increasing since 2020 and now provides a reliable supplement to our income from contributions. We have earned as much as $71K in service fees in a single month, and **our monthly average for the last twelve months is $52K.** Our goal for this "12-month rolling average" is $60K by the end of 2023.

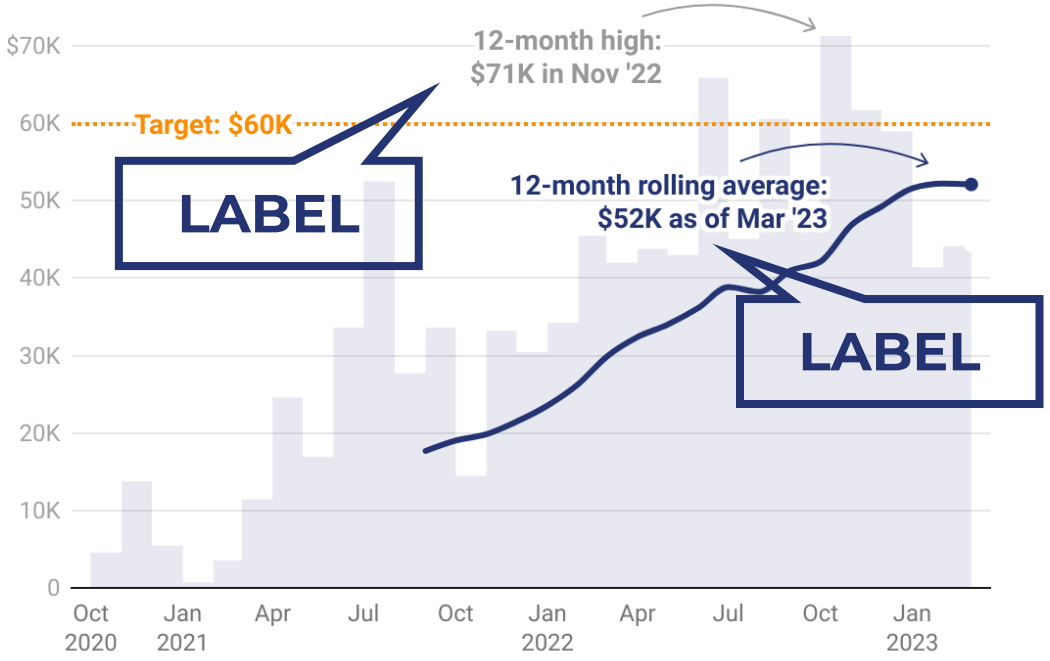

Chart: Staff Artist / YPTC • Source: Financial Edge

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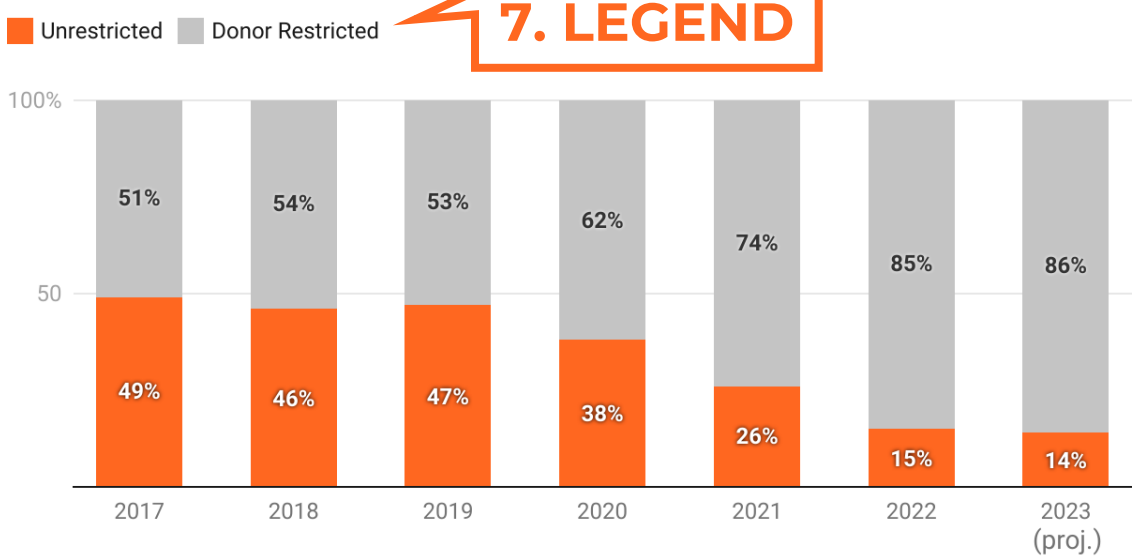

Accounting is also collaborating with program directors to optimize our allocation of overhead costs to programs.

Chart: Staff Artist / YPTC • Source: QuickBooks Online

6. NOTES

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Poll Question 2:

Which of the following statements is true about a dynamic graphic?

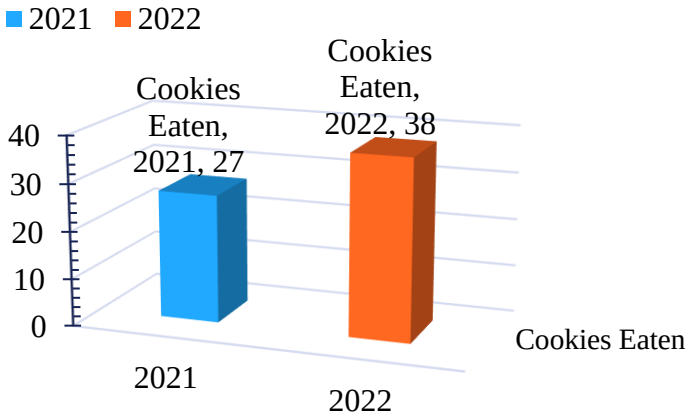
a. Minimizes reader effort
b. More open to interpretation
c. Sized for delivery
d. Tells a more specific story

Poll Question 2 Results: (Placeholder)

EVERY MARK HELPS OR HURTS

Dramatic Increase in Cookie Consumption

The count of cookies eaten increased dramatically from 2021 to 2022.



