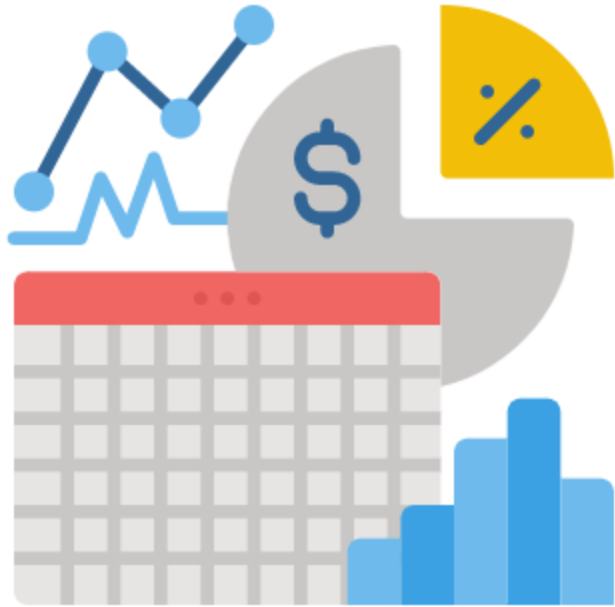
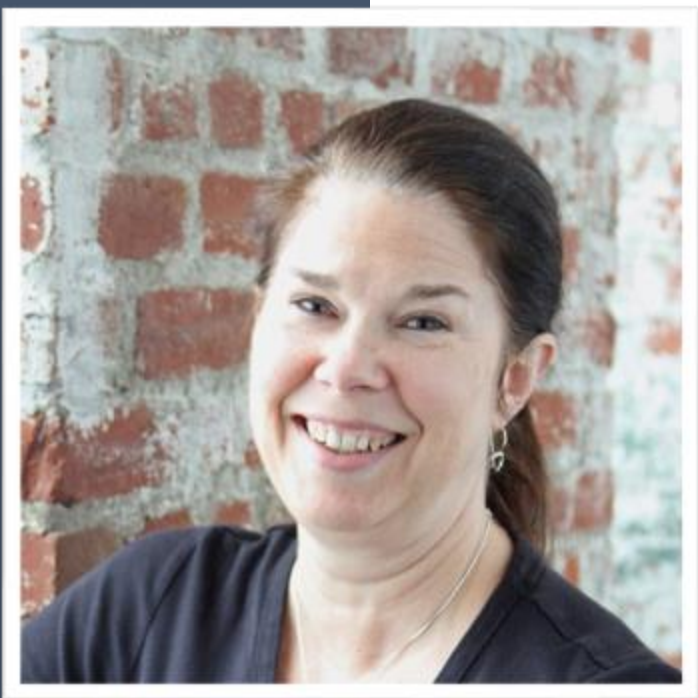


Building a Visualization Dashboard





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).

Agenda

Creation Process

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



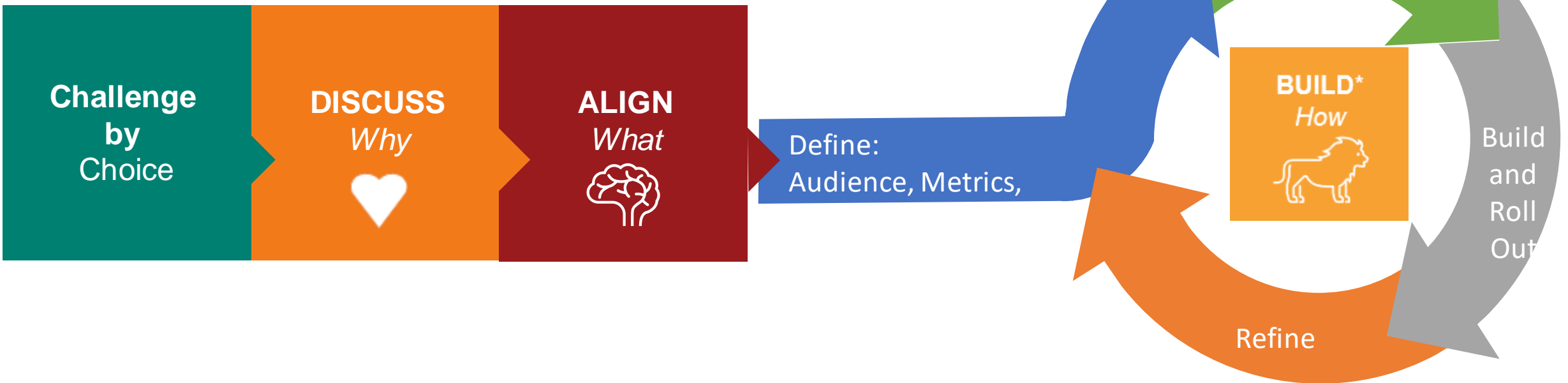
Do you have?

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

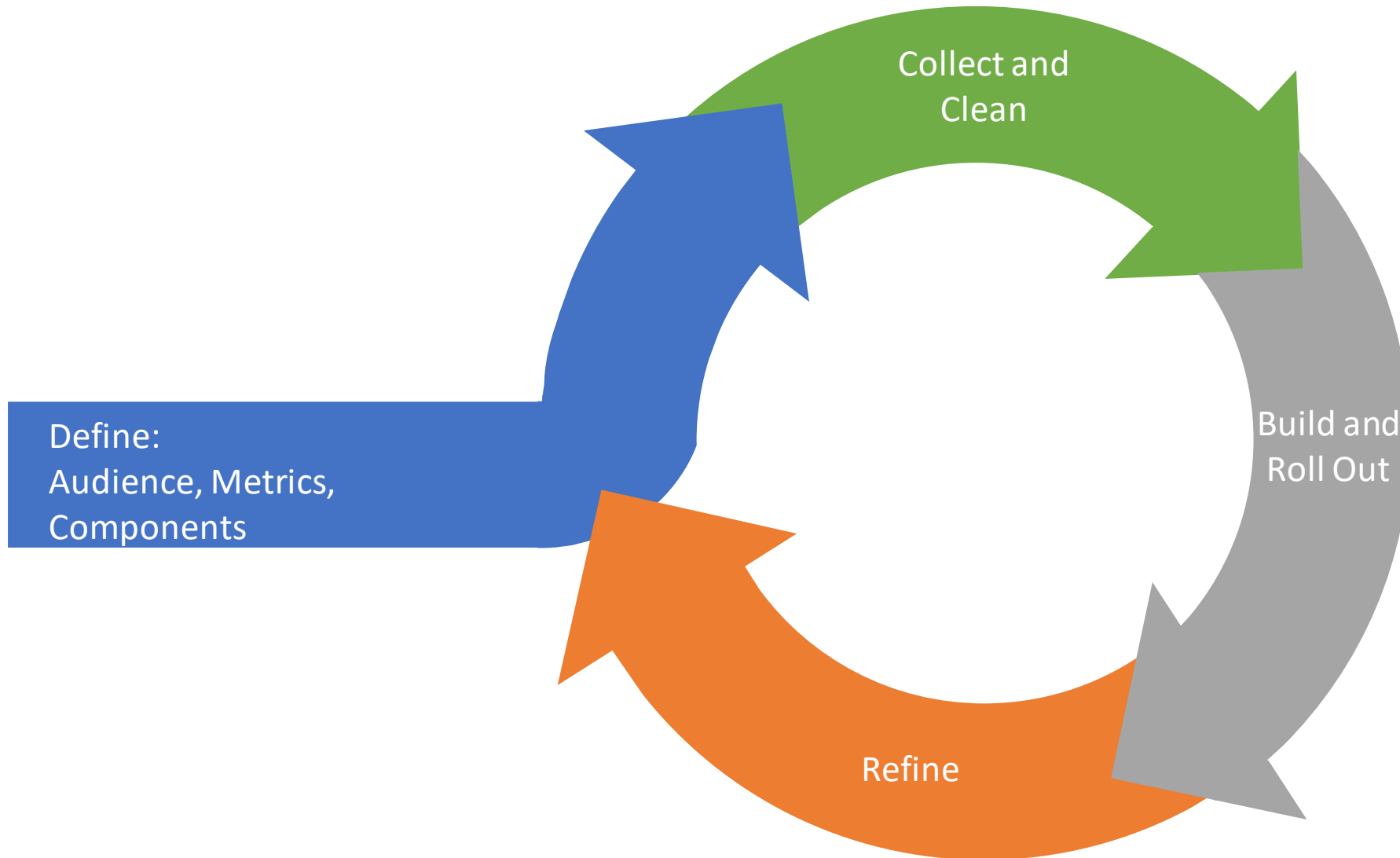


Dashboard Creation Process

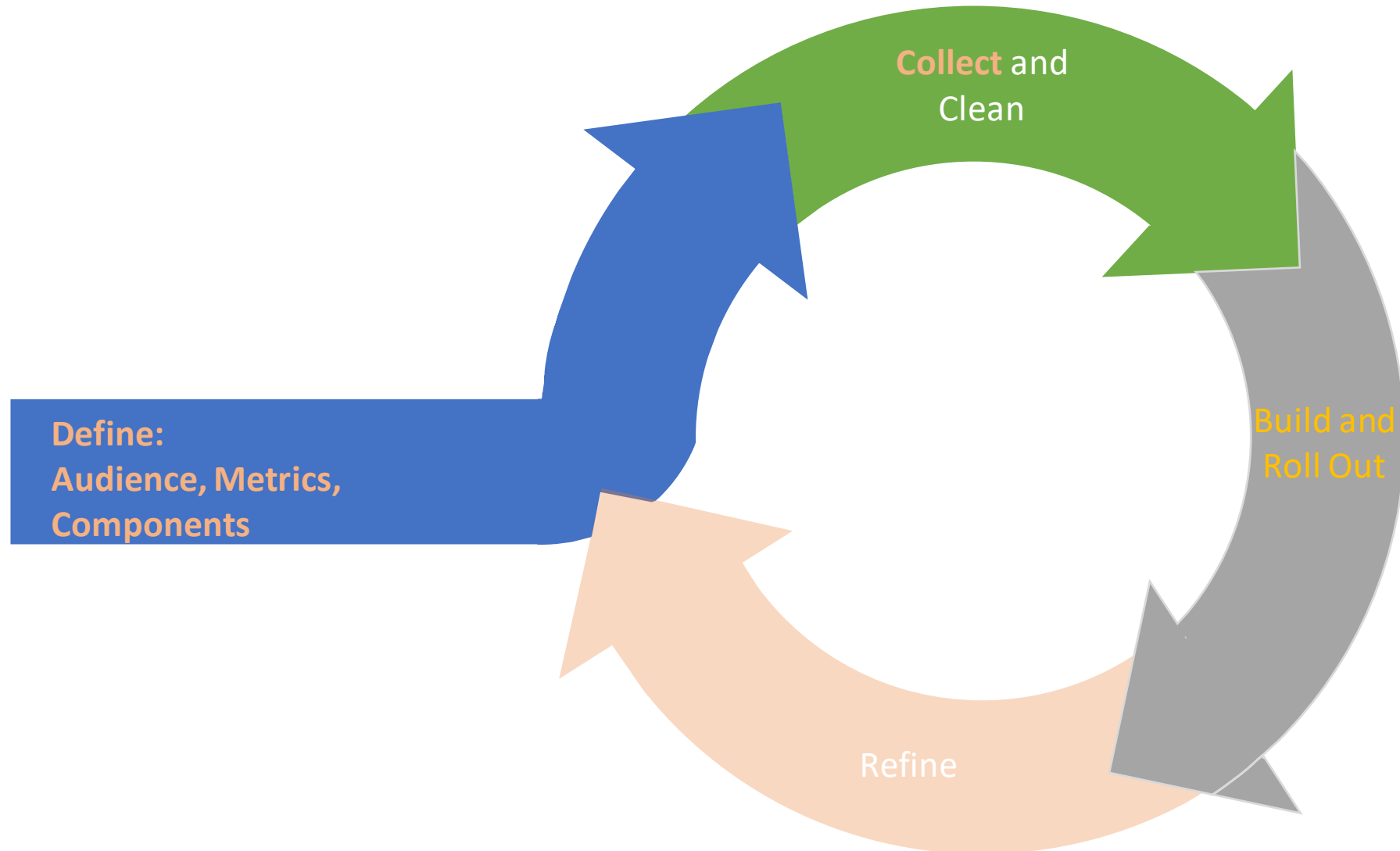
NEFE Workshop – How Dashboards Changed Our Organization



