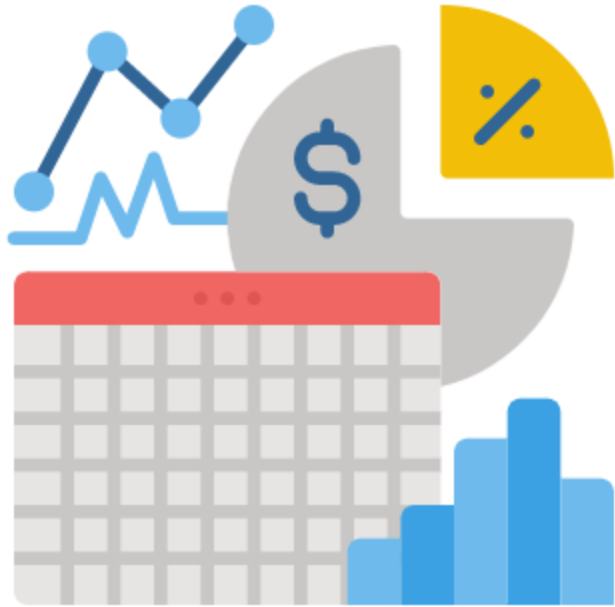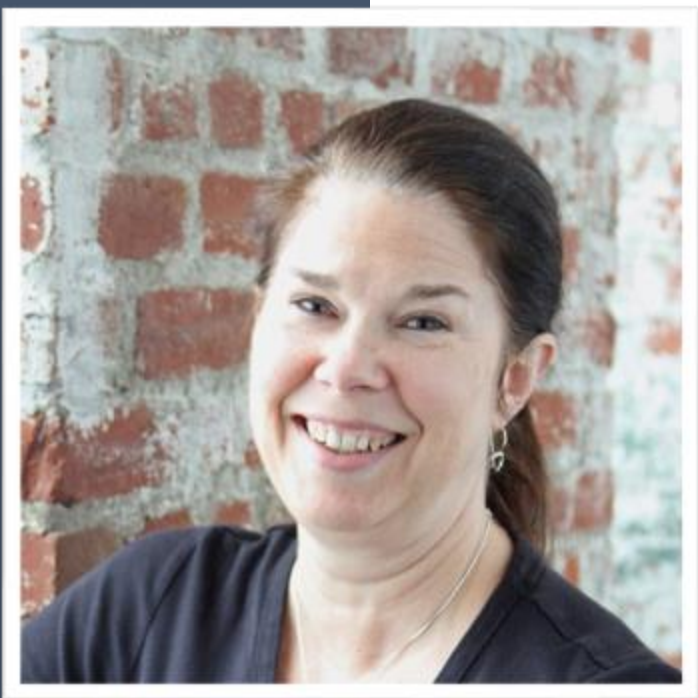# Building a Visualization Dashboard

LEE BRODERICK

Senior Consultant/Project Manager

Pronouns: She/Her

I work with non-profit organizations to improve their use of data, define data requirements and develop strategic technology plans. I am skilled in Salesforce admin and development and in Data Exploration, helping partners to better articulate their outcomes through the use of data visualization tools such as Power BI.

I'm addicted to travel, passionate about food (both eating and cooking) and a wanna-be artist (watercolor painting and found object jewelry).

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Agenda

Creation Process
- Defining the Dashboard
- Collecting the Data
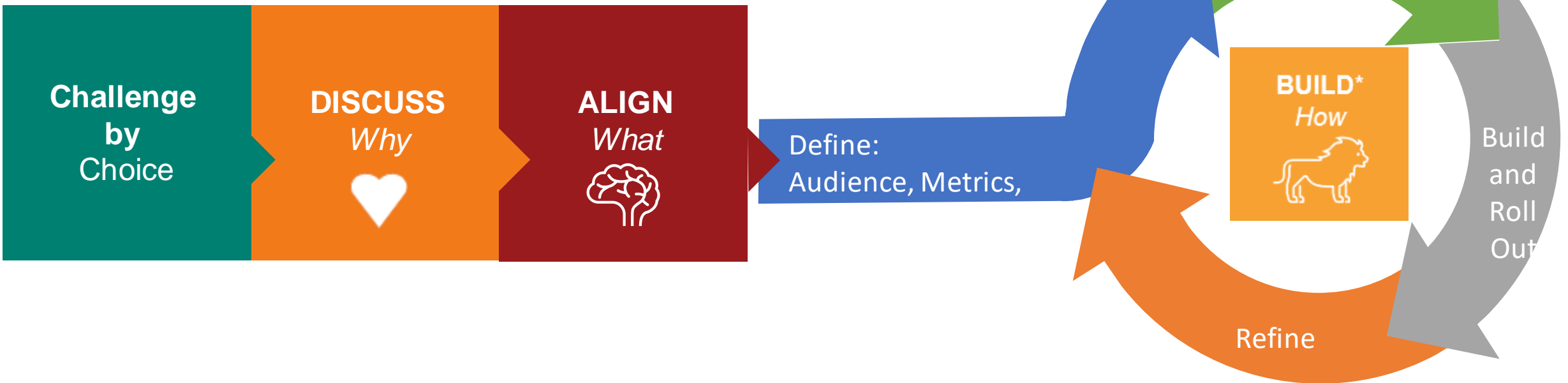- Building the Storyboard
- Examples

Do you have?

- Paper and pen
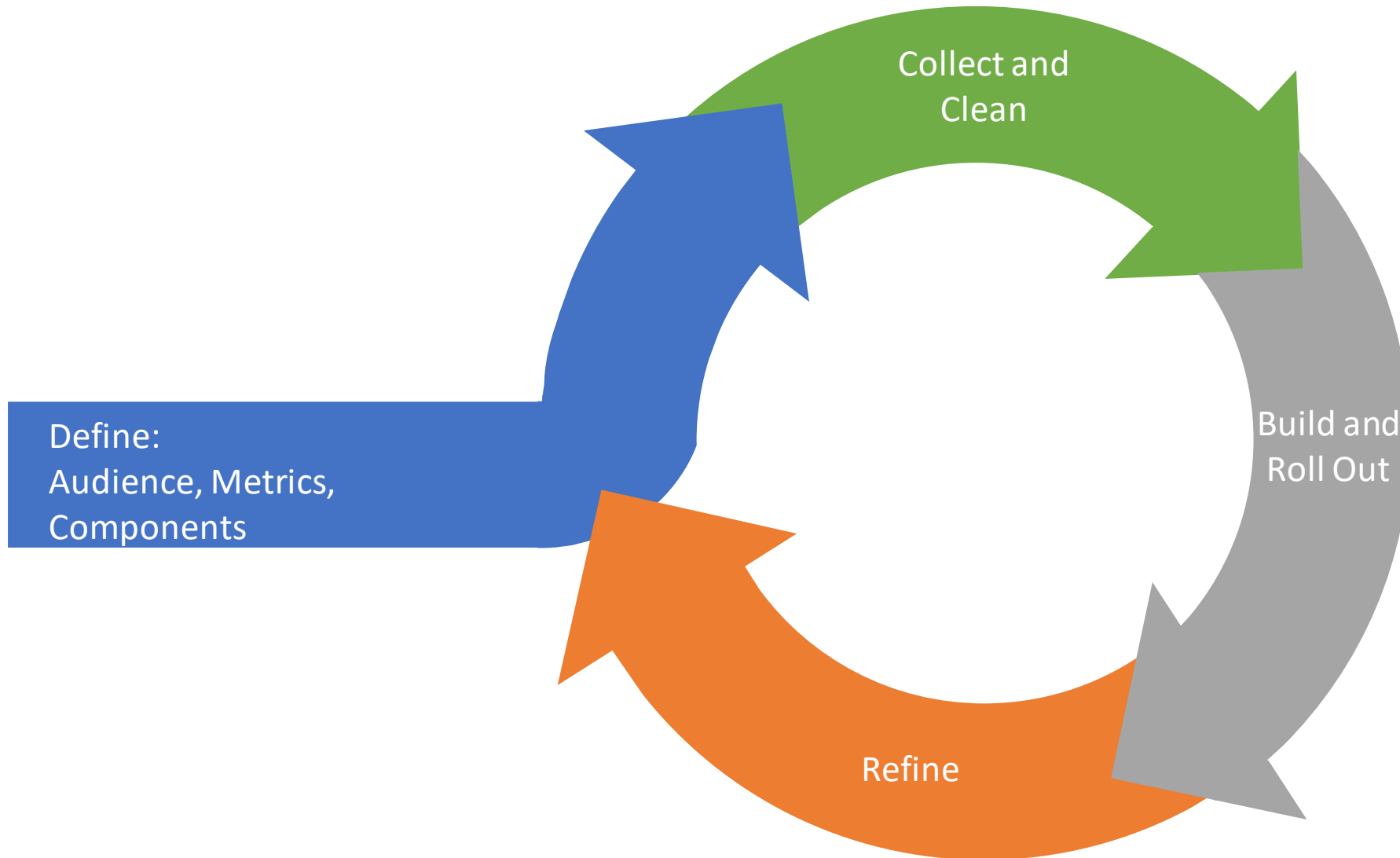
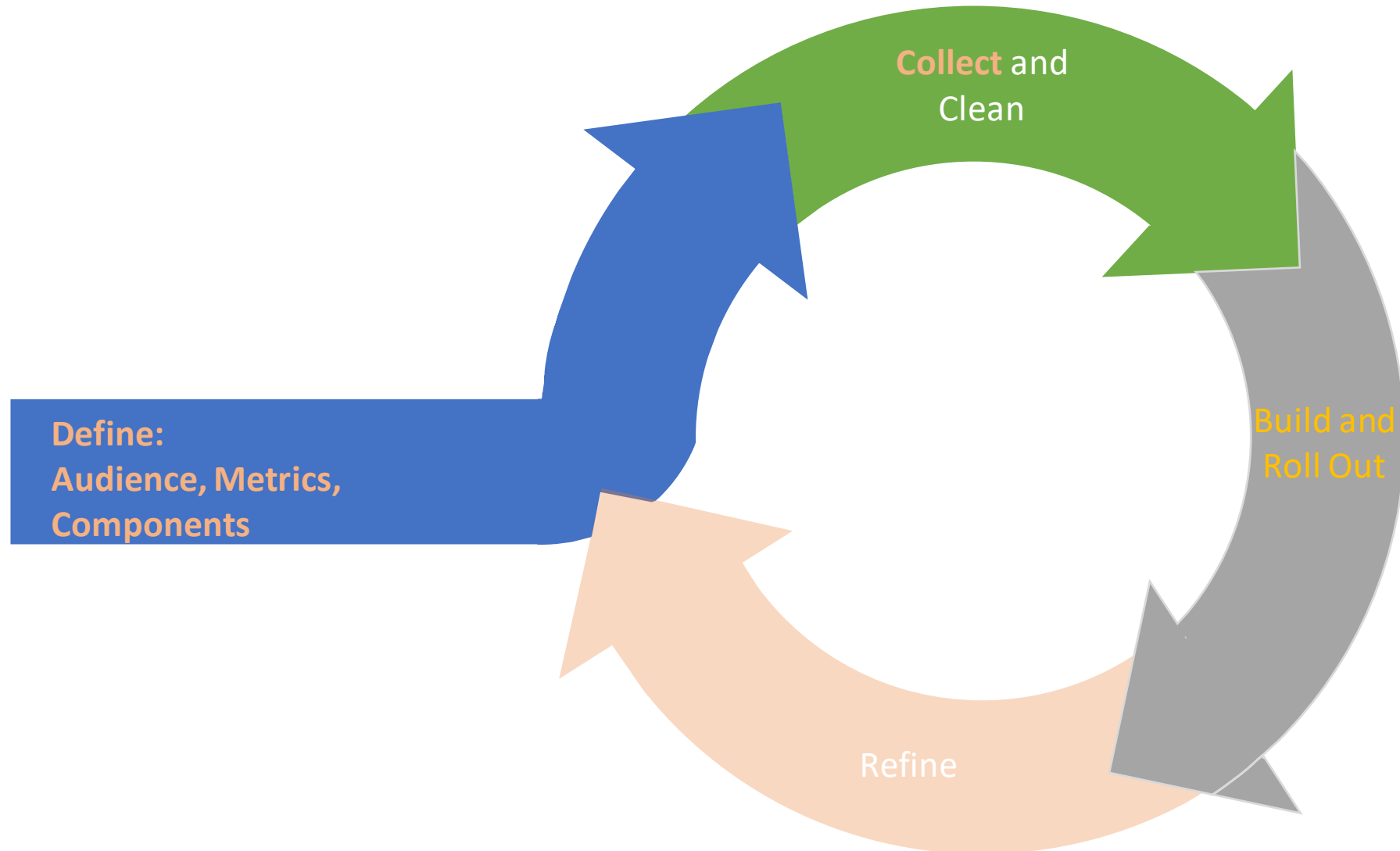- Idea of a simple dashboard you want to create