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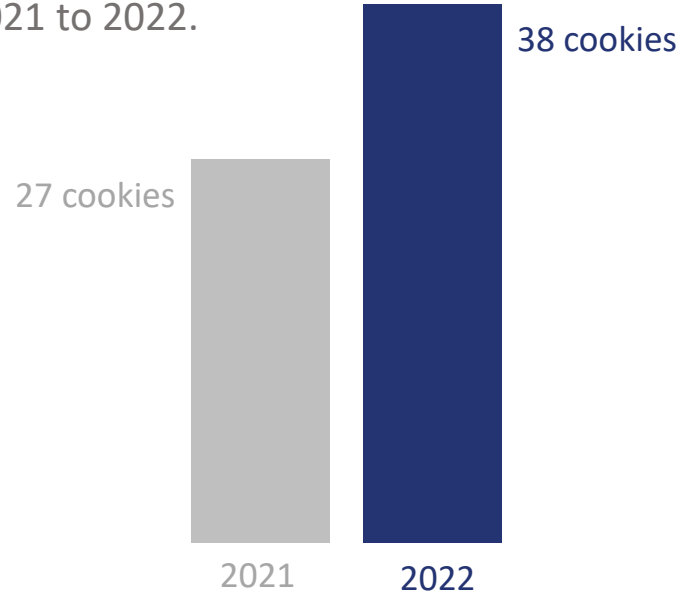

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EVERY MARK HELPS OR HURTS

DRAW MORE ATTENTION (should be MORE important)	DRAW LESS ATTENTION (should be less important)
Colorful	Grayscale
Bigger	Smaller
More saturated	Less saturated
bold *italicized*	standard
ALL CAPS	lower case

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TYPES OF CHARTS

and when to use each

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QUANTIFIABLE COMPARISON

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BAR & COLUMN CHARTS: COMPARING CATEGORIES

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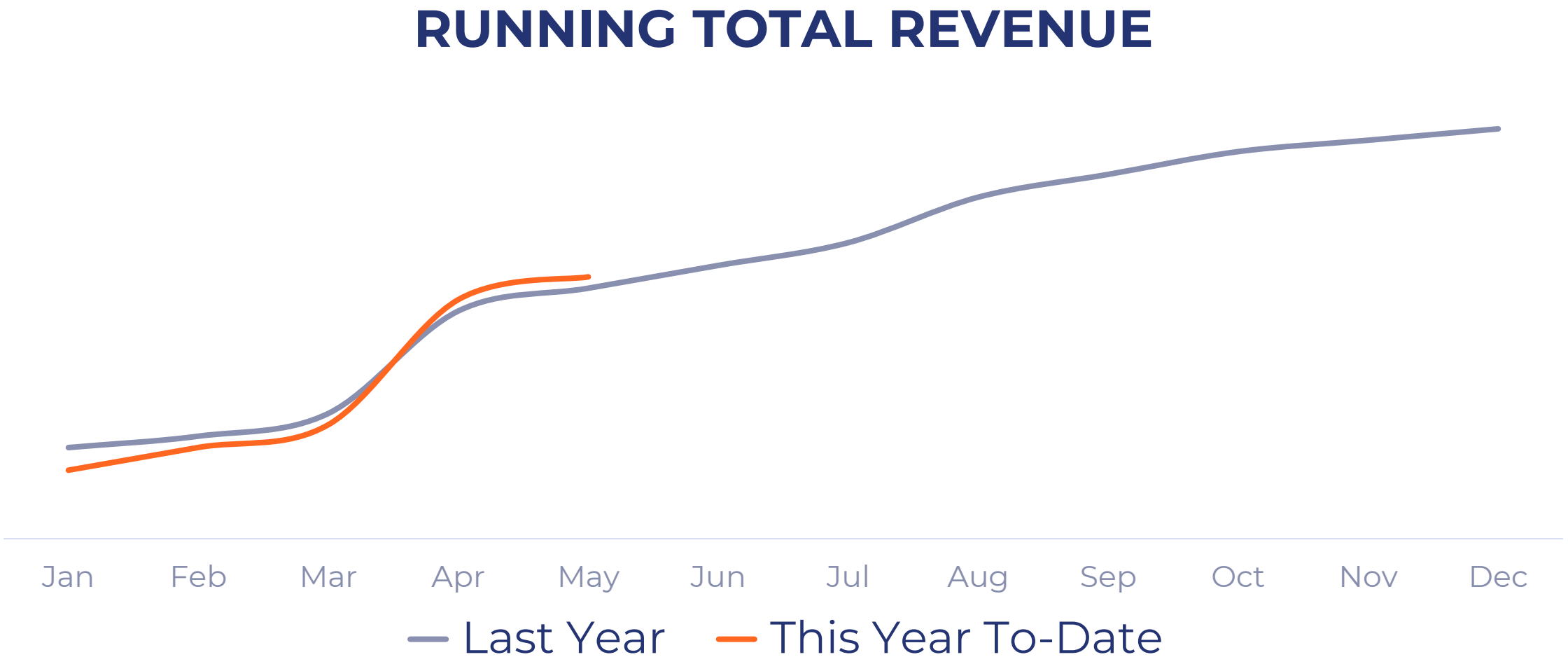
LINE CHARTS: PATTERNS, TRENDS, CHANGE



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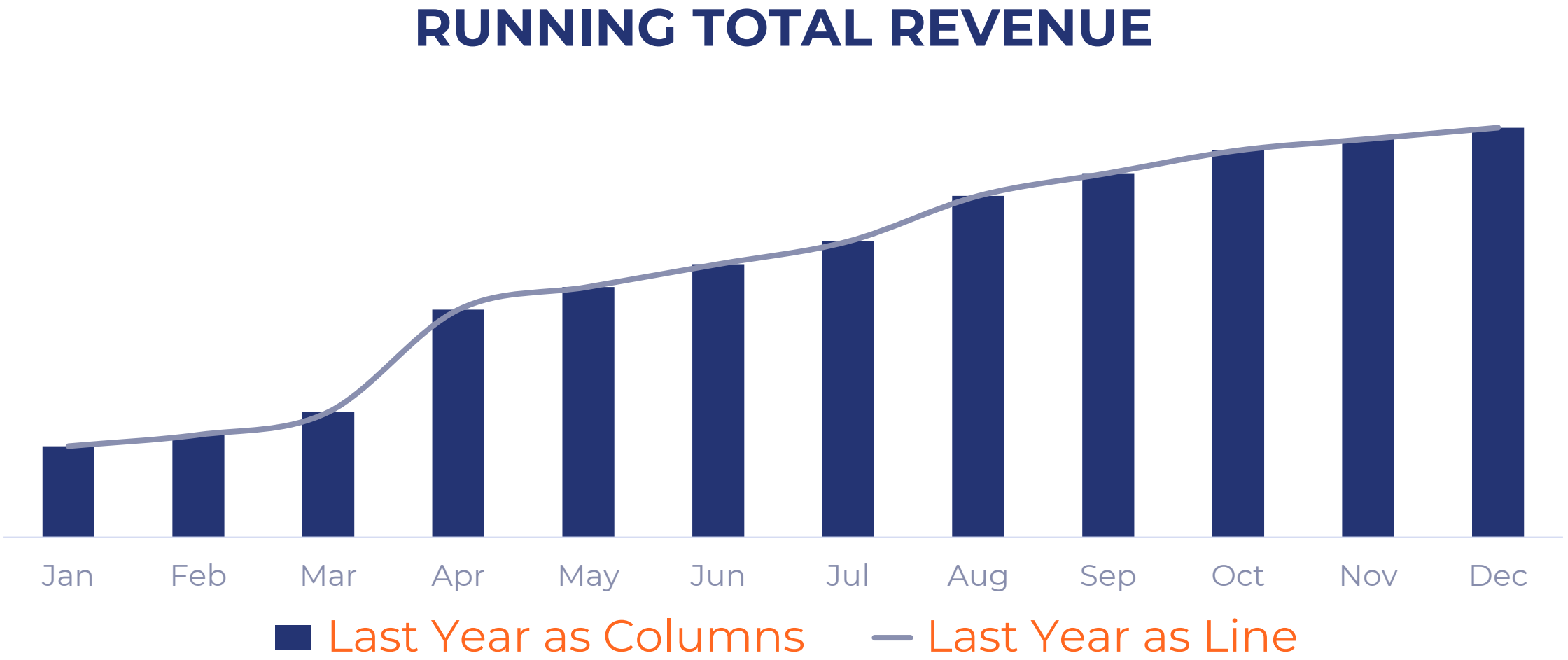
LINE CHARTS: PATTERNS, TRENDS, CHANGE