Dashboard Creation Process



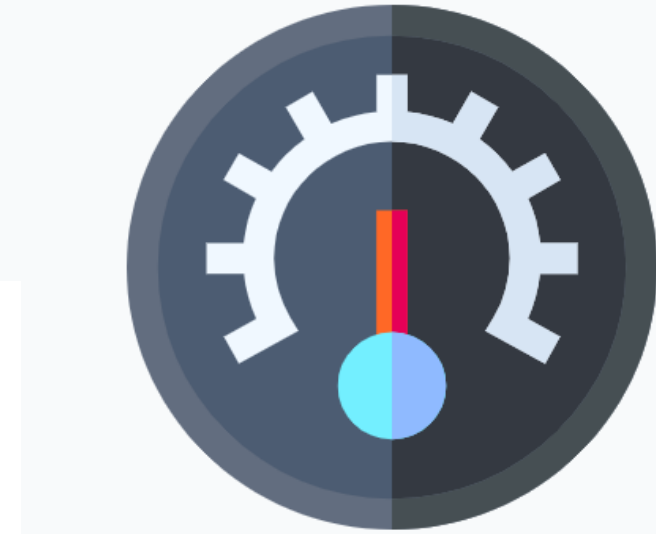
Dashboard Creation Process



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

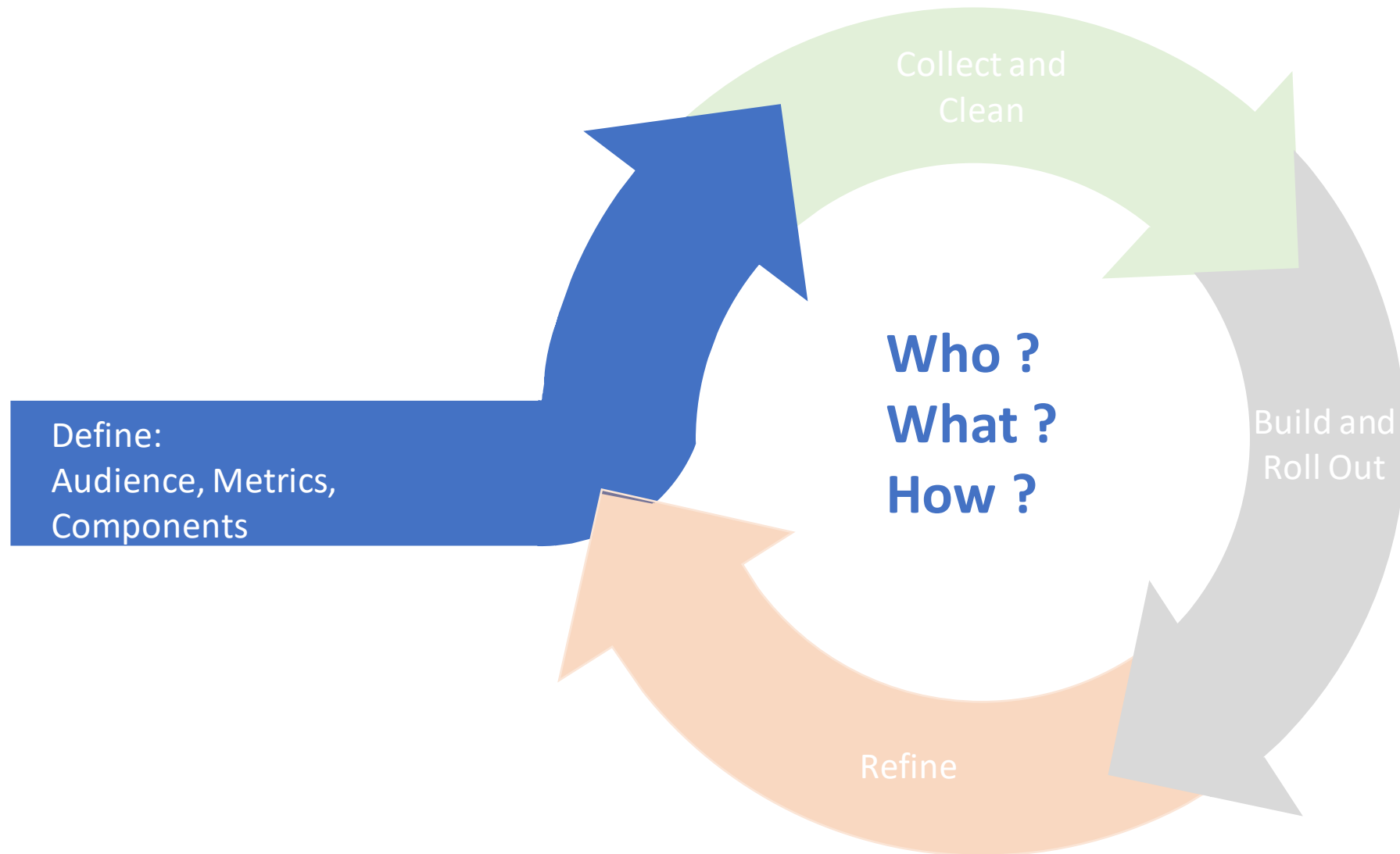
Make Data Accessible

Promote Cultural Change through Visibility

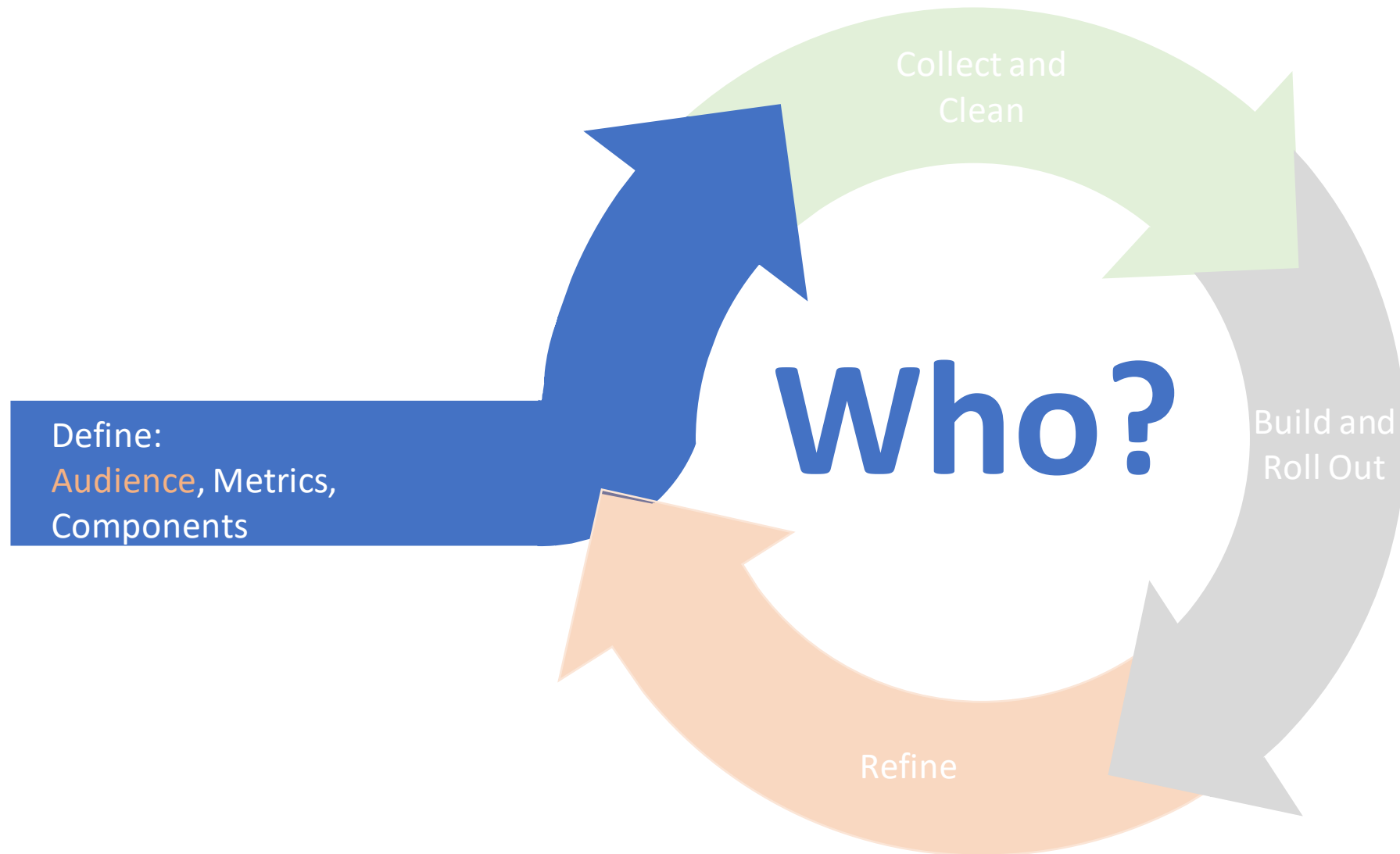
Extend the reporting capacity of database tools

Make Data interesting and beautiful

Dashboard Definition

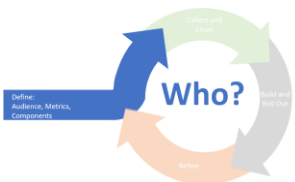


Dashboard Definition



Types of Dashboards – Different Audience

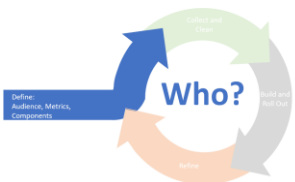
- Operational – Provides metrics the audience can impact
- Informative – Supports the message or mission of your organization & increases awareness.