Dashboard Creation Process

NEFE Workshop – How Dashboards Changed Our Organization

Dashboard Creation Process

Dashboard Creation Process

What is a Dashboard?

- According to Wikipedia: "A dashboard is a type of graphical user interface which often provides at-a-glance views of key performance indicators (KPIs) relevant to a particular objective or business process. In other usage, "dashboard" is another name for "progress report" or "report."

What's the purpose of a Dashboard?
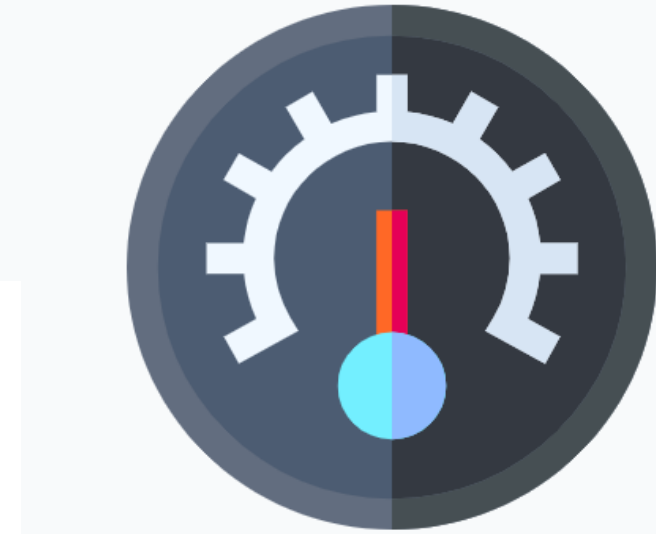
It's not all a display of all the info available for everyone!

Dashboards for Nonprofits

Dashboards (or Data Visualizations) help to:

- Evaluate the efficacy of your work

- Identify both areas of success and improvement with a single glance

- Be strategic, targeting efforts towards times/places/populations where they are likely to have the greatest impact

- Telling people about your work effectively and compellingly
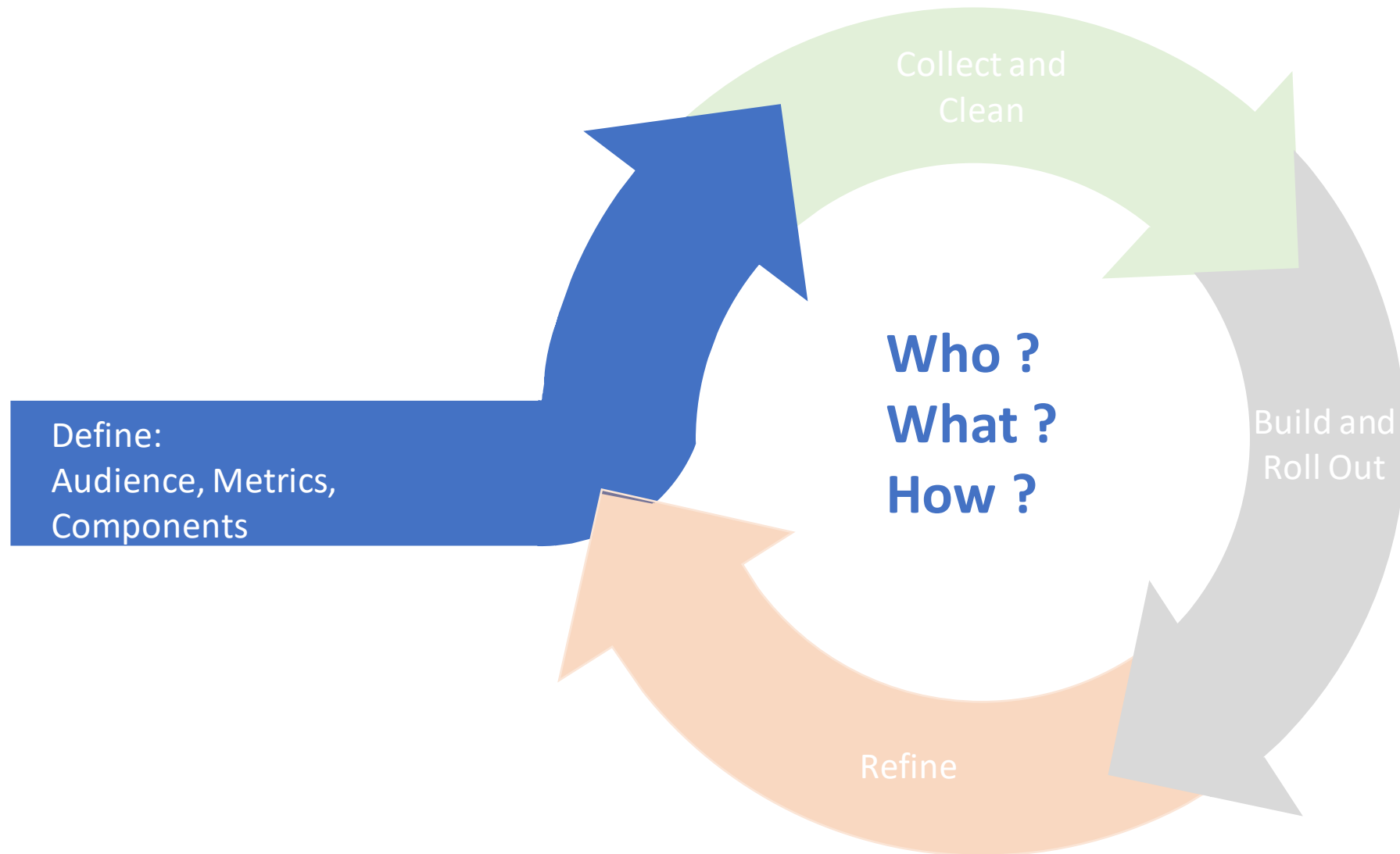
Other Benefits

Automate painful data operations

Make Data Accessible

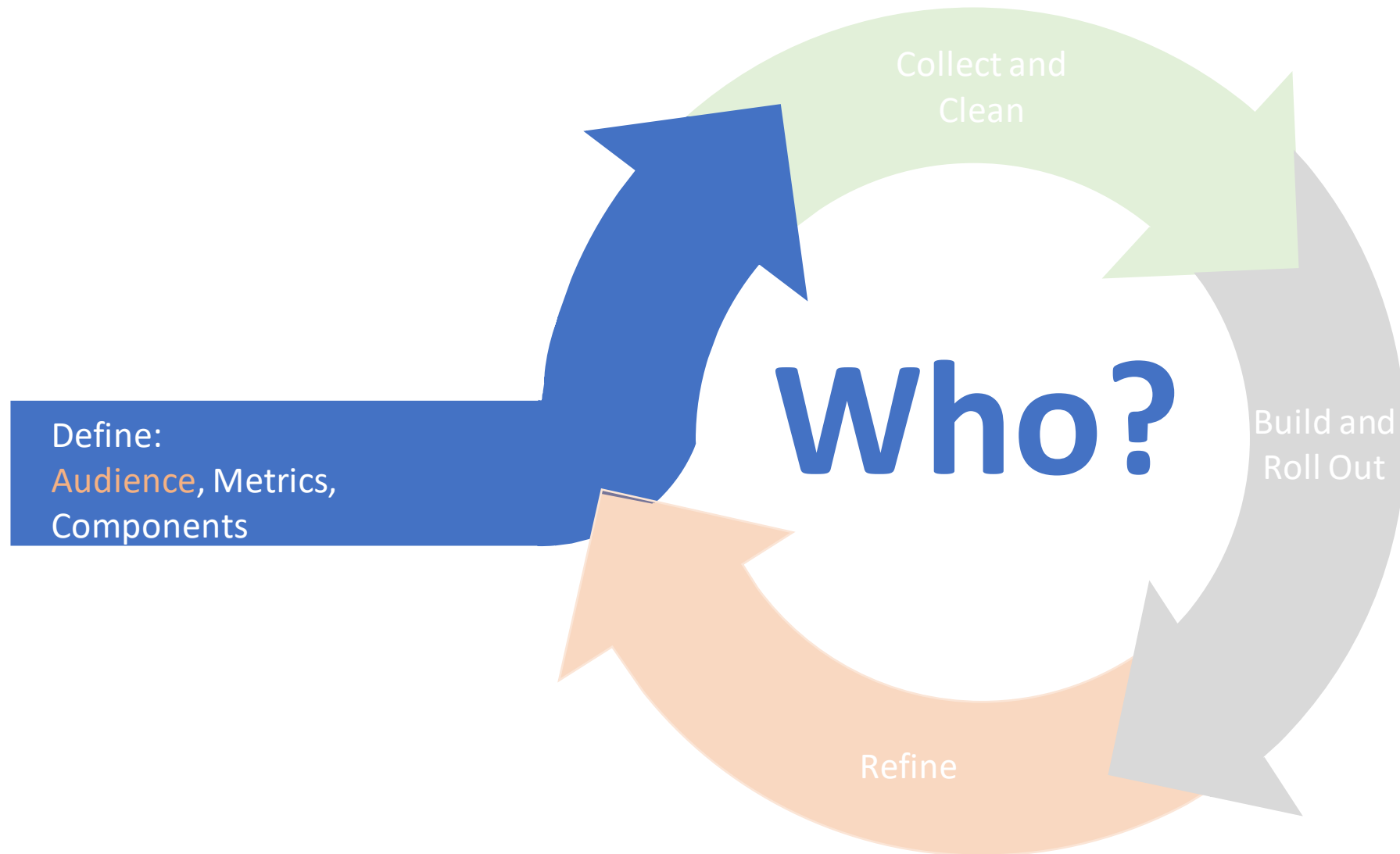Promote Cultural Change through Visibility

Extend the reporting capacity of database tools

Make Data interesting and beautiful

Dashboard Definition

Collect and Clean

Build and Roll Out

Refine

Define:
Audience, Metrics, Components

Who ?
What ?
How ?