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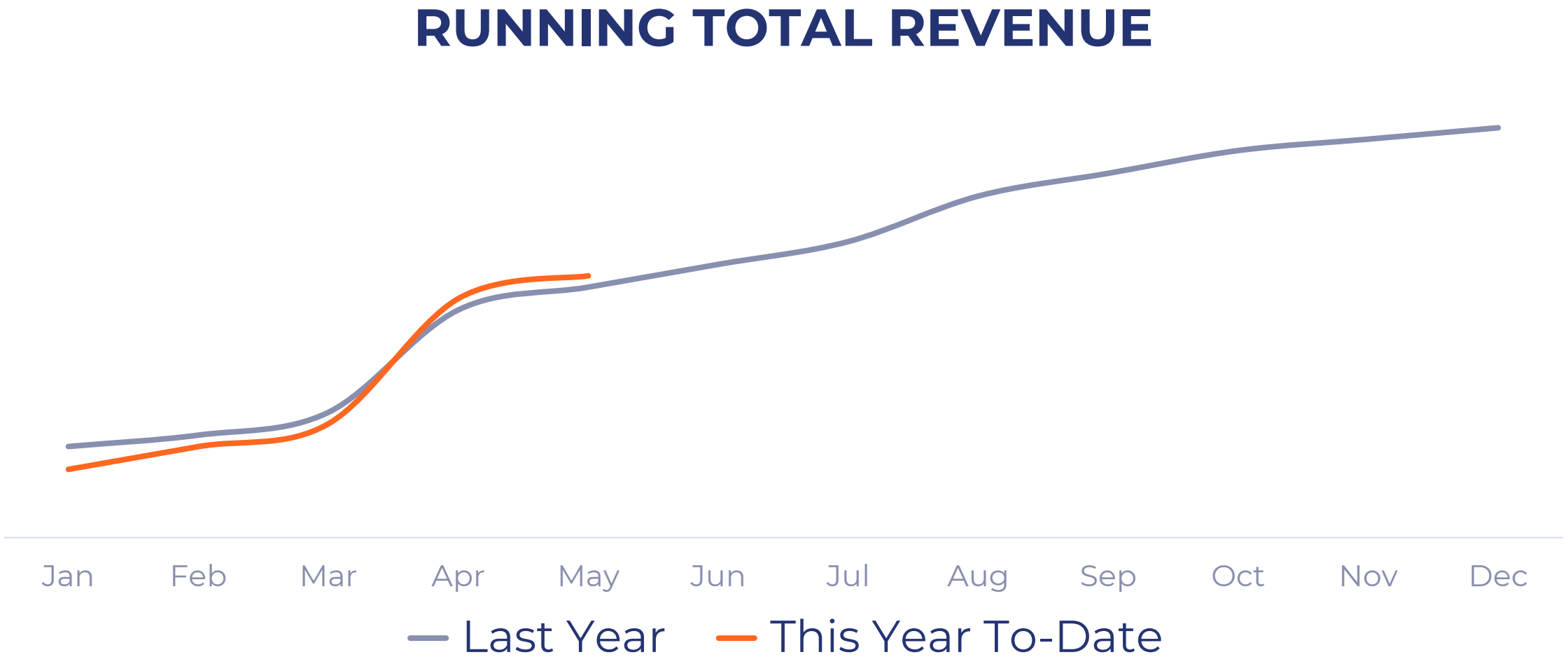
LINE CHARTS: PATTERNS, TRENDS, CHANGE



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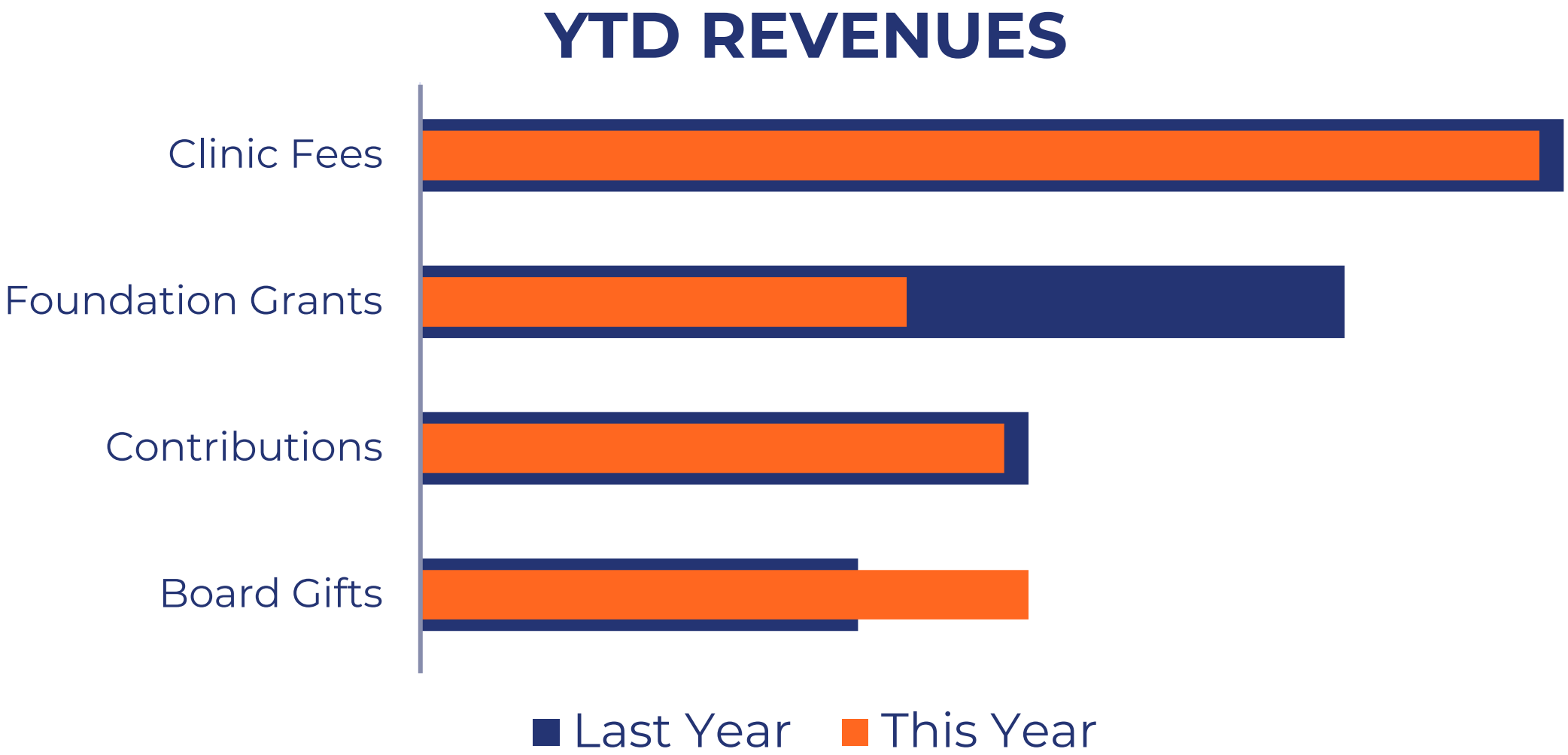
MORE BARS: GROUPED, OVERLAPPING, THERMOMETER