Types of Dashboards – Different Audience

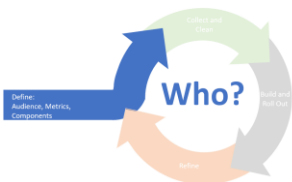
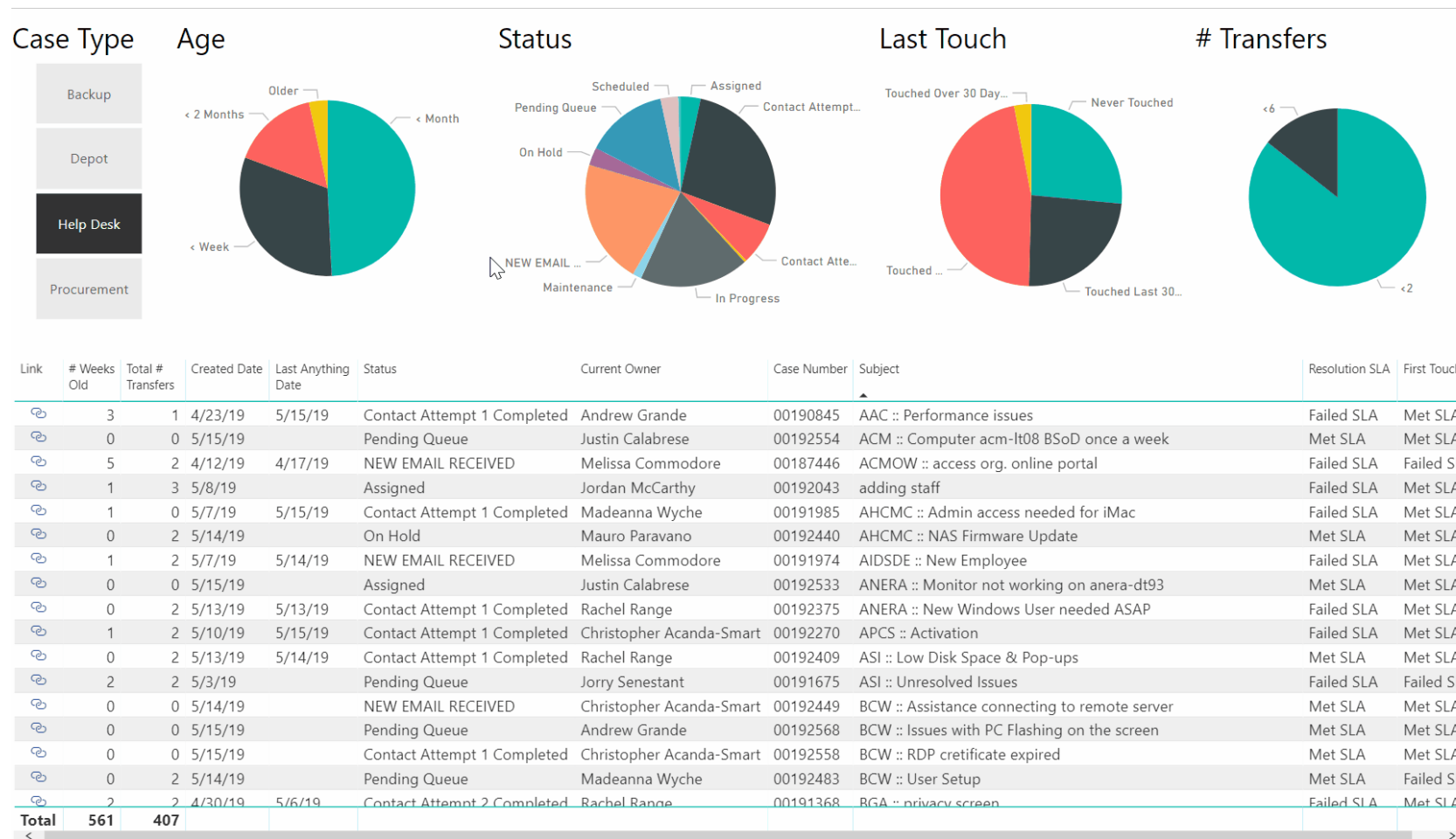
- Operational – Provides metrics the audience can impact

- Operational Staff
 - ▶ Programs Management
 - ▶ Development
 - ▶ Marketing
- Executive Team



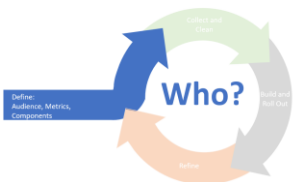
Types of Dashboards – Different Audience

- Operational – Provides metrics the audience can impact



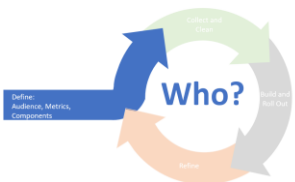
Types of Dashboards – Different Audience

- Operational – Provides metrics the audience can impact
- Informative – Supports the message or mission of your organization & increases awareness.



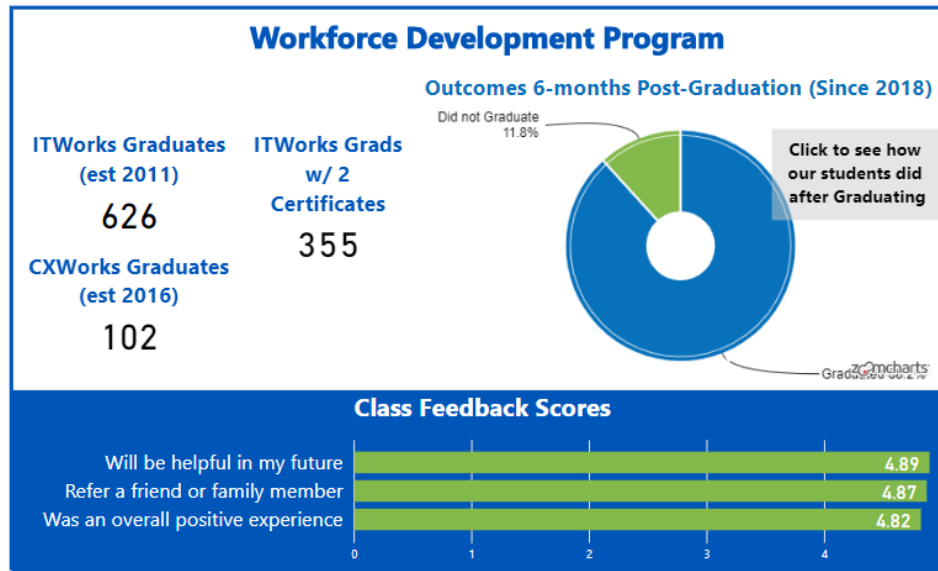
Types of Dashboards – Different Audience

- Operational – Provides metrics the audience can impact
- 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.



Workforce Development Program Outcomes (All Time)

Tech Impact's **ITWorks** and **CXWorks** programs provide technical and soft skills training, certification, and hands-on experience which helps young adults secure entry-level jobs in the technology and call center customer experience industries. All recipients receive training and a guaranteed internship.

This outcomes dashboard demonstrates the impact these program have on our students' lives: our graduates earn certifications and secure jobs with a career path and living wage, ultimately improving their economic mobility and lifting entire communities.

We operate our programs in Philadelphia, PA; Wilmington, DE; and Las Vegas NV.

Total # Hours	Total # Volunteers	Total In-Kind Value
20K	2K	\$476K

Activity Type

ITWorks Friday Session	ITWorks Mentor	CX...	C...
		IT W...	

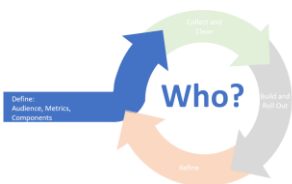


JANELLE JACKSON

"In only 16 weeks, ITWorks taught me all of the IT fundamentals and knowledge to start a solid foundation for my dreams of an IT career. My internship turned into an employment opportunity. I am now a Cisco IT Essentials, CompTIA A+ certified, service desk support representative for the state of Delaware!"

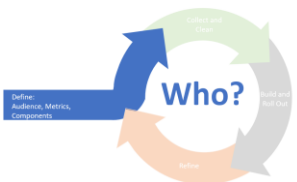
ARIEL RODRIGUEZ

"ITWorks has given me another perspective at life. I learned to be more confident and to never limit myself. It has also taken me from being that wandering person looking from the outside in - to being on the inside looking up."



First Question!

Who are you designing this dashboard for?