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Dashboard Definition

Who?

Collect and Clean

Build and Roll Out

Refine

Define:
Audience, Metrics, Components
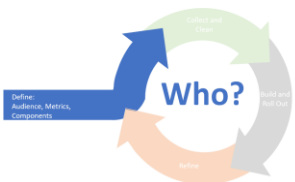
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Types of Dashboards – Different Audience

- Operational – Provides metrics the audience can impact

- Informative – Supports the message or mission of your organization & increases awareness.
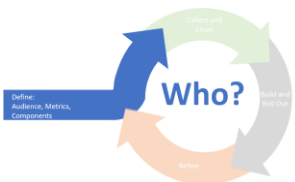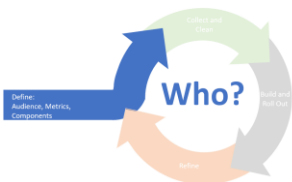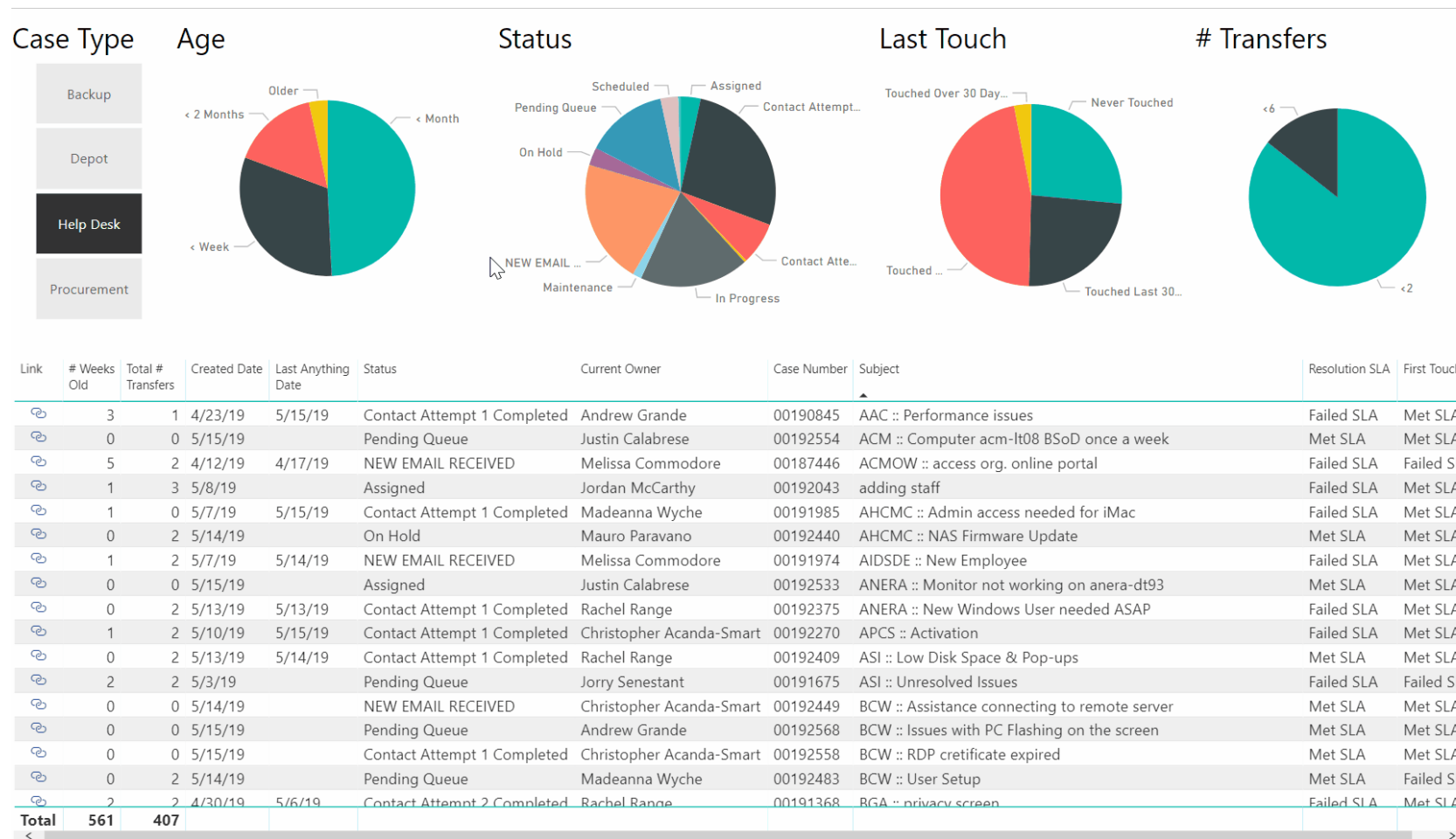
Types of Dashboards – Different Audience

- Operational – Provides metrics the audience can impact

  - Operational Staff ──→ Programs Management
  - Executive Team ──→ Development
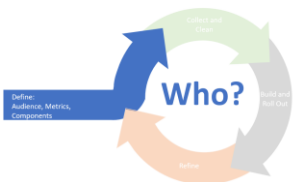 ──→ Marketing

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Types of Dashboards – Different Audience

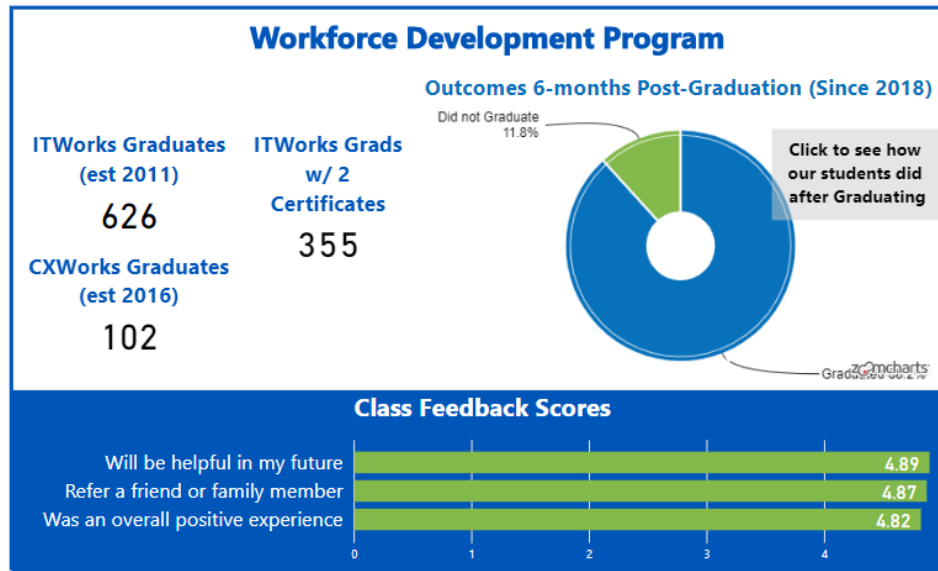- Operational – Provides metrics the audience can impact

Types of Dashboards – Different Audience

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Types of Dashboards – Different Audience

- Operational – Provides metrics the audience can impact

- Informative – Supports the message or mission of your organization & increases awareness.

  - Board Members
  - Potential Funders/Donors
  - Public
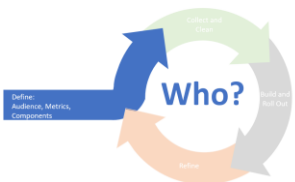
Types of Dashboards – Different Audience

- Informative – Supports the message or mission of your organization & increases awareness.

First Question!

Who are you designing this dashboard for?

Who?
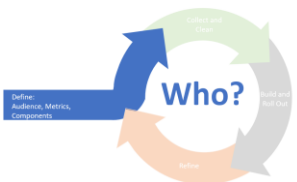
Creating a Storyboard

Who ──────────→ Audience: *Programs – Operational*

Identify the audience (and leave room for 3 lines in the block).