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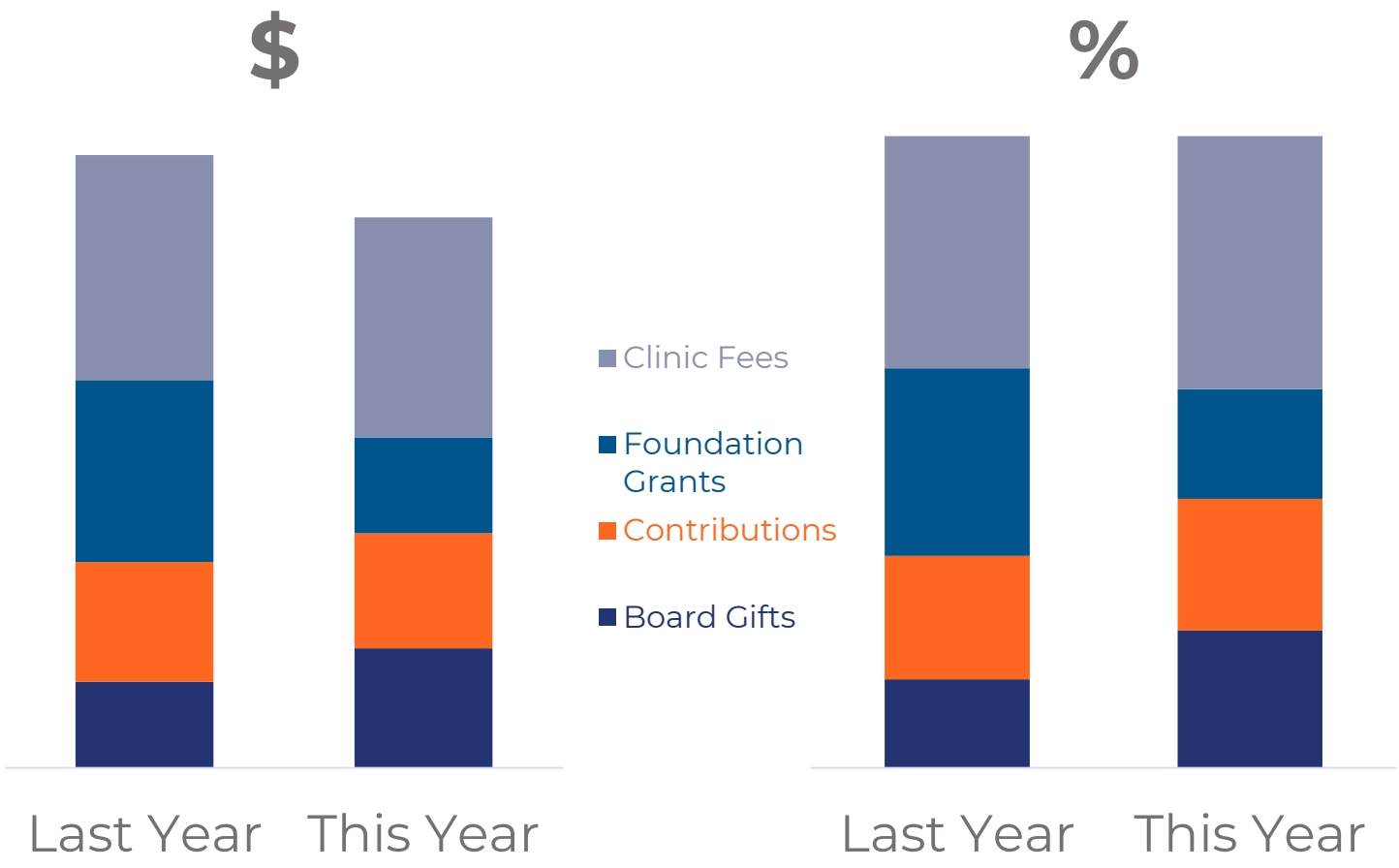
MORE BARS: STACKED AND 100% STACKED



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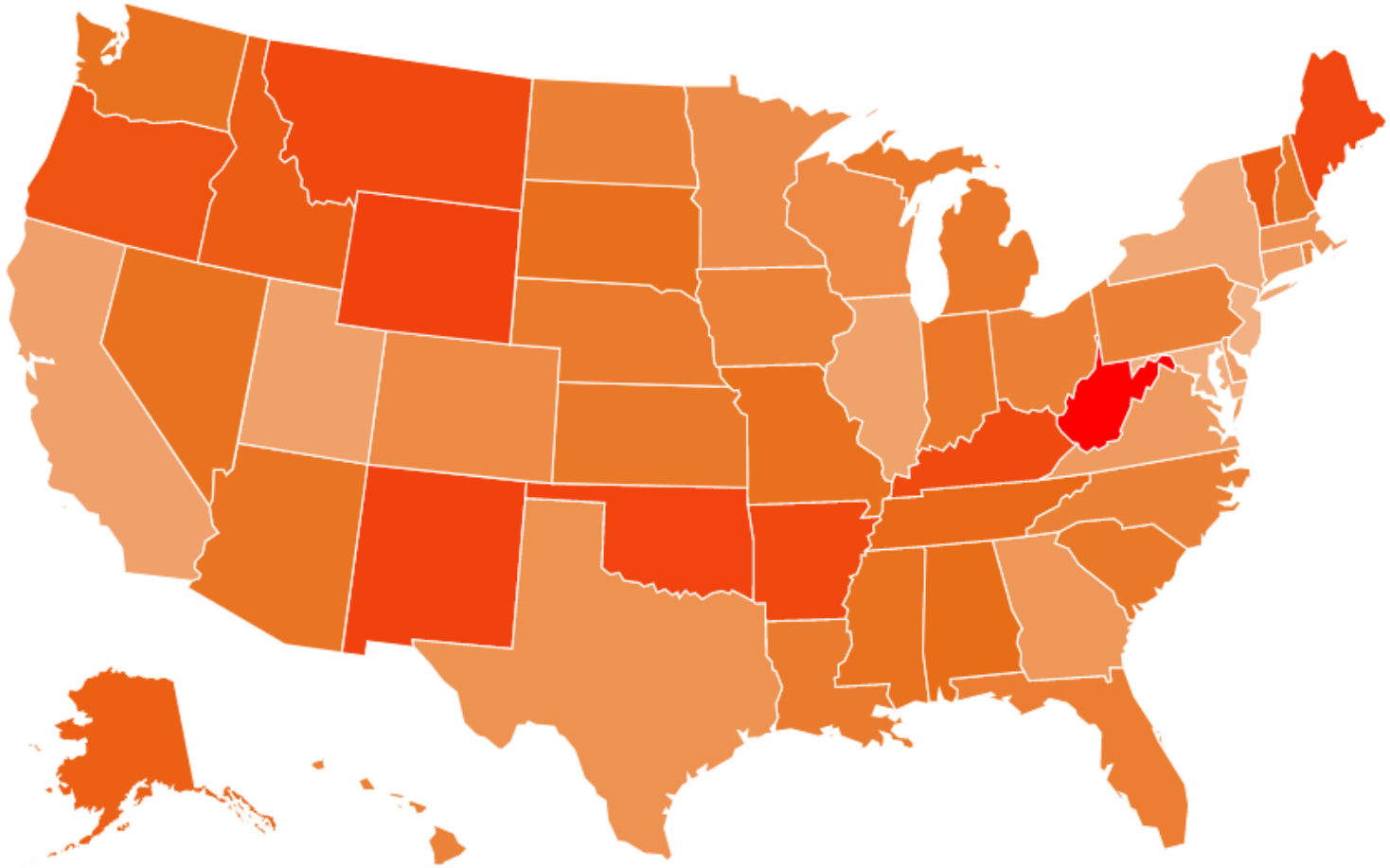
Poll Question 3:

Which of the following is an optional element of an effective static graphic?

a. Credit
b. Legend
c. Interpretation
d. Graph

Poll Question 3 Results: (Placeholder)

MORE BARS: HEAT MAPS AND CHOROPLETHS



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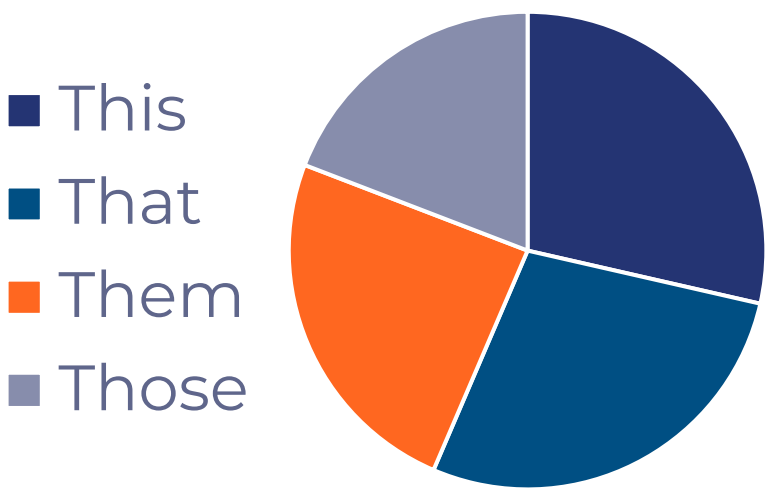
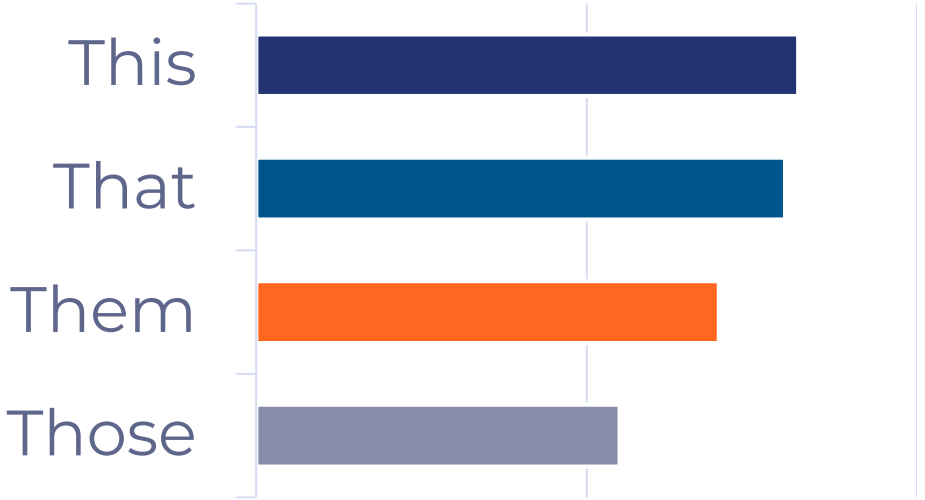
MORE BARS: SAVE THE PIE FOR DESSERT?





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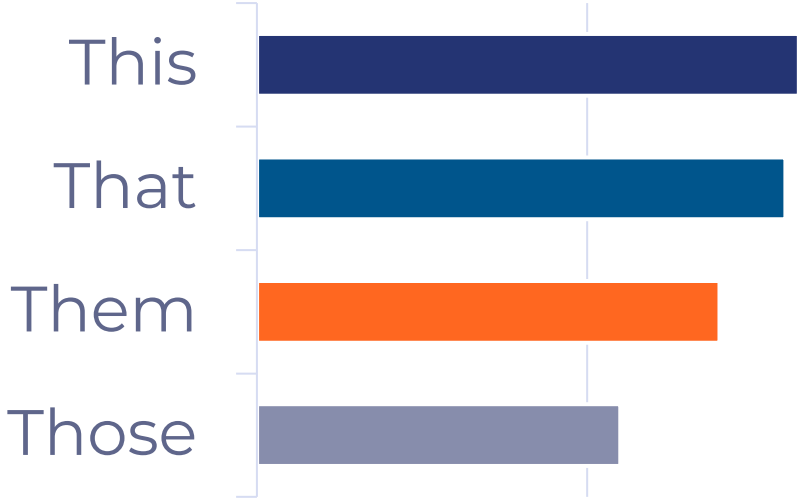