Creating a Storyboard

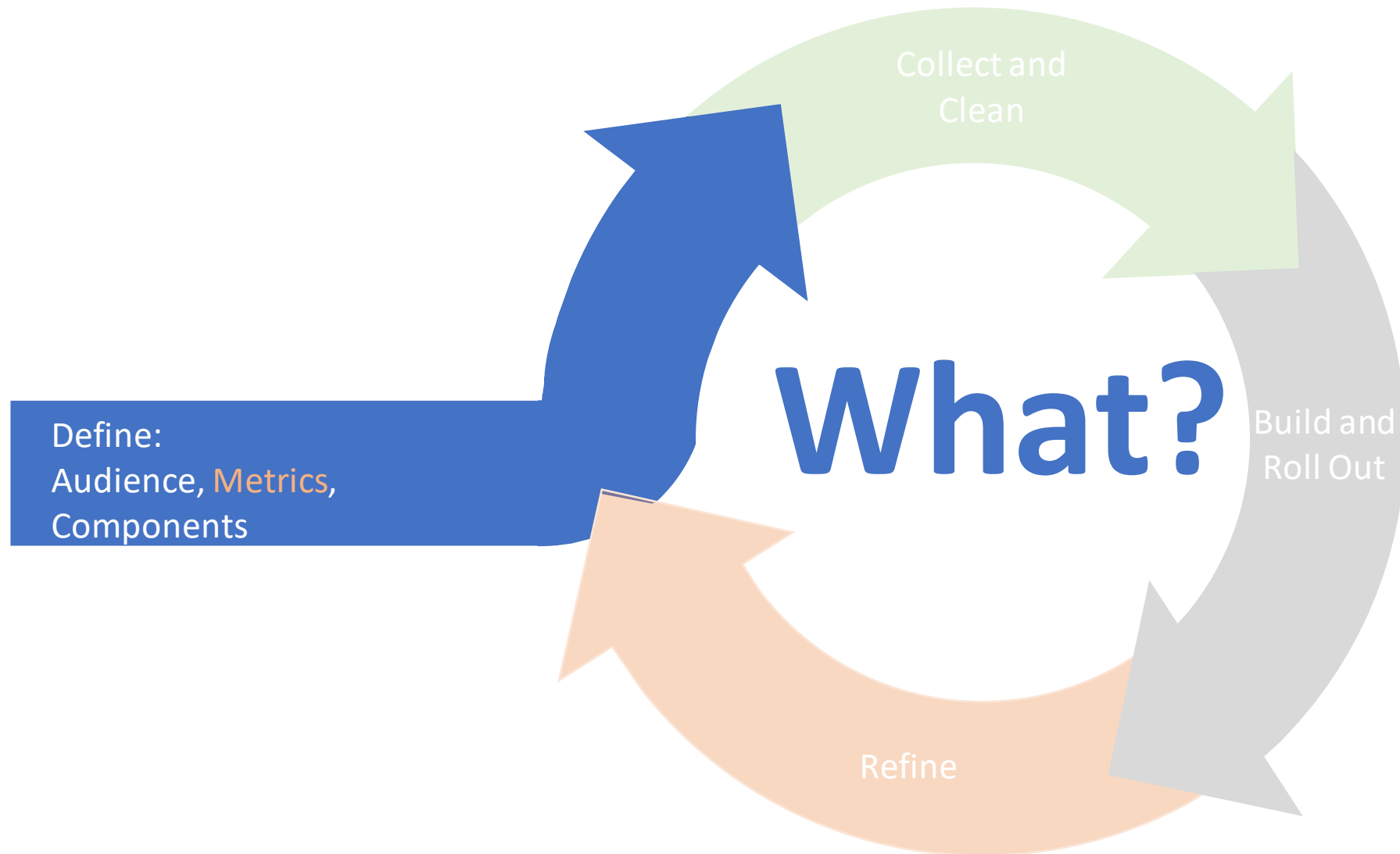
Who

→ Audience: *Programs - Operational*

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

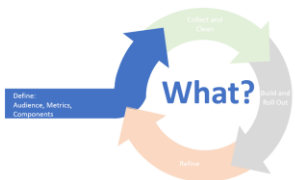
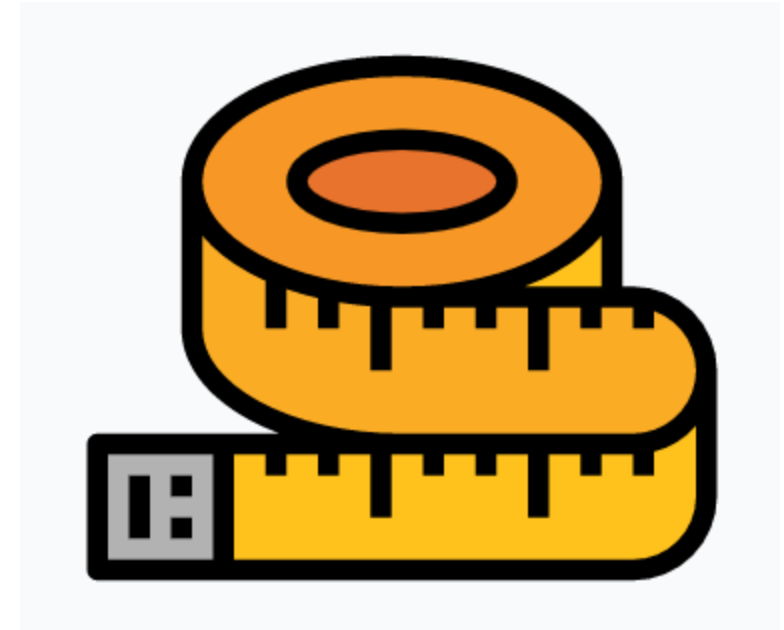
Audience: <i>Programs - Operational</i>	

Dashboard Definition



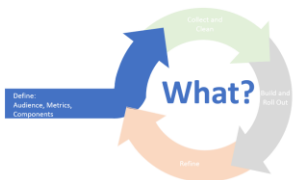
Key Performance Indicators

KPIs measure the degree of success of an activity or department or organization



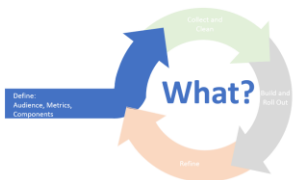
Operational – What data is most useful to staff?

- 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)



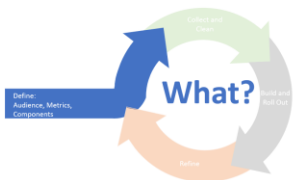
Operational – What data is most useful to staff?

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



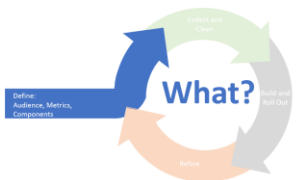
Informative – What do you want to communicate?

- 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.)



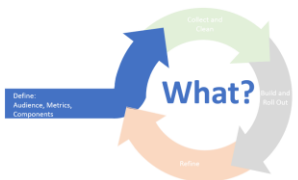
Informative – What do you want to communicate?

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

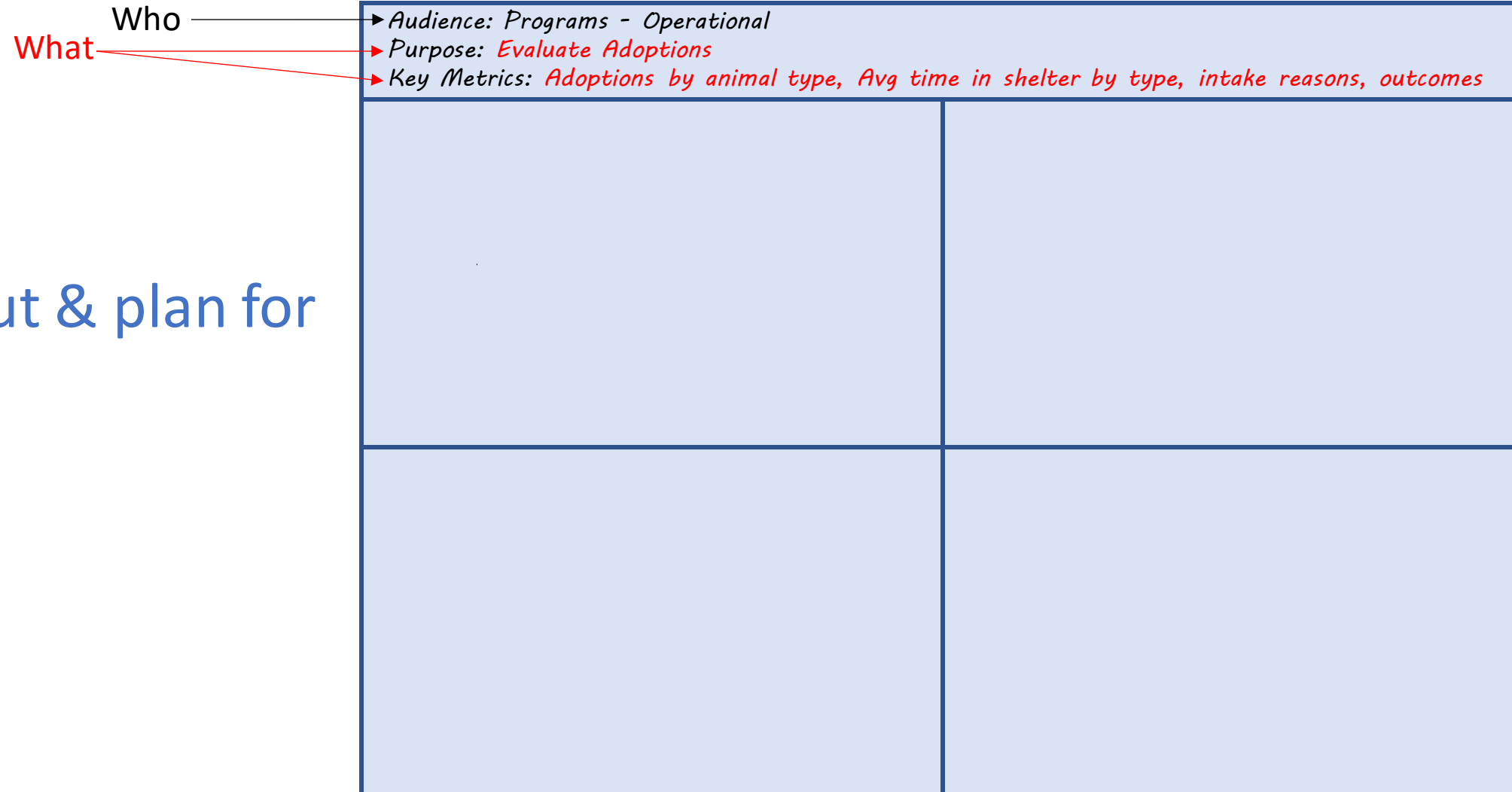


Second Question!

- What do you want to communicate?