Dashboard Definition

Key Performance Indicators
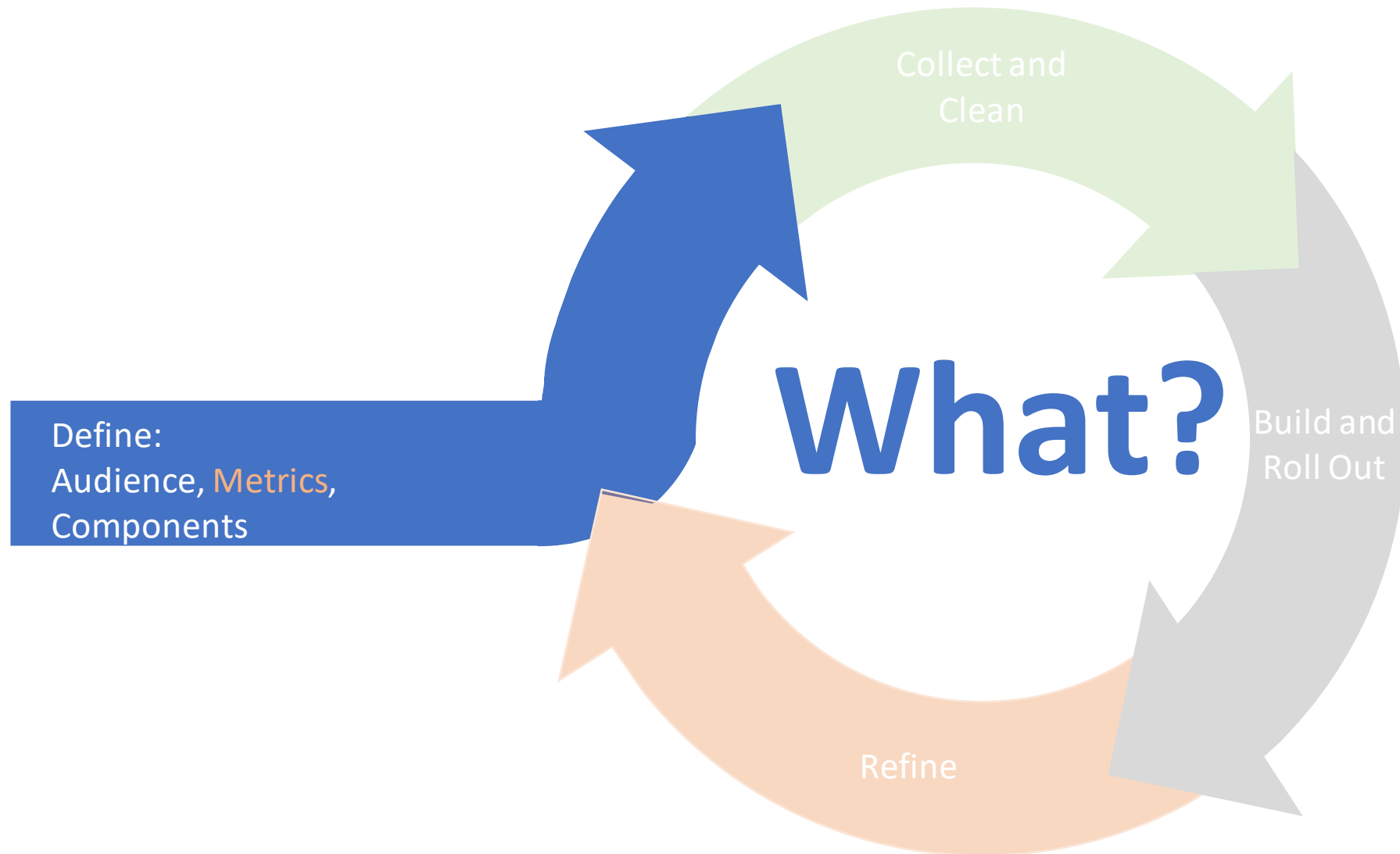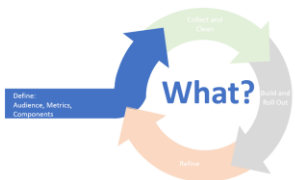
KPIs measure the degree of success of an activity or department or organization
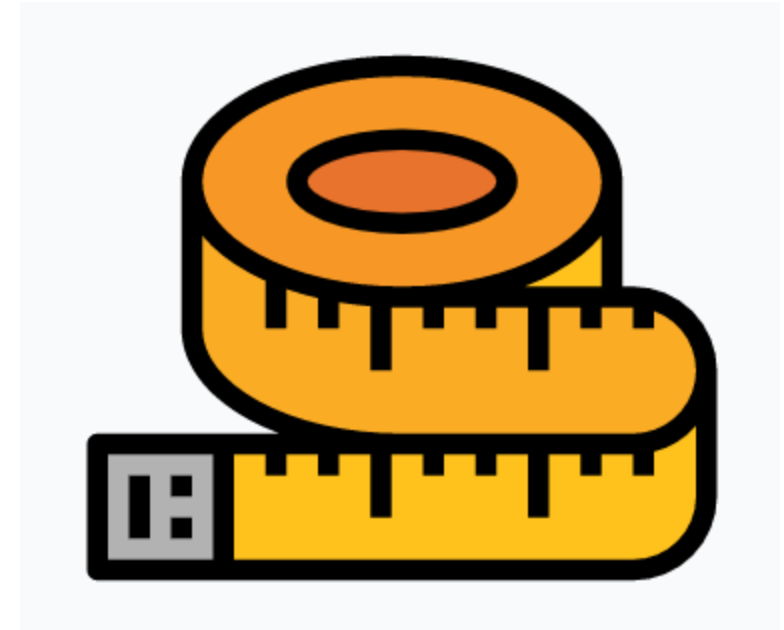
Operational – What data is most useful to staff?

- Convene staff members and talk about their needs.

- Is there specific measurements they're interested in?

- Are there fundings reports that take a lot of resources to compile?

- Do they already report on this information somewhere else?

- Is it important to filter the data? (by date, program, geography)
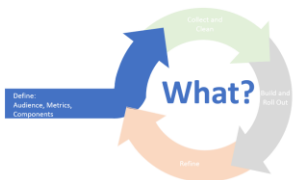
Operational – What data is most useful to staff?

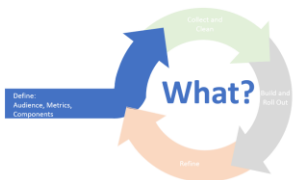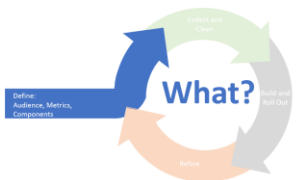| Program Management	Development	Marketing
# of Open Cases	# of New Major Donors	Website hits
# of Clients Served	Year to Year Growth in Donations	Newsletter subscribers
% of Follow up Phone calls with a time frame	% of Board Members who give	Advocacy presentations over a period of time

Informative – What do you want to communicate?

- Convene key stakeholders and discuss key messages.
- Is there a specific measurement or value that conveys the message?
- How dynamic is this data? How often should the dashboard be updated?
- Where does this information reside?
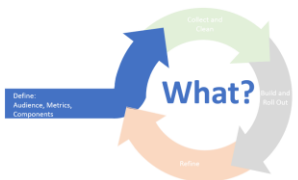- Is it important to filter the data? (by date, program, etc.)
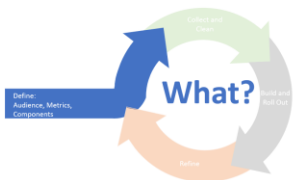
Informative – What do you want to communicate?

- Board Participation & Composition
- Volunteer Giving
- Volunteer Hours
- Program Goals Met
- Overhead %
- Cash on Hand

Second Question!

- What do you want to communicate?

Pulling it all together into a Storyboard

Who

What

Audience: Programs - Operational
Purpose: *Evaluate Adoptions*
Key Metrics: *Adoptions by animal type, Avg time in shelter by type, intake reasons, outcomes*
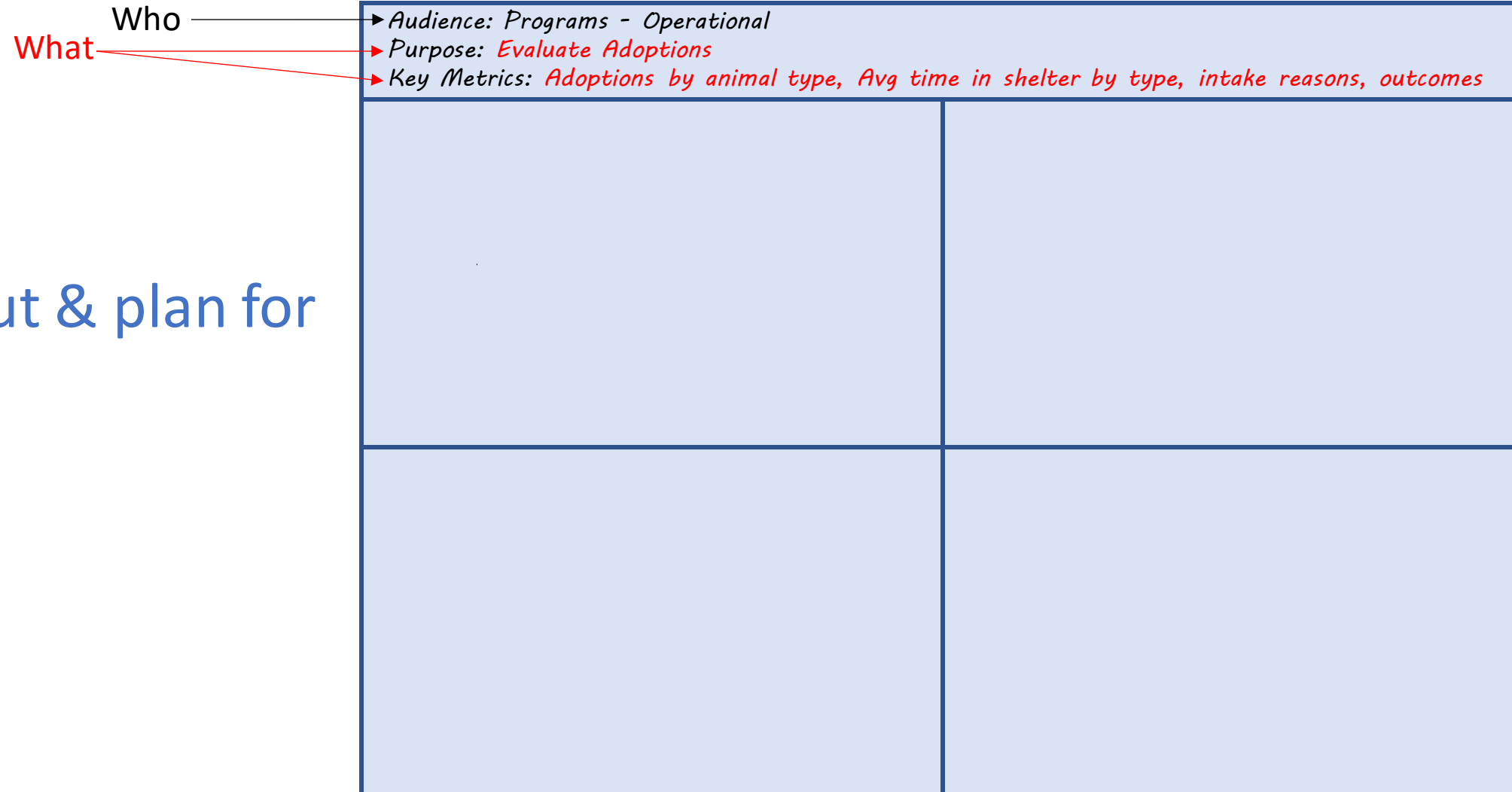
Initial layout & plan for dashboard

Dashboard Definition

Collect and Clean

Build and Roll Out

How?