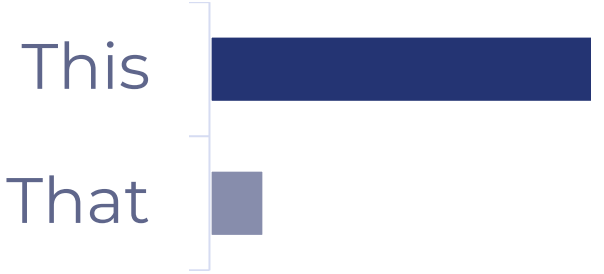

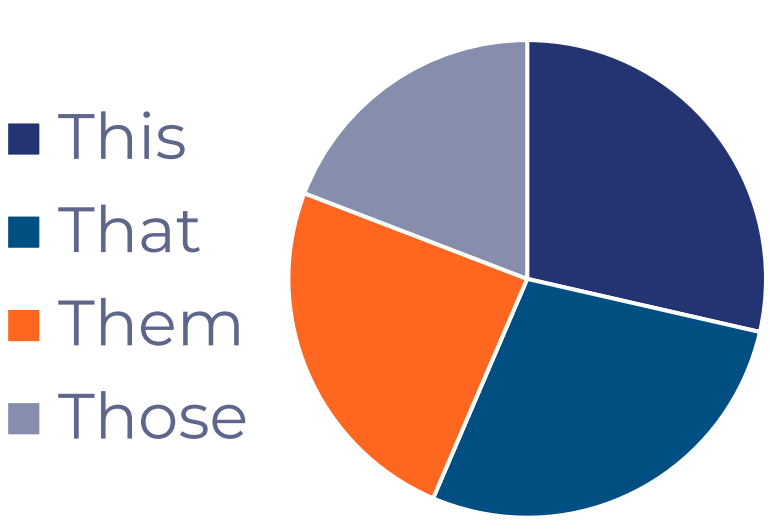

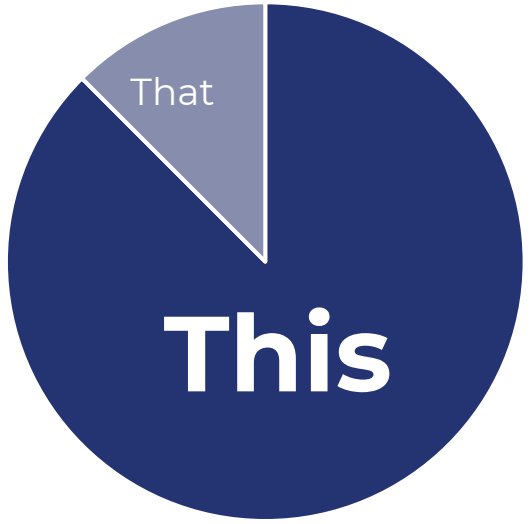

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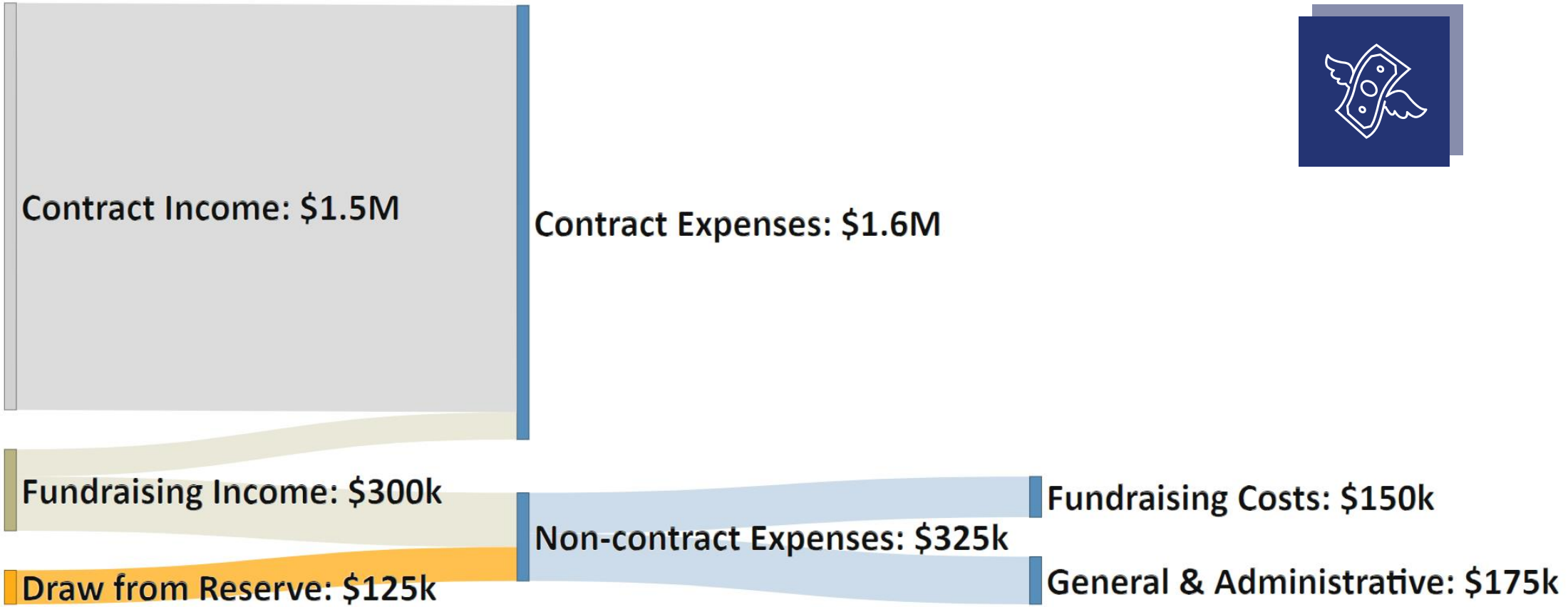
FLOW CHARTS: WHERE DO THE DOLLARS GO?



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3

CASE STUDIES

that illustrate data visualization storytelling

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CASE STUDY #1: MEMBERSHIP ASSOCIATION OVERHEAD

Total Revenue is Trending Up...

The success of our programs has been rewarded with increasing support from funders. As shown below, our total annual revenue has increased from $1.5M in 2017 to nearly $2M in 2022. **We are currently projected to earn $2.11M in 2023!**