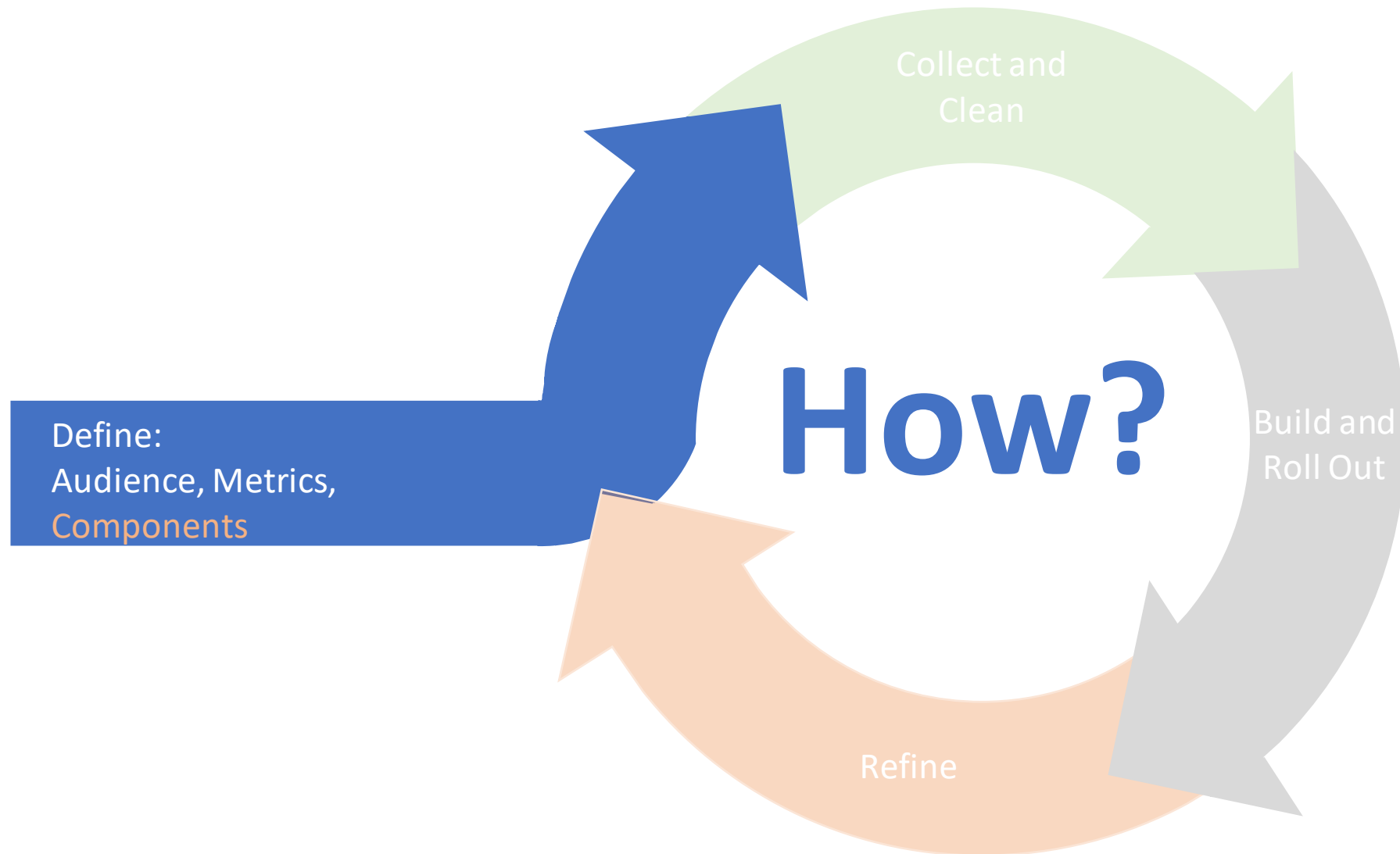


Pulling it all together into a Storyboard



Initial layout & plan for dashboard

Dashboard Definition



Components

Effective tools for
visualizing your data

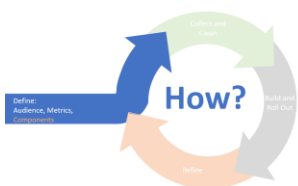


Chart Chooser

Reference Page!

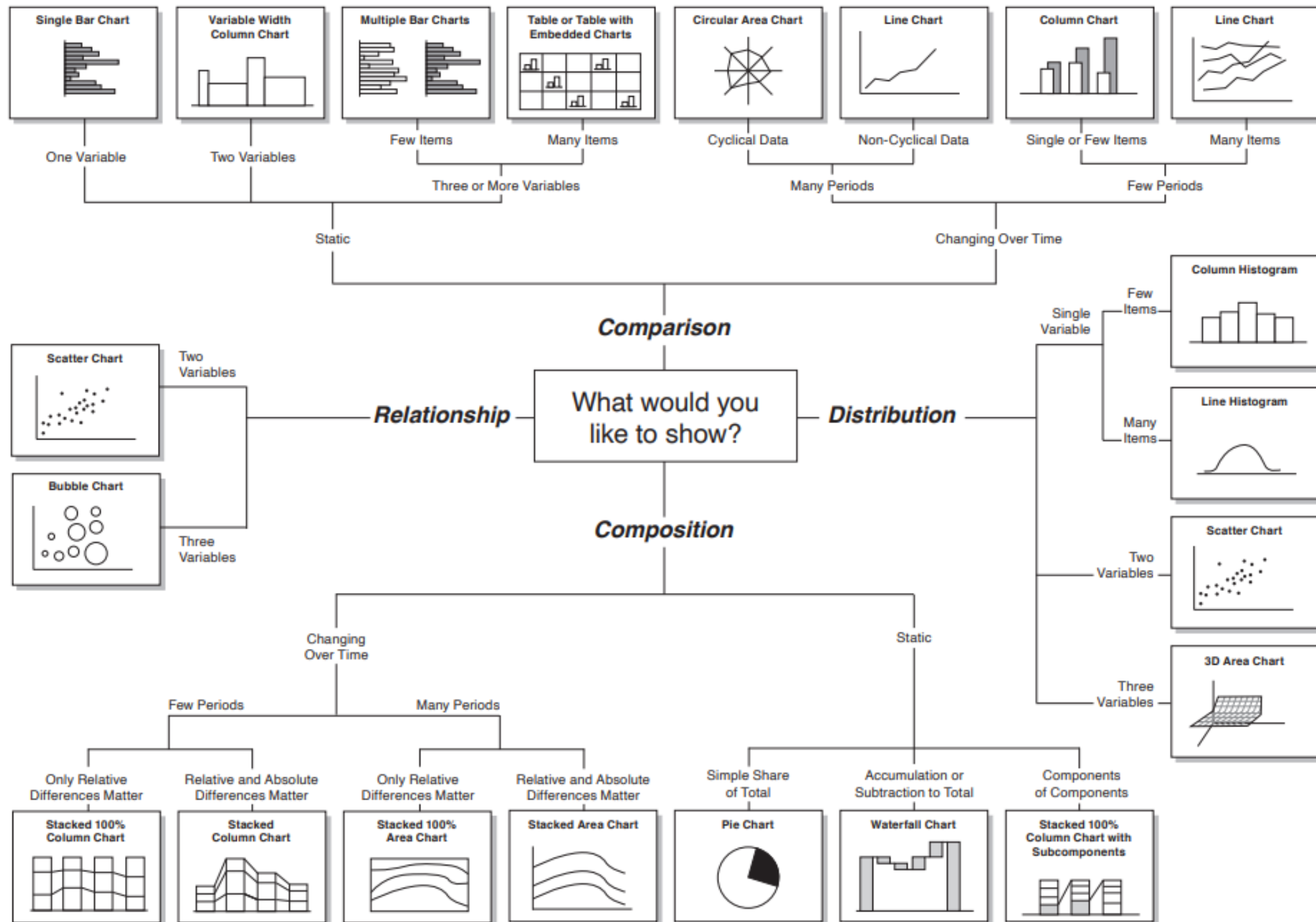


Chart Tips & Best Practices

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

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

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

Map Charts

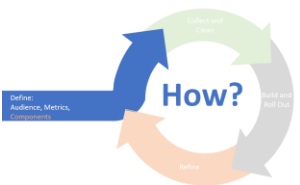


Use for/when:

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

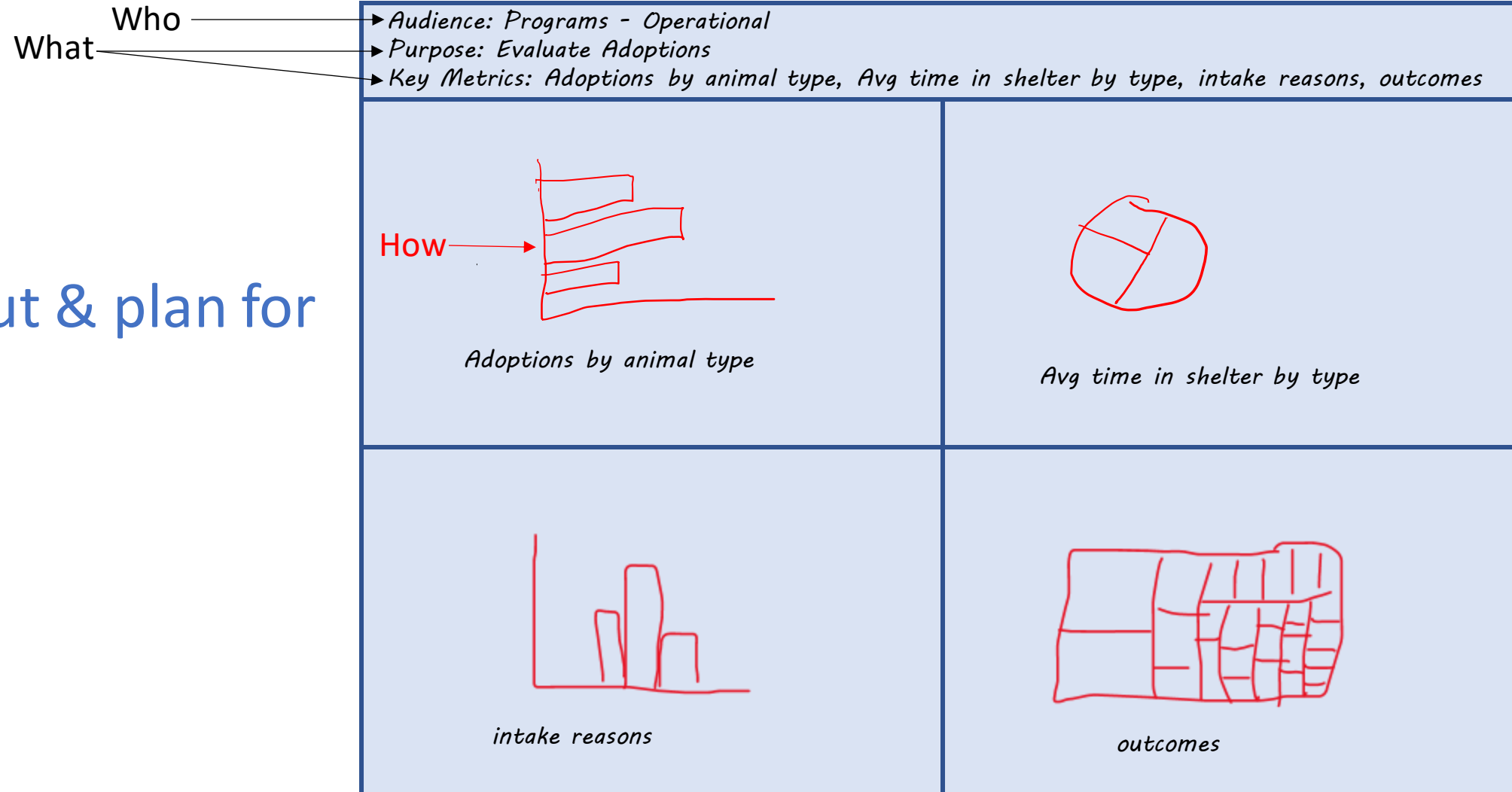
Third Question!

- What components do you want to use?