Define:
Audience, Metrics,
Components

Refine

TECHIMPACT
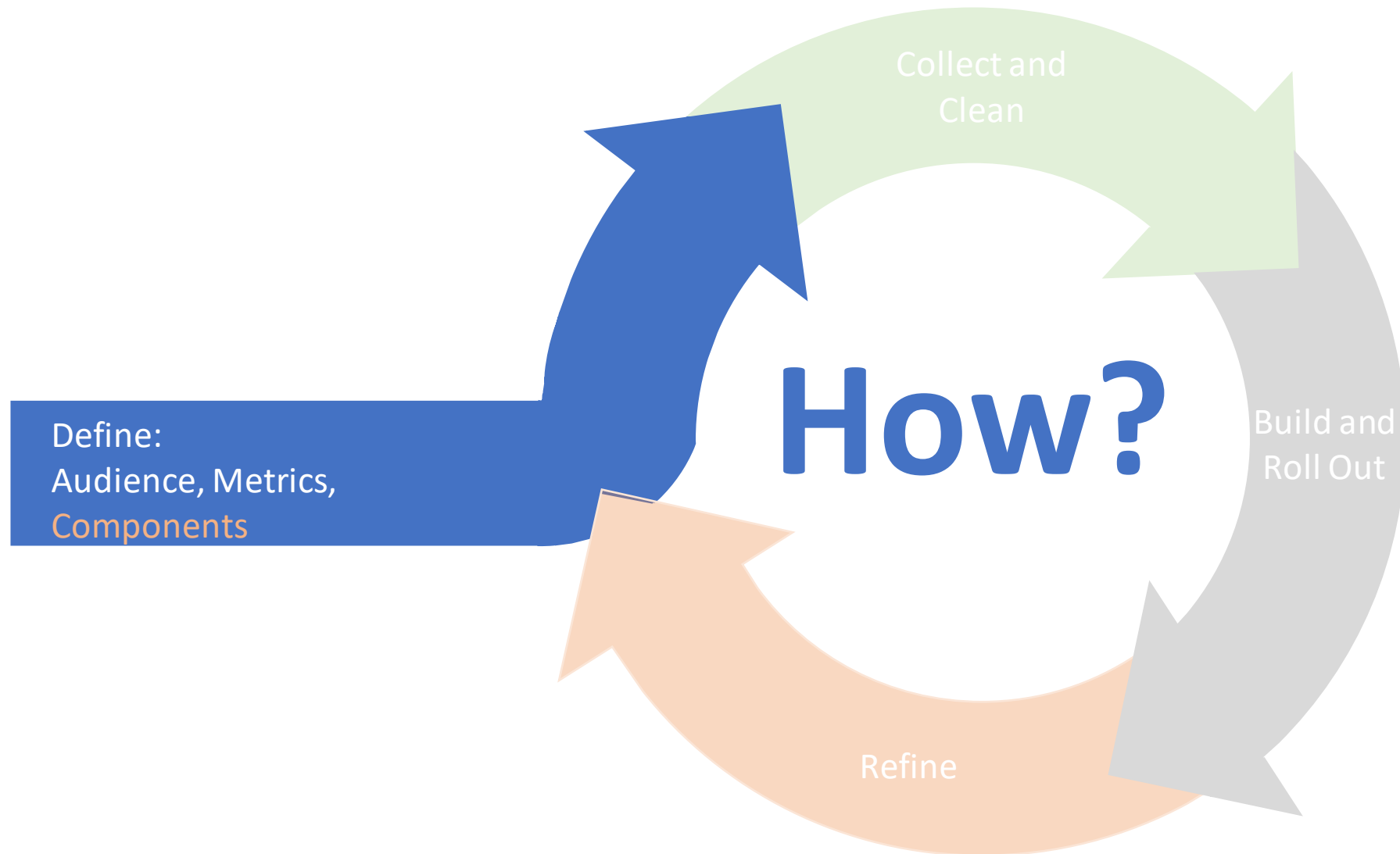
Components

Effective tools for visualizing your data

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Chart Chooser

Another useful resource:
https://blog.hubspot.com/marketing/types-of-graphs-for-data-visualization
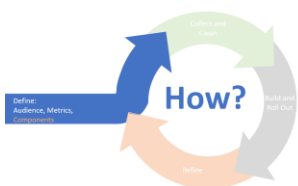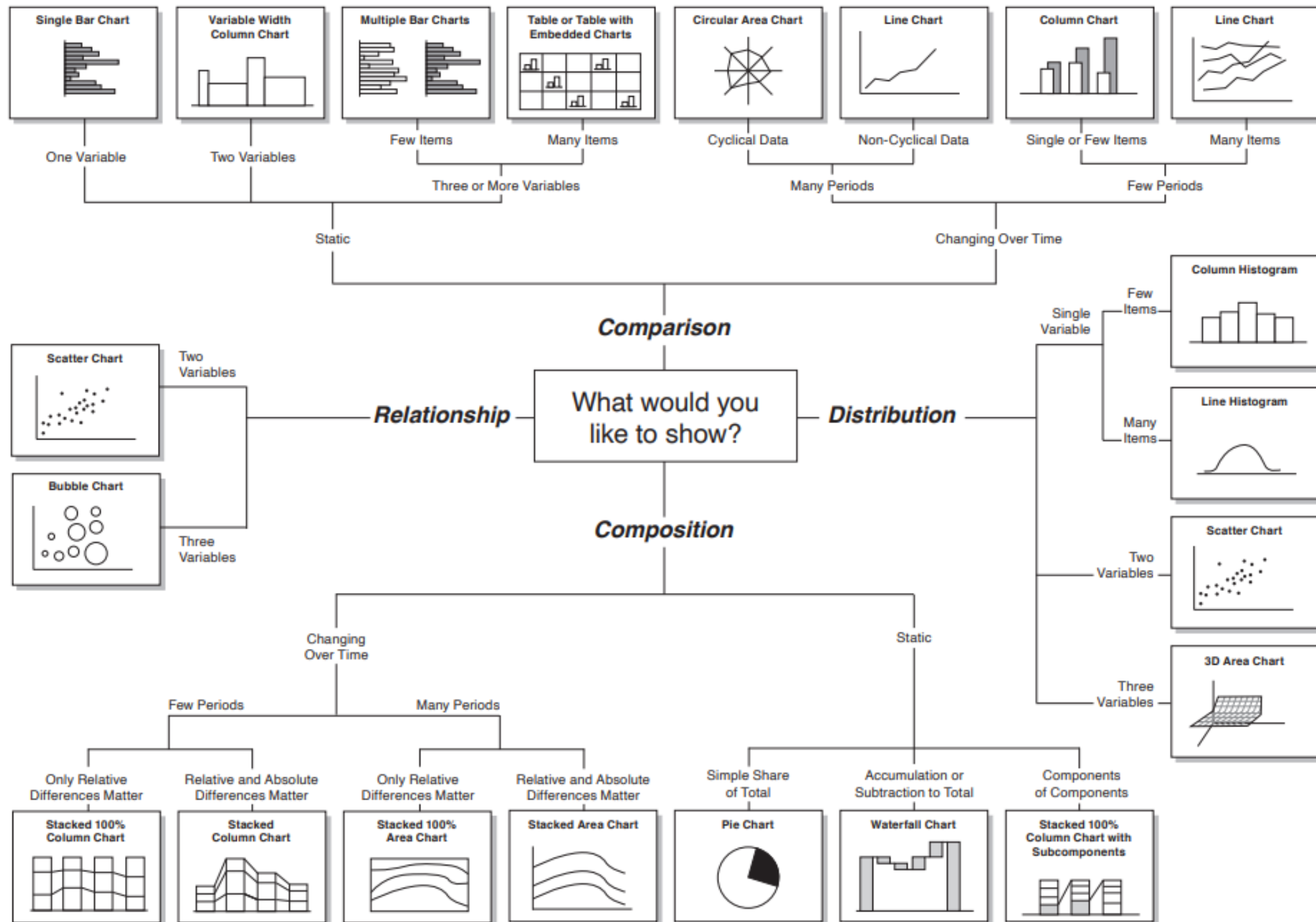
Chart Tips & Best Practices

Column Charts

- Best not to have more than 7 categories
- Time should be on the horizontal axis and run from left to right
- Numerical axis should start at zero
- Avoid pattern lines or fills
- Use a bar chart (horizontal column chart) when category names are long or you have more than 7 categories or displaying negative numbers
- For stacked column charts do not use too many (4) composing parts

Line Charts

- Best for trend based visualization
- Good alternative to a bar charts with number of data points/categories is high
- Axis doesn't have to start at zero if intended message is the rate of change or overall trend.
- Time should run from left to right
- Remove guidelines to emphasize trends & reduce distraction

Pie Charts

- Total sum of segments should equal 100%
- Charts should have < 6 categories unless you want to focus on a clear winner.
- Ideally only 2 categories
- ➢ Don't use pie charts if category values are nearly identical
- ➢ Don't use 3D or blow apart effects – they are distracting
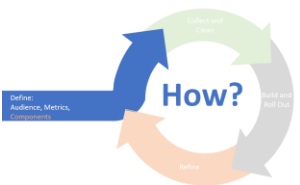
Map Charts

Use for/when:

- Quantitative info on a map
- Regional context is important
- Want an overview of data distributions across locations
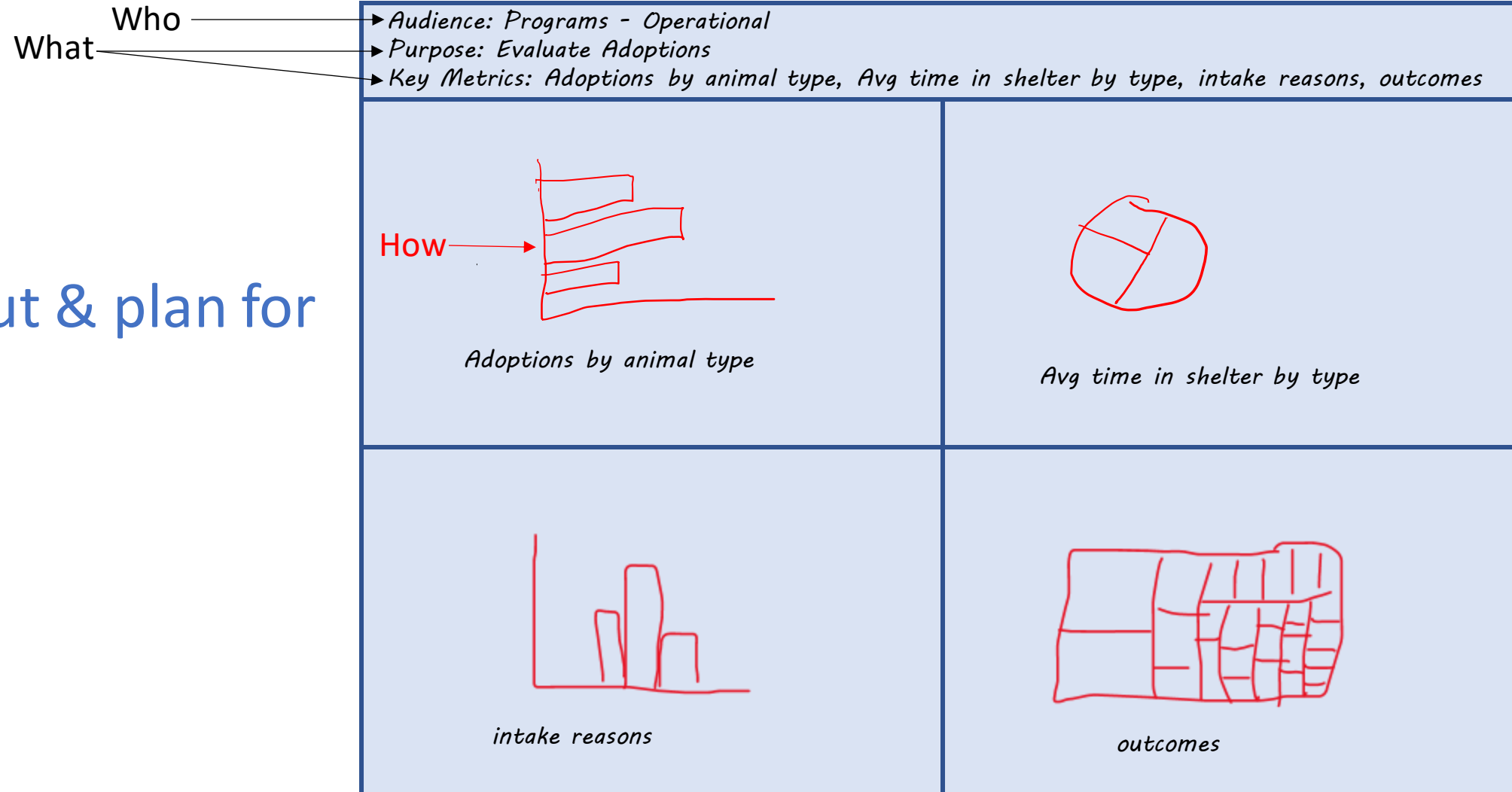- ➢ Not great comparing exact values

https://eazybi.com/blog/data_visualization_and_chart_types/

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Third Question!

- What components do you want to use?

How?

Pulling it all together into a Storyboard
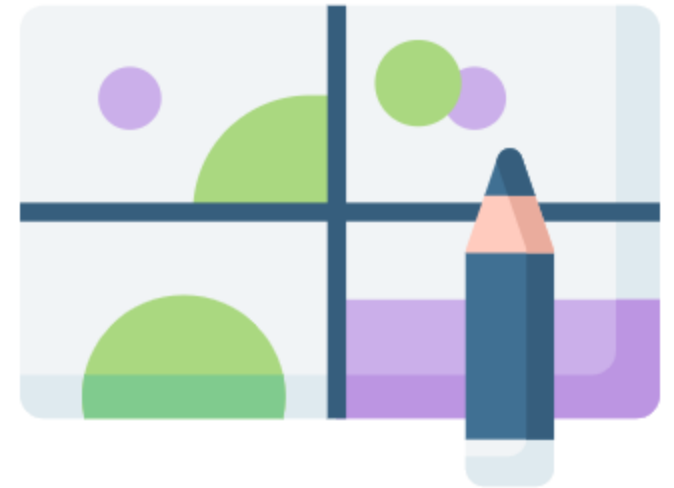
Who
What

Initial layout & plan for dashboard

Audience: Programs – Operational
Purpose: Evaluate Adoptions
Key Metrics: Adoptions by animal type, Avg time in shelter by type, intake reasons, outcomes

How

Adoptions by animal type

Avg time in shelter by type

intake reasons

outcomes

Dashboard Creation Process

Collect and Clean

Build and Roll Out

Where?

Define: Audience, Metrics, Components

Refine

Collecting the Data

Identify where your data is coming from and make sure all data is included

Collecting the Data

- What data will help you make decisions or make a compelling narrative?
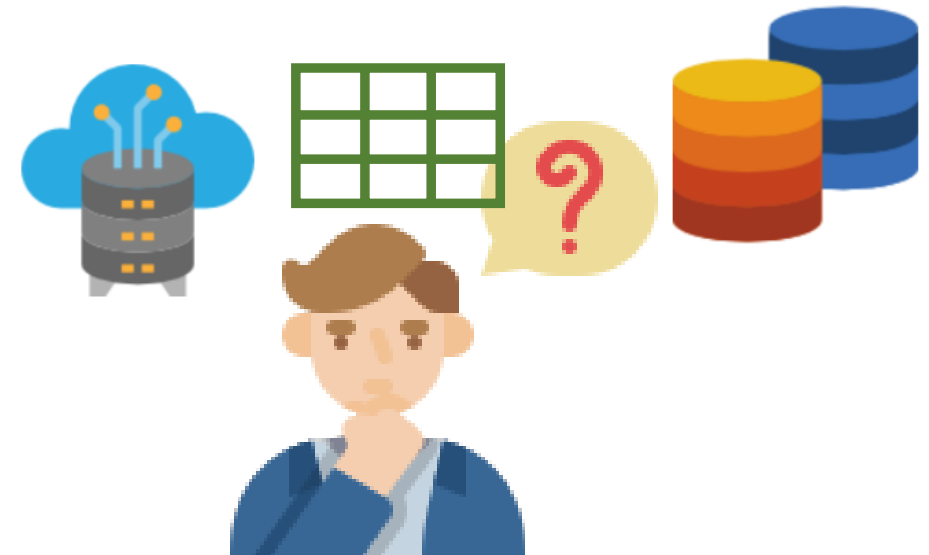
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Collecting the Data

- What data will help you make decisions or make a compelling narrative?
  - Look at each field and determine if it needs to be included in the dataset.

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  - You don't need to export *everything.*

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Collecting the Data

- What data will help you make decisions or make a compelling narrative?
  - Look at each field and determine if it needs to be included in the dataset.
  - You don't need to export *everything*.
- **Make sure the data you're collecting tells the story you're trying to tell.**

Collecting the Data

- What data will help you make decisions or make a compelling narrative?
  - Look at each field and determine if it needs to be included in the dataset.
  - You don't need to export *everything*.
  - Make sure the data you're collecting tells the story you're trying to tell.
- **How easy will it be to pull the data?**
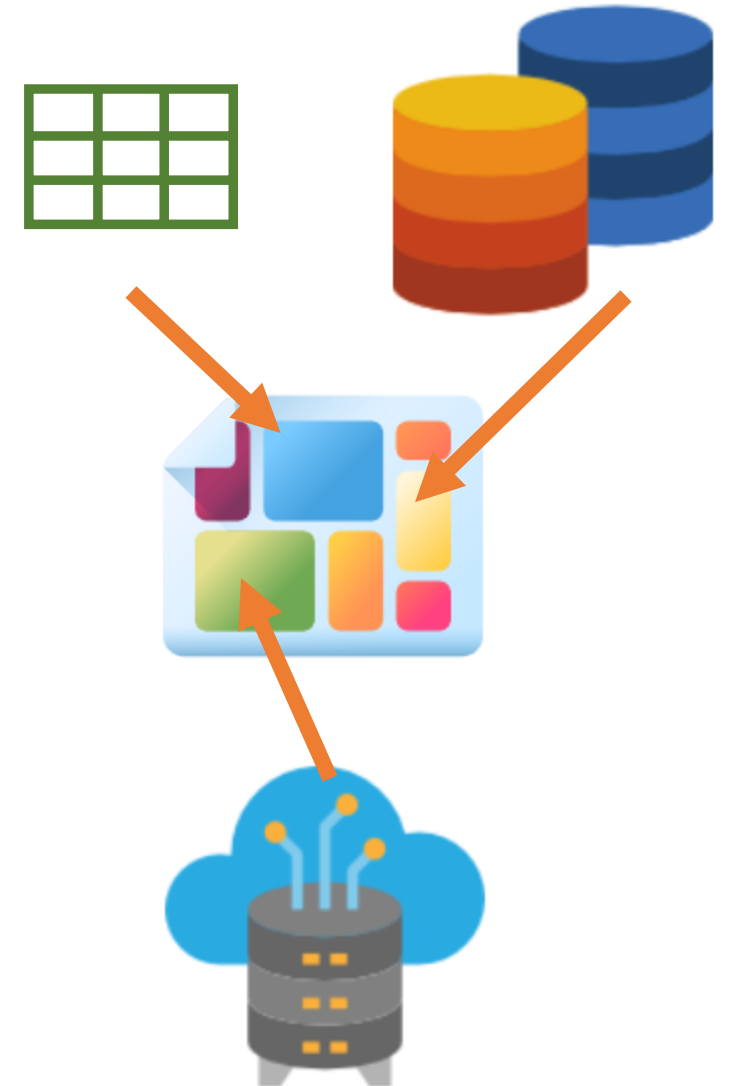
Fourth Question!

- What are your data sources?

Where?