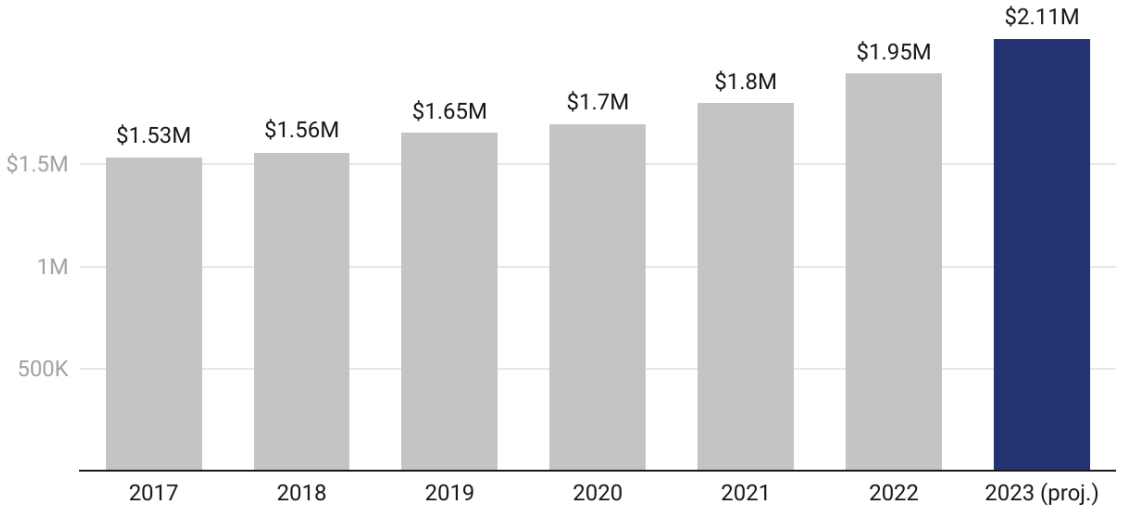

Chart: Staff Artist / YPTC • Source: QuickBooks Online

...But *Unrestricted* Revenue Isn't Keeping Pace

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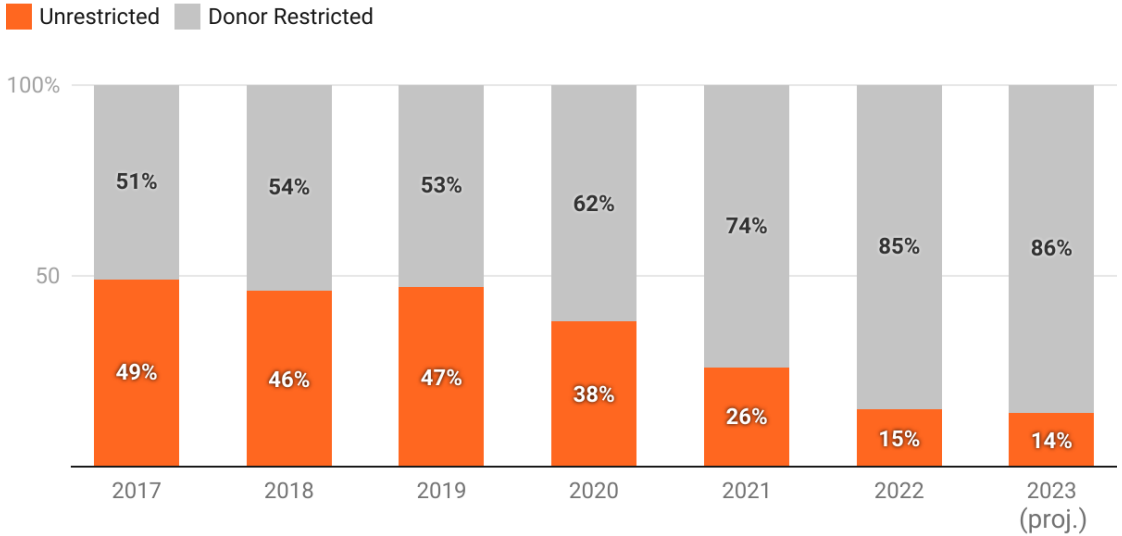

Accounting is also collaborating with program directors to optimize our allocation of overhead costs to programs.

Chart: Staff Artist / YPTC • Source: QuickBooks Online

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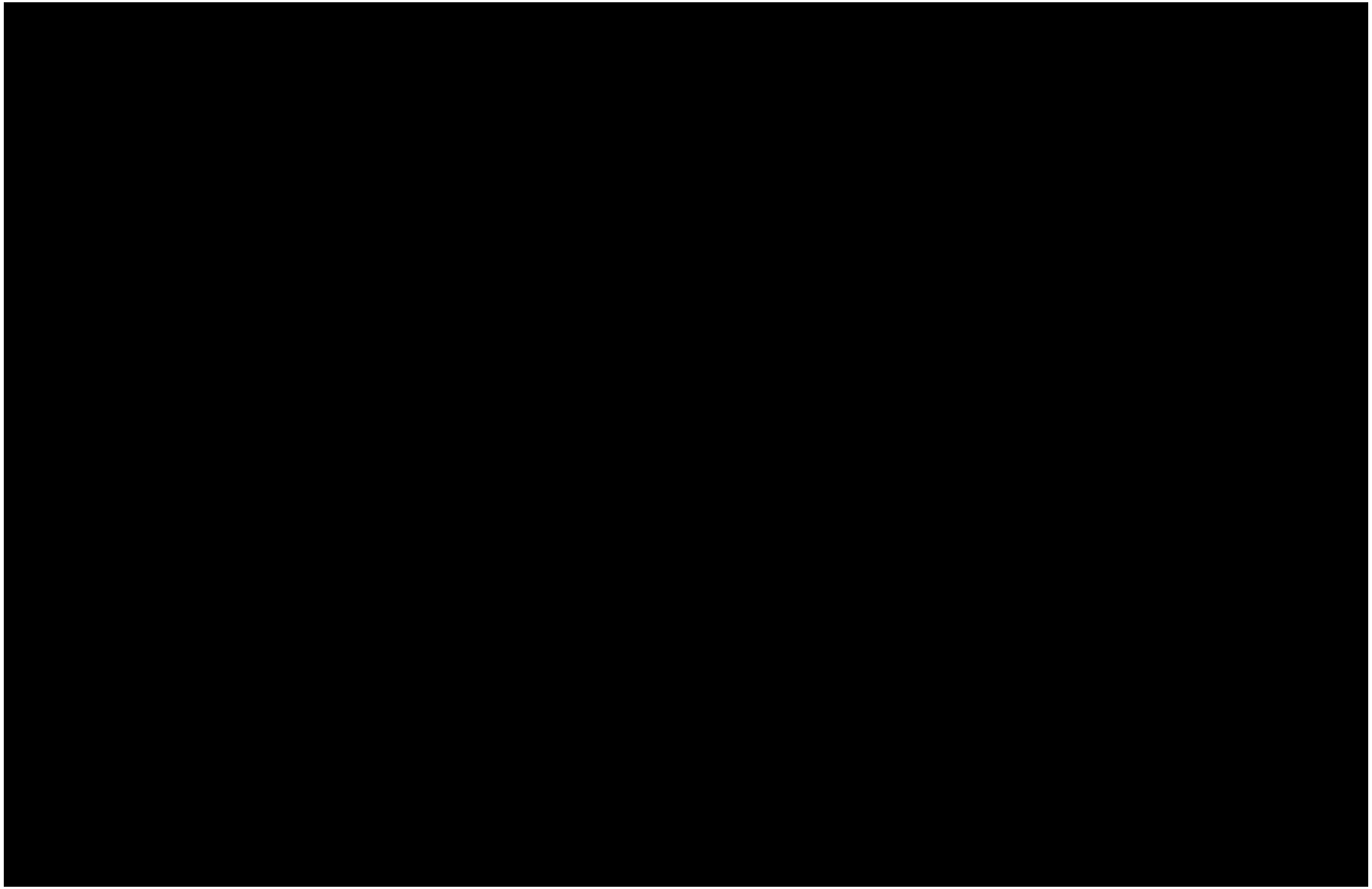
CASE STUDY #2: SELF-SERVICE ANALYTICS



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CASE STUDY #3: DIVERSIFYING REVENUE

Service Fees Increasing, Complementing Grants as Steady Revenue

Program service fees have gradually increased since 2020, adding a steady stream of revenue that can reduce our reliance on widely fluctuating grant revenues. As shown below, we recently collected as much as **$66K in fees in a single month**, nearly as much as our lowest recent month for grants ($75K).