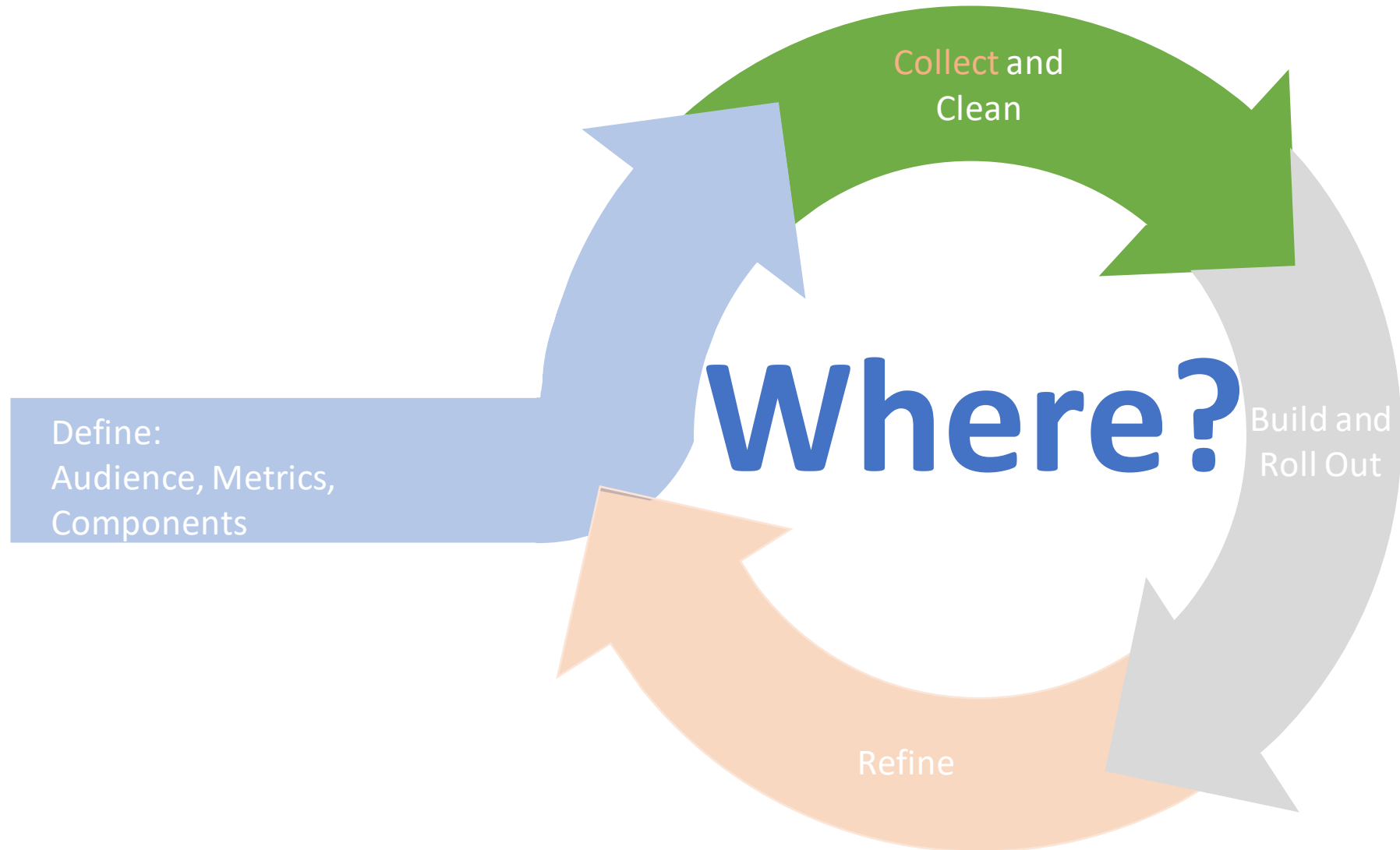


Pulling it all together into a Storyboard

Initial layout & plan for dashboard



Dashboard Creation Process



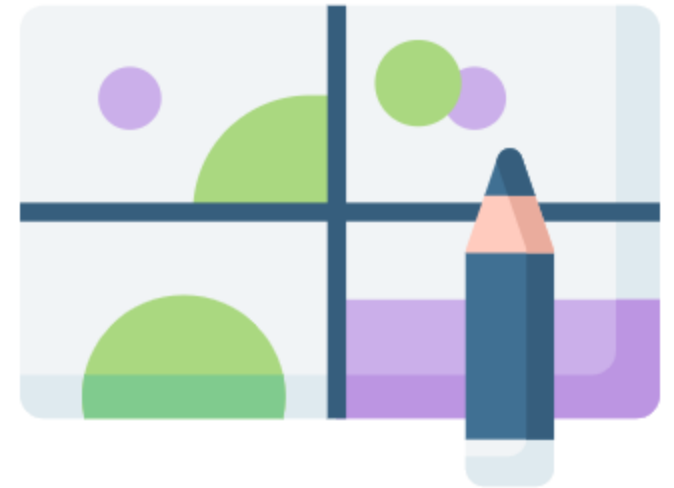
Collecting the Data

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?



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.



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*.



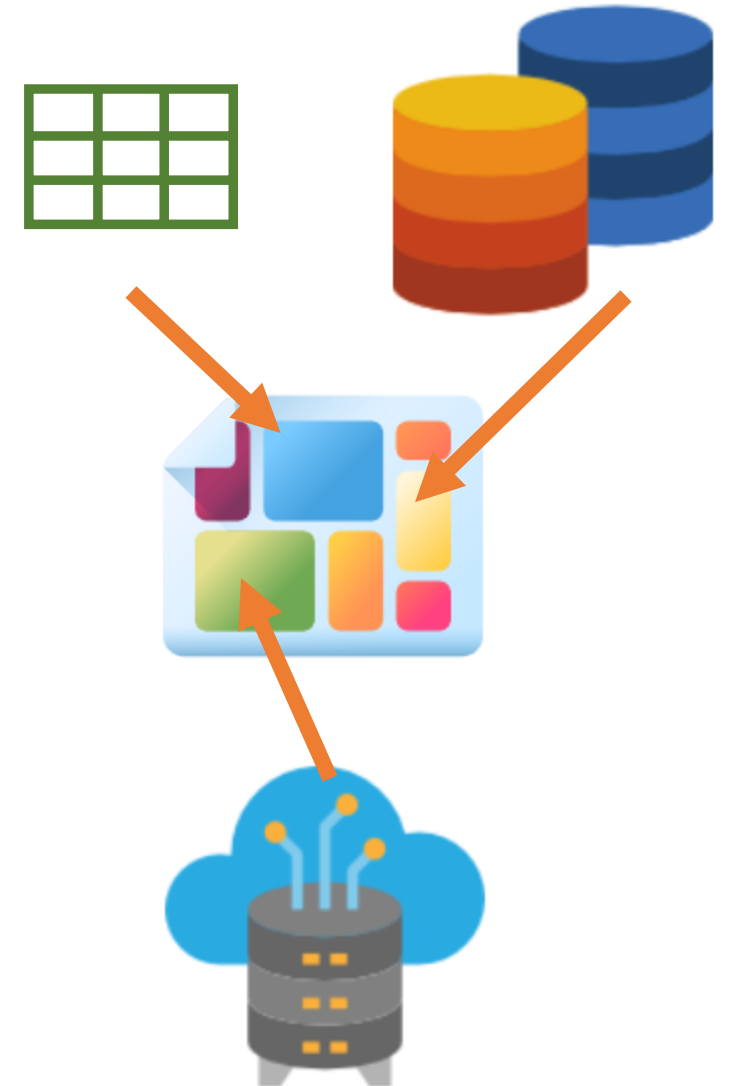
Collecting the Data

- 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.



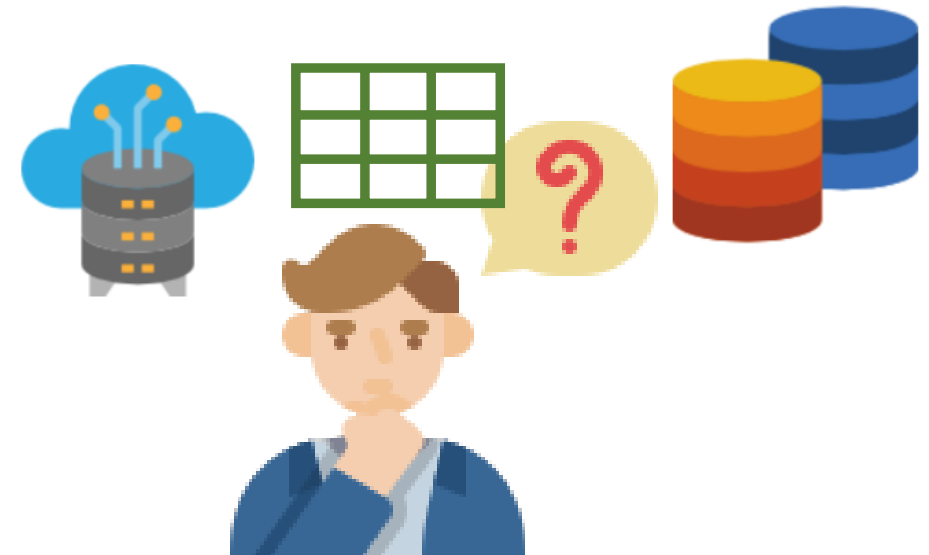
Collecting the Data

- 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?