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Pulling it all together into a Storyboard

Initial layout & plan for dashboard

Who → Audience: Programs – Operational
What → Purpose: Evaluate Adoptions
→ Key Metrics: Adoptions by animal type, Avg time in shelter by type, intake reasons, outcomes

How →

SF report XYZ

Adoptions by animal type

Where

excel file abc

Avg time in shelter by type

intake reasons
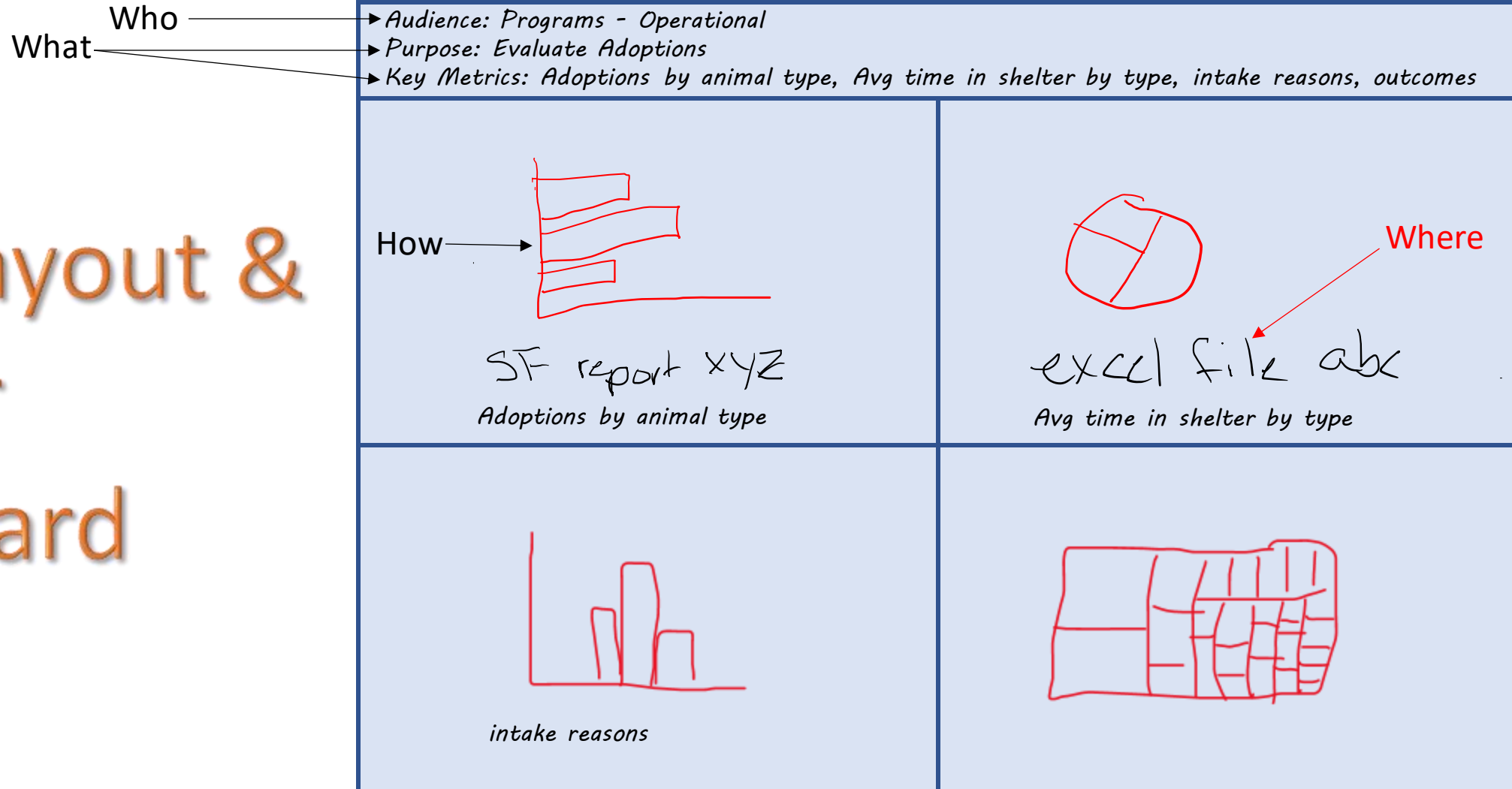
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Pulling it all together into a Storyboard
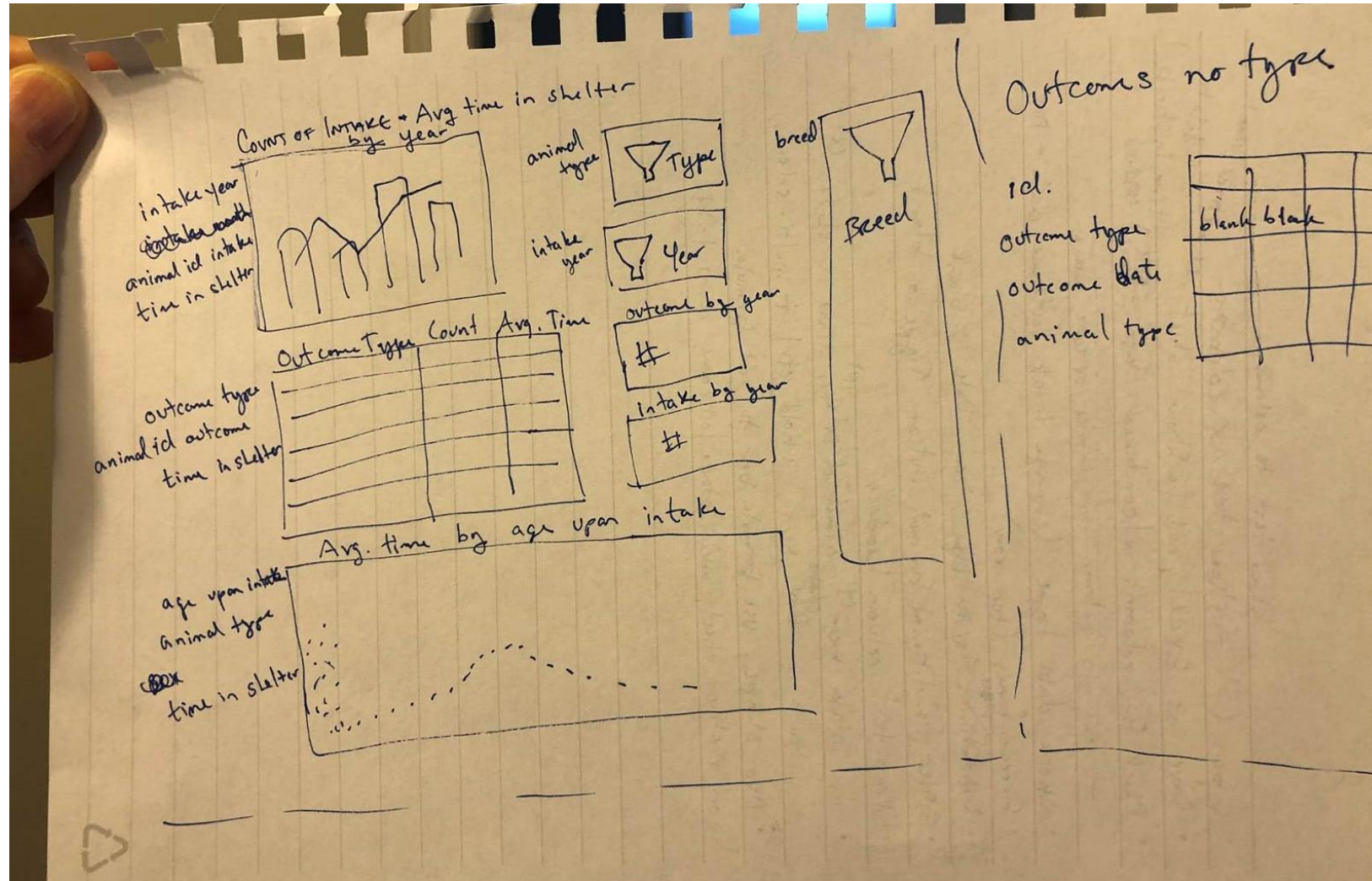
Dashboard Creation Process
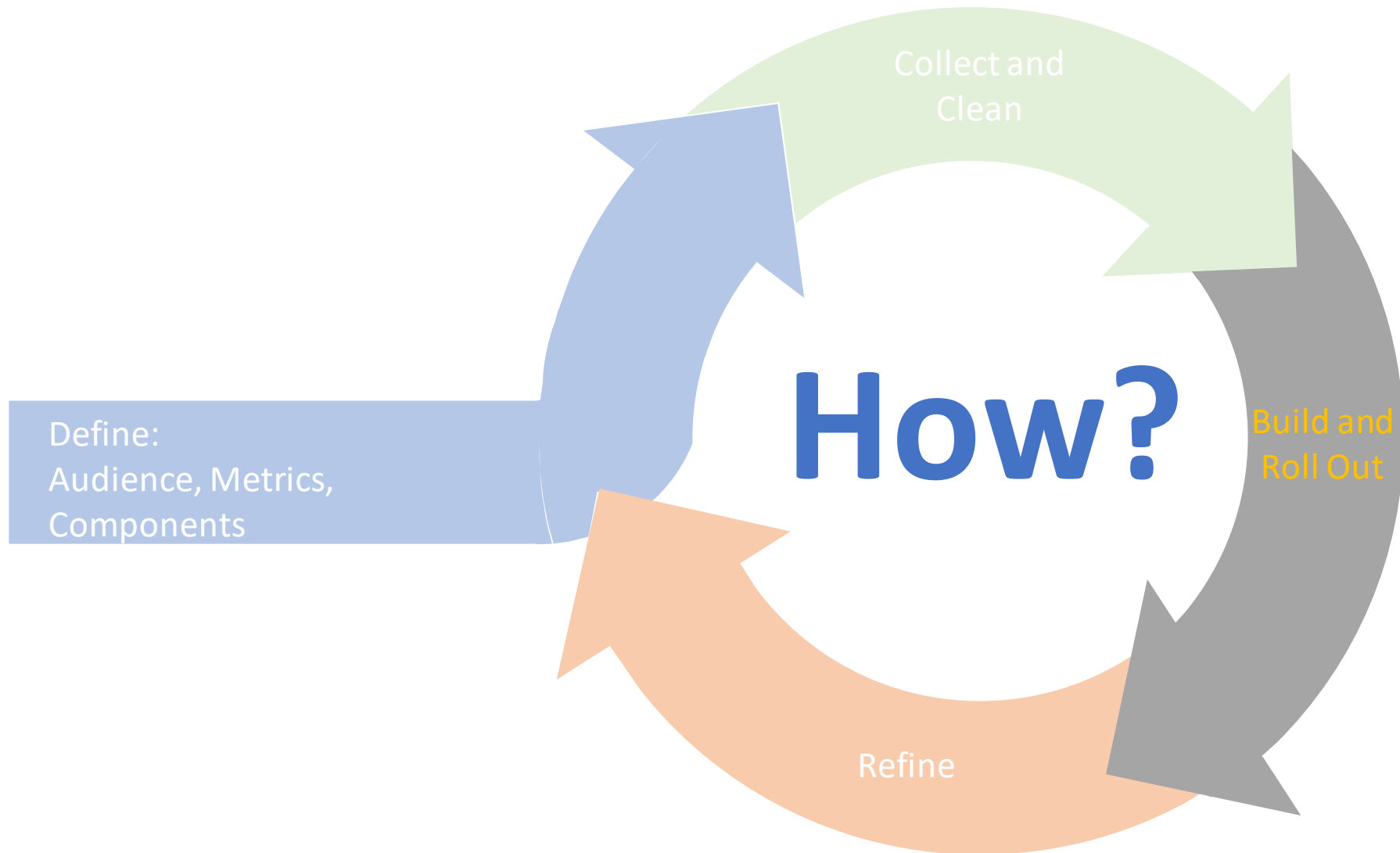
Examples…

- Next let's look at an example of an informational dashboard – Tech Impact Annual Report + template for a simplified version.