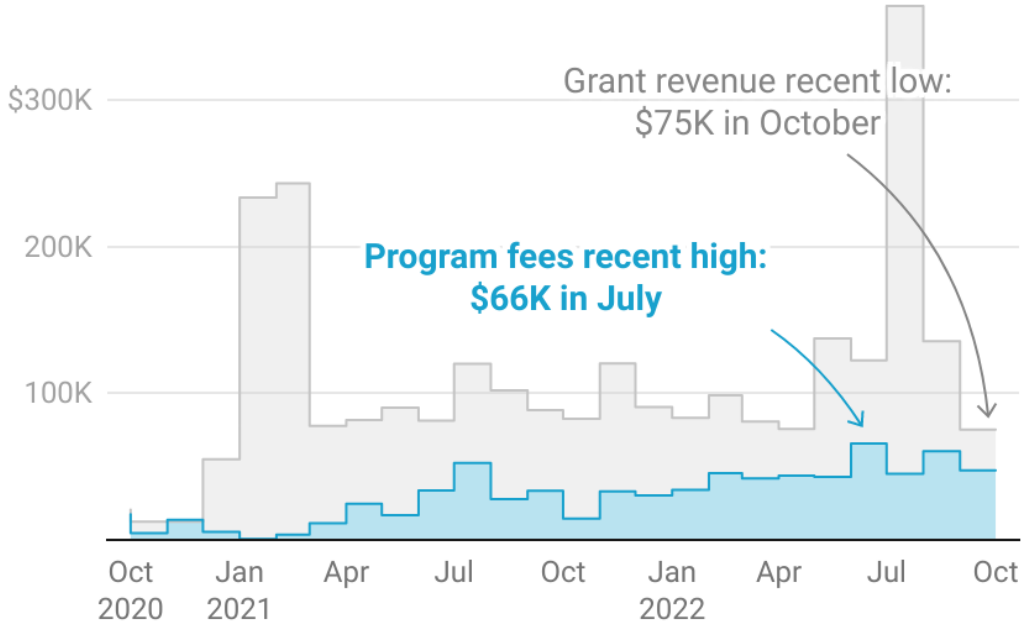

Chart: Staff Artist / YPTC • Source: Financial Edge

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Poll Question 4:

A heatmap (also referred to as a choropleth) is basically just a _____ where the category axis is presented as a map, and the magnitudes are presented as degrees of intensity.

a. Line Chart
b. Pie Chart
c. Bar Chart
d. Flow Chart

Poll Question 4 Results: (Placeholder)

CASE STUDY #3: DIVERSIFYING REVENUE

Service Fees Increasing, Complementing Grants as Steady Revenue

Program service fees have gradually increased since 2020, adding a steady stream of revenue that can reduce our reliance on widely fluctuating grant revenues. As shown below, we recently collected as much as **$66K in fees in a single month**, nearly as much as our lowest recent month for grants ($75K).

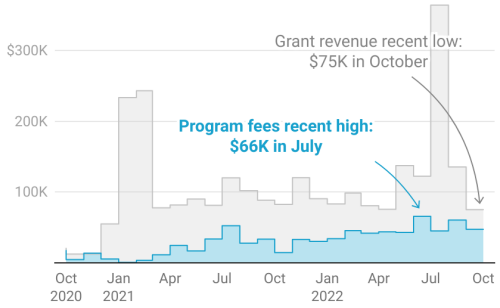

Chart: Staff Artist / YPTC • Source: Financial Edge

Service Fees Averaging Over $50K Per Month, Consistently Supplementing Contributions

Our income from service fees has been increasing since 2020 and now provides a reliable supplement to our income from contributions. We have earned as much as $71K in service fees in a single month, and **our monthly average for the last twelve months is $52K.** Our goal for this "12-month rolling average" is $60K by the end of 2023.

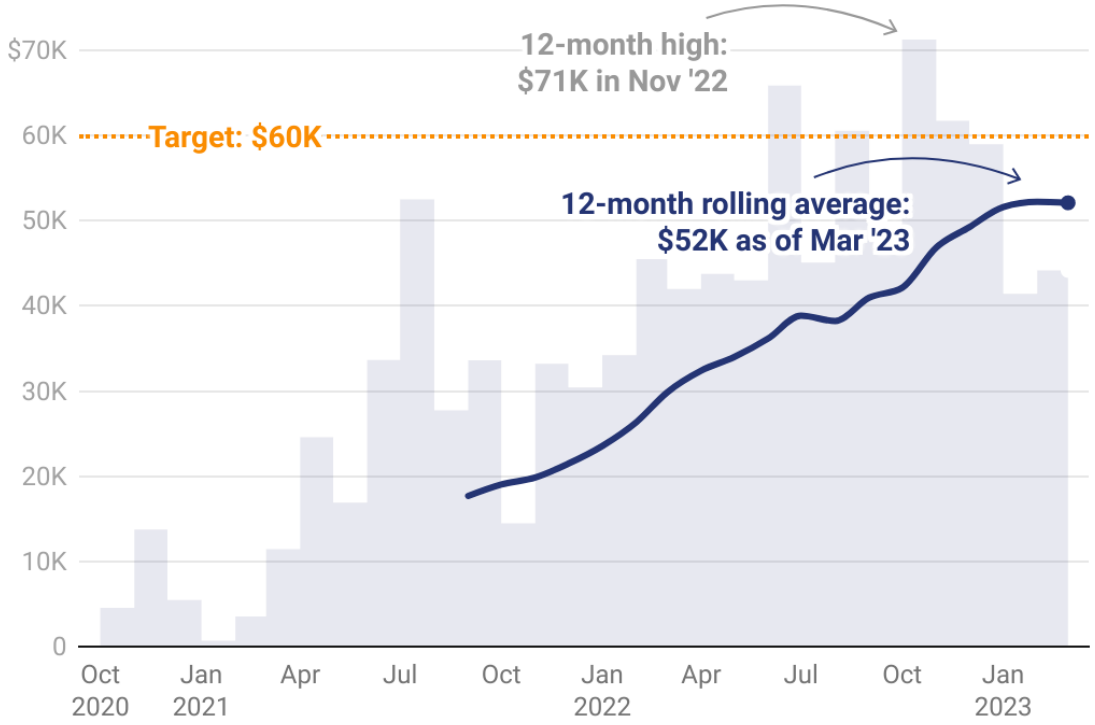

Chart: Staff Artist / YPTC • Source: Financial Edge

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MASTER THE ART OF CHARTS

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ASK: What's the story, and who's the audience?

CHOOSE: Static graphics to tell stories explicitly, or dynamic graphics to enable self-service analytics?

KNOW: Common chart types and what they emphasize.

CONSIDER: For any chart you see, what story is it supposed to tell, and how could you improve it?

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Questions and Answers

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Thank you!

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