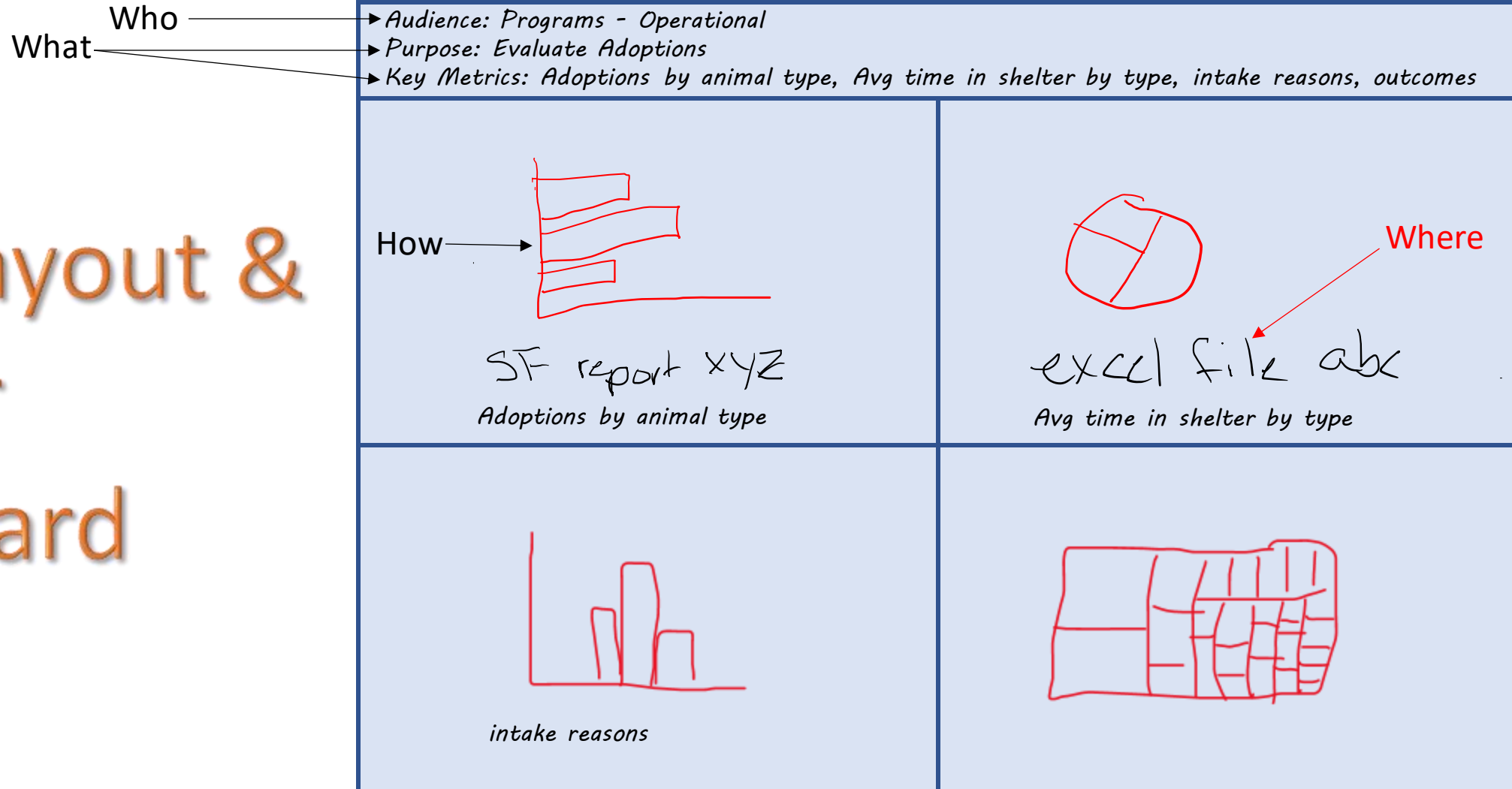
Fourth Question!

- What are your data sources?

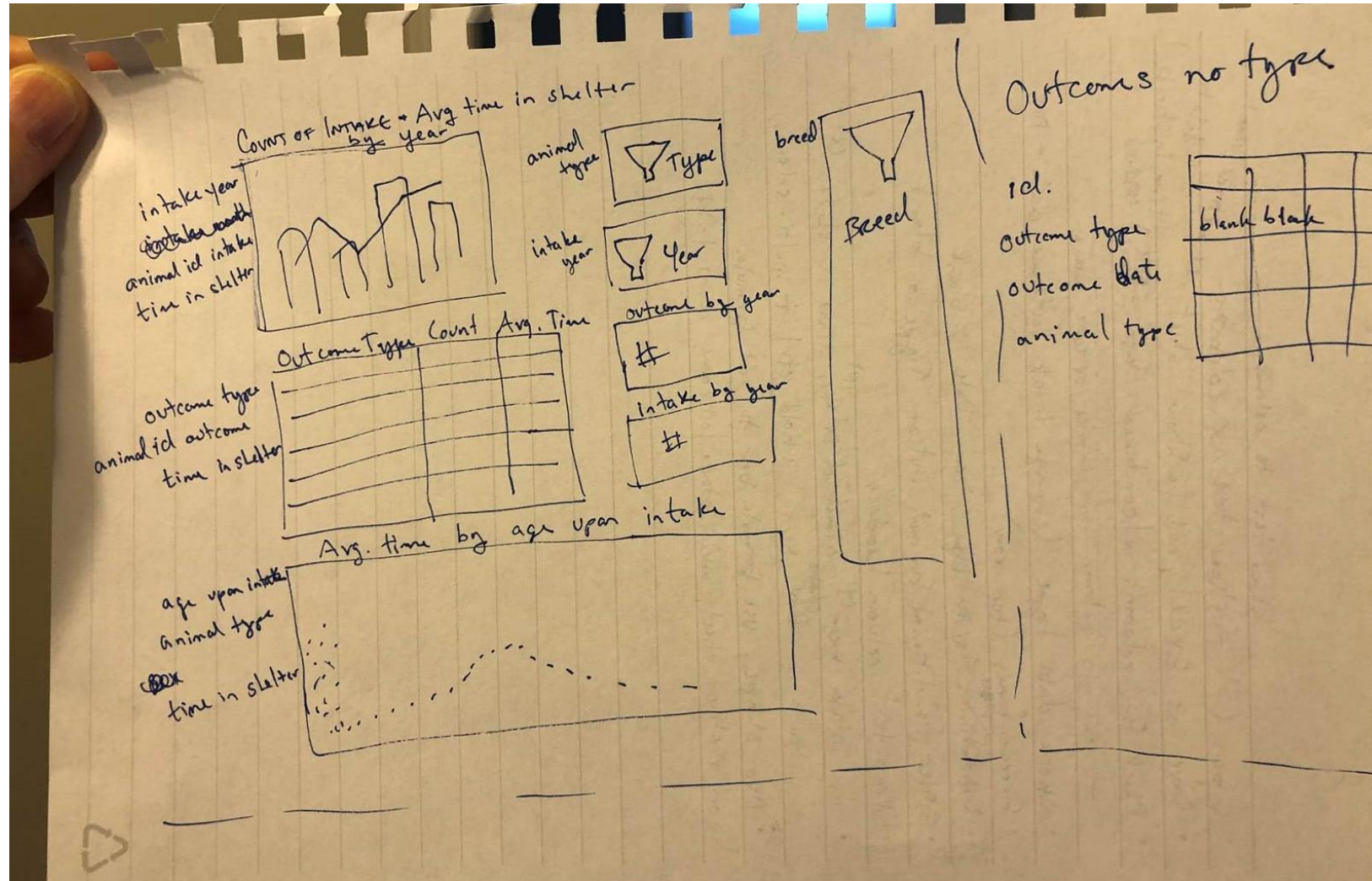


Pulling it all together into a Storyboard

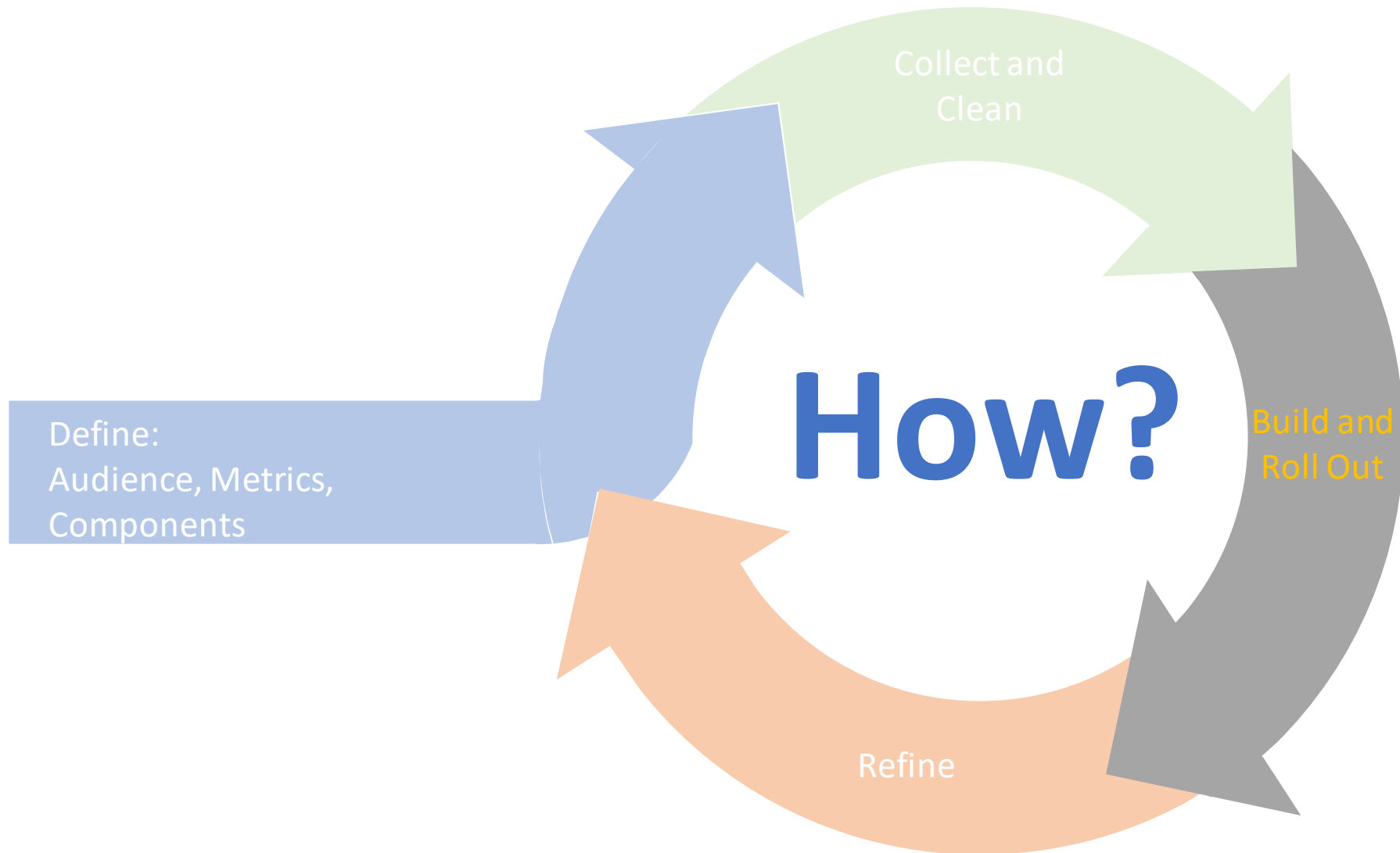
Initial layout & plan for dashboard



Pulling it all together into a Storyboard



Dashboard Creation Process



Examples...