- Quick build of an operational dashboard

Rollout Considerations

How do you want users to interact with the Dashboard?

- View unfiltered information (PDF)
- View and use filters
- Edit the report

Privacy considerations

Where?
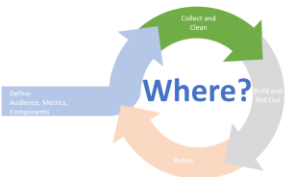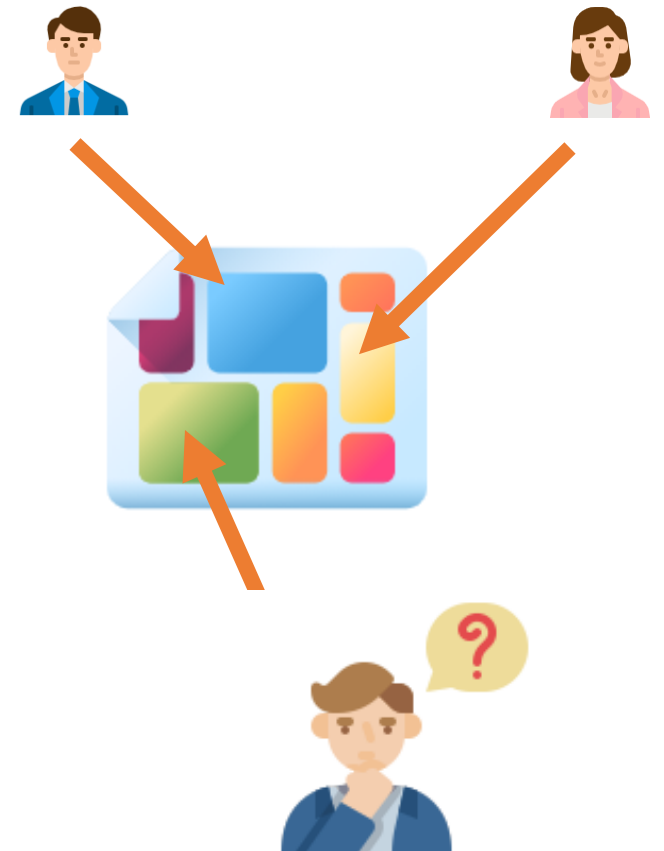
Tools

Tools

Magic Quadrant

Figure 1: Magic Quadrant for Analytics and Business Intelligence Platforms

Leading Business Intelligence Tools 2023
According to Gartner

Microsoft (Power BI) and Tableau (Salesforce) are the leaders/visionaries, followed by Qlik

Power BI & Tableau Comparison

	Power BI	Tableau
Desktop Version	Free (download from Microsoft)	Almost free ($74 per 2 year user license) through Tech Soup
Online versions (for publishing and collaborating on visualizations online)	Power BI Pro is $3/user per month for non-profits. Premium starts at $8/user per month. • More than 50% off list price	License pricing is between $15 – 72 per user, depending on function/role (Viewer, Explorer, Creator) • There used to be a 20% discount on licenses for non-profits – unable to confirm that's still available
Palette and design	Standard palette has recently improved. You can import and adopt different palettes.	Tableau is known for it's design/aesthetic and has a prettier baseline palette and presentation.
Usability	Power BI can be initially difficult to digest and comprehend.	Easier to get started making simple visualizations in Tableau – lots of drag and drop options
Resources and documentation	Accessible Power BI resources from Microsoft are improving but not at Tableau's level	Great (dense!) written instructions, short videos, live weekly training options

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Download Power BI Desktop for Free
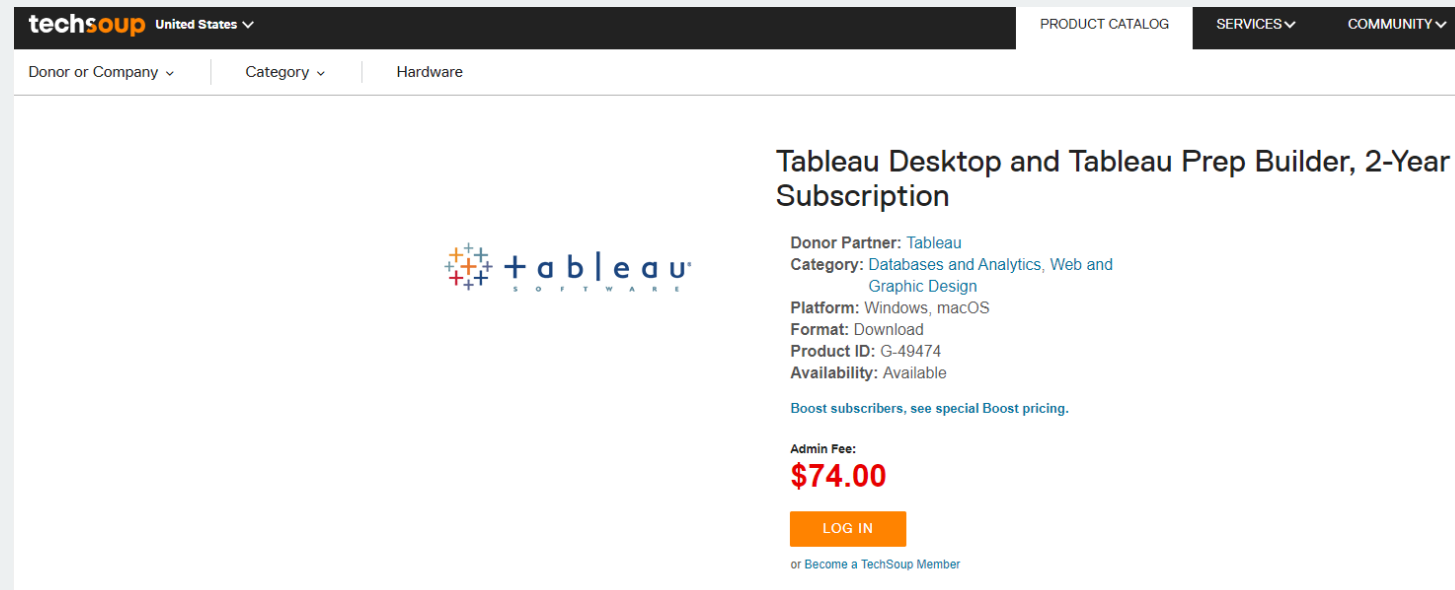
- https://powerbi.microsoft.com/en-us/downloads/

Getting Power BI M365 App
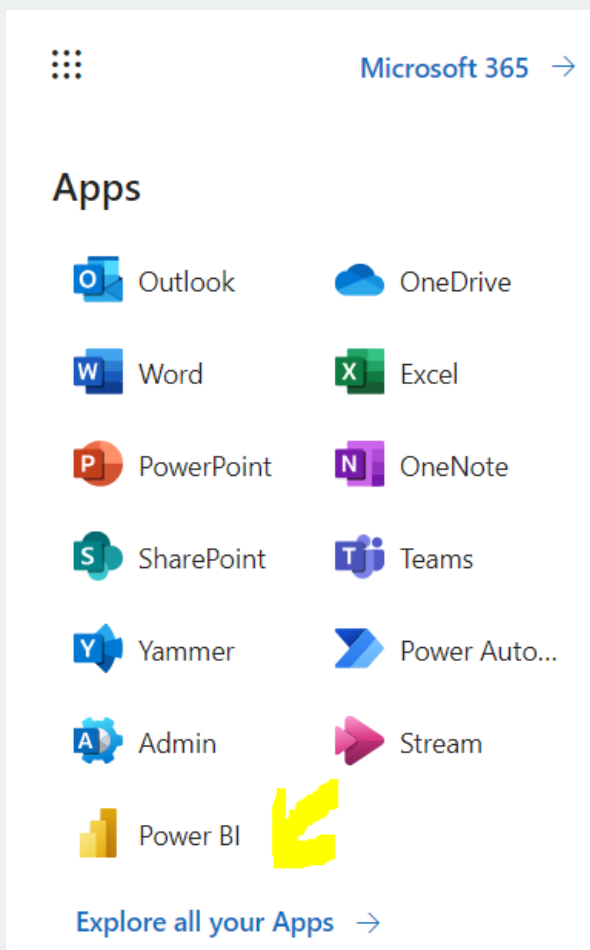
- Pro version is $3 per user per month and will be needed for all users who want to collaborate on-line with other users or connecting to premium data sources (i.e. Salesforce)

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Getting Tableau Desktop

- $74 for a 2-year subscription through Tech Soup

- *Online versions of the product have different pricing tiers depending on license functions ("creator", "explorer" or "reader")

Share a Dashboard– send an invite or copy the link

Publish from Desktop to Power BI App On-line if you have a Power BI Pro license and want to be able to collaborate with co-workers or publish on-line
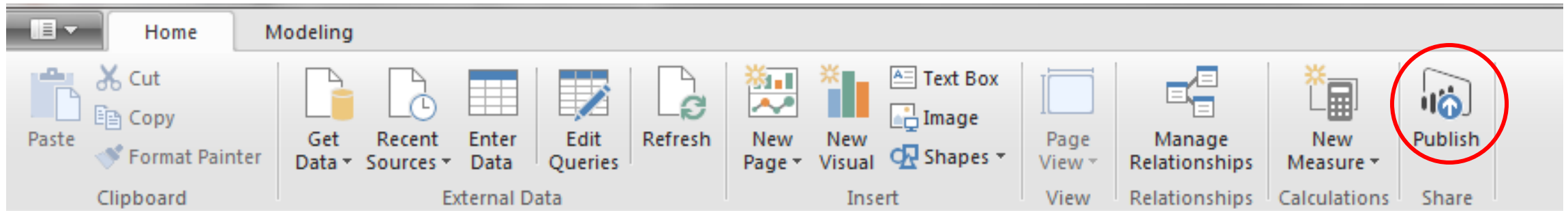
Need Help?

- If you want help – contact us.
  - Dashboard Webinar
  - Build Assistance

lee@techimpact.org

Resources

Visualization tips

- https://blog.hubspot.com/marketing/types-of-graphs-for-data-visualization
- https://eazybi.com/blog/data_visualization_and_chart_types/

Power BI

- To download Power BI: https://powerbi.microsoft.com/en-us/downloads/
- Learning paths from Microsoft, based on user level and role: https://learn.microsoft.com/en-us/training/browse/?products=power-bi

Tableau

- Modular, video training https://www.tableau.com/learn/training/20194
- Recorded and live webinar trainings https://www.tableau.com/events/webinars?unfound-event=true

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