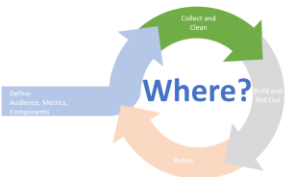
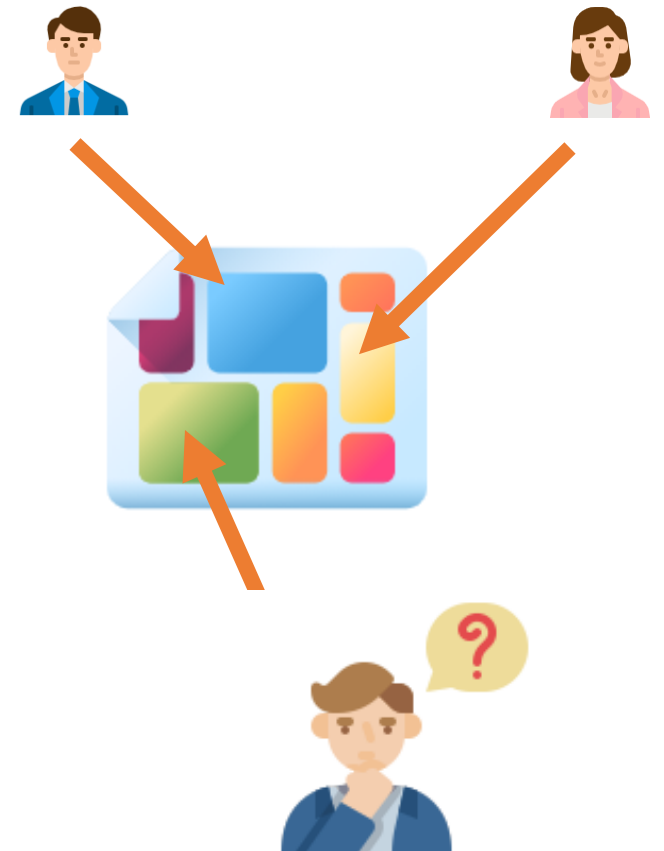
- Next let's look at an example of an informational dashboard – Tech Impact Annual Report + template for a simplified version.
- Quick build of an operational dashboard

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



Tools



Google
Data Studio



tableau®



Power BI



amazon
QuickSight

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. <ul style="list-style-type: none">• More than 50% off list price	License pricing is between \$15 – 72 per user, depending on function/role (Viewer, Explorer, Creator) <ul style="list-style-type: none">• 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


Download Power BI Desktop for Free

- <https://powerbi.microsoft.com/en-us/downloads/>

 **Microsoft** | **Power BI** [Overview](#) [Products](#) [Pricing](#) [Solutions](#) [Partners](#) [Resources](#) [Community](#) [Search](#) [Sign in](#) [Try free](#) [Buy now](#)

Download Power BI tools and apps

Whether you're on the go or need to create rich, interactive reports, download the tools you need to build reports and stay connected to your data from anywhere, anytime. Get a 360° view of your business data on the go—at the touch of your fingers—and quickly connect, shape, visualize, and share data insights through Power BI.




Microsoft Power BI Desktop

With the Power BI Desktop you can visually explore your data through a free-form drag-and-drop canvas, a broad range of modern data visualizations, and an easy-to-use report authoring experience.




[Download >](#)


[Advanced download options >](#)



Microsoft Power BI Mobile

Access your data anywhere, anytime. These native apps provide live, interactive, mobile access to your important business information.





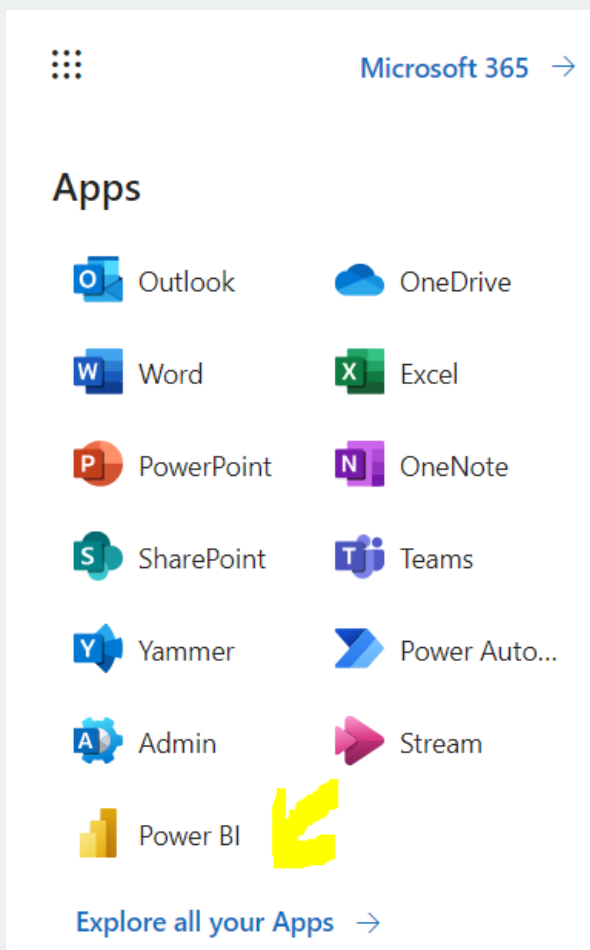
Microsoft on-premises data gateway

Keep your dashboards and reports up to date by connecting to your on-premises data sources—without the need to move the data.

[Download standard mode >](#)

[Download personal mode >](#)

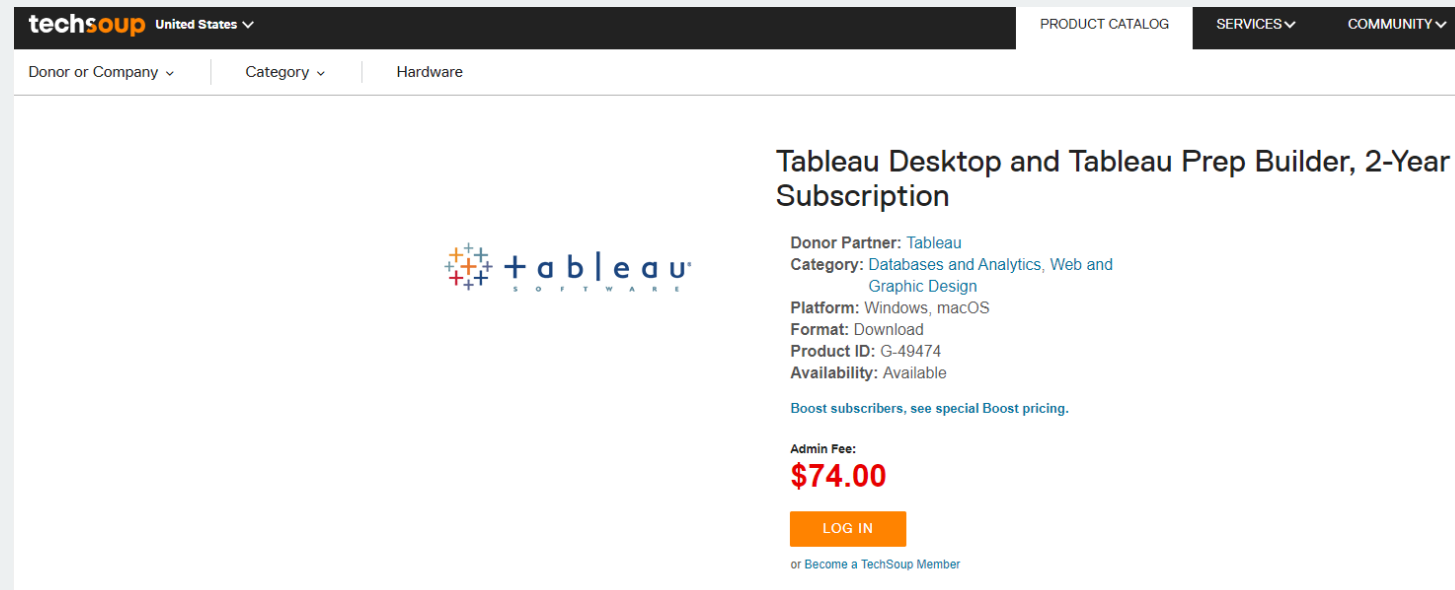
Getting Power BI M365 App



- 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)

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")




The screenshot shows the TechSoup website interface. At the top, there's a navigation bar with 'techsoup' and 'United States' dropdown. Below it, a secondary navigation bar includes 'PRODUCT CATALOG', 'SERVICES', and 'COMMUNITY'. The main content area displays the product listing for 'Tableau Desktop and Tableau Prep Builder, 2-Year Subscription'. The product name is prominently displayed. Below it, the Tableau logo is shown. To the right of the logo, the product details are listed: Donor Partner: Tableau, Category: Databases and Analytics, Web and Graphic Design, Platform: Windows, macOS, Format: Download, Product ID: G-49474, and Availability: Available. A note mentions 'Boost subscribers, see special Boost pricing.' The 'Admin Fee' is highlighted in red as '\$74.00'. There is a 'LOG IN' button and a link to 'Become a TechSoup Member'.

techsoup United States ▾

PRODUCT CATALOG SERVICES ▾ COMMUNITY ▾

Donor or Company ▾ | Category ▾ | Hardware

Tableau Desktop and Tableau Prep Builder, 2-Year Subscription

 + a b | e a u
S O F T W A R E

Donor Partner: Tableau
Category: Databases and Analytics, Web and Graphic Design
Platform: Windows, macOS
Format: Download
Product ID: G-49474
Availability: Available

Boost subscribers, see special Boost pricing.

Admin Fee:
\$74.00

LOG IN

or Become a TechSoup Member

Share a Dashboard– send an invite or copy the link

Secure | <https://app.powerbi.com/groups/me/dashboards/5564a806-4de2-4fe8-9530-a34abf96d913>

Power BI | My Workspace > Donations Dashboard2

Ask a question about your data

Donations Dashboard2
DONATIONS

donation_total by Year and Month Name

Month Name: April, August, December, February, January, July, June, March, May, November

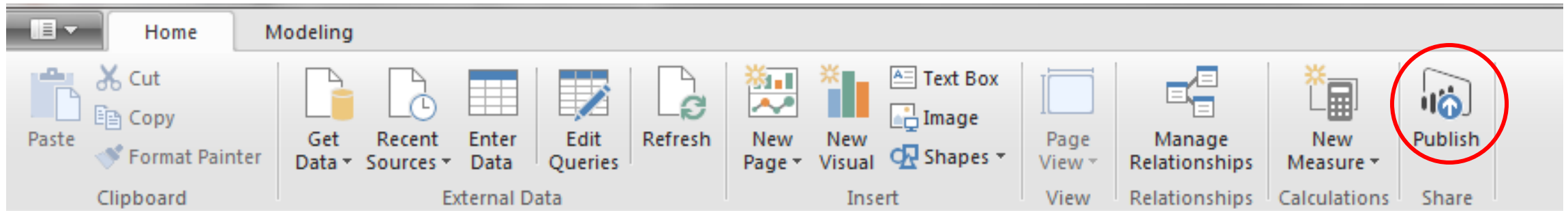
donation_total by donor_state

donor_state: (Blank), AE, AK, AL, AP, AR, AS, AZ

donation_total by dollar_amount

dollar_amount: under_10, 10_to_100

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/](https://eazybi.com/blog/data%20visualization%20and%20chart%20types/)

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>