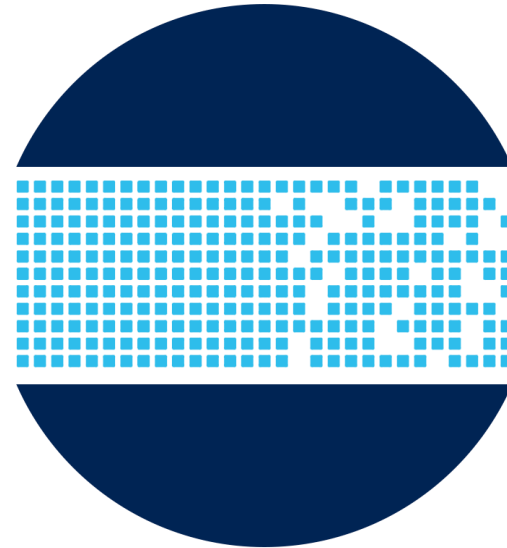


Workshop

Building Research Collaboration Networks

Leveraging Sponsored Research Data

Robert Pilgrim, rpilgrim@uark.edu



2024
**Research
Analytics
Summit**
Building Capacity, Empowering Skill Transfer,
and Energizing a Growing Community

Check out my blog



Connect with me



Make sure you have **Microsoft Power BI Desktop installed**

Mac Users: You can also do this in the cloud it should look the same

<https://app.powerbi.com/>

Data www.rpilgrim.com/networkdata

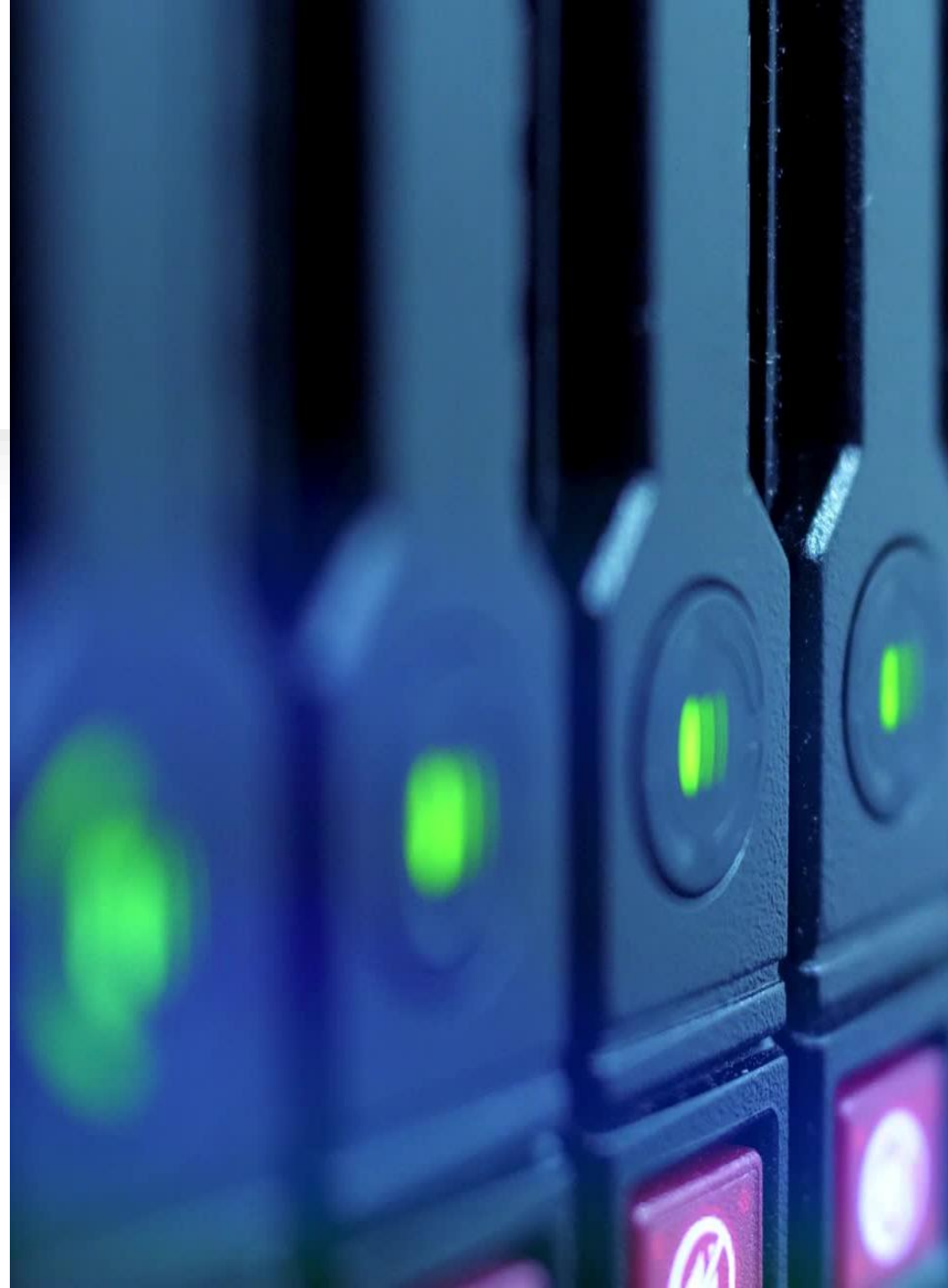
Overview

- Part 1
 - Bring data into Power BI
 - Build some report pages
 - Load 2 custom visuals
 - Build an Interactive Network
- Part 2
 - Applications (May not get through all of these)
- Who has used Power BI before?
 - Please help others if needed.



Does Everyone have what they Need?

-  Power BI Desktop OR you have web-based access
 - <https://app.powerbi.com/>
 - log in or sign up for free
-  Data Download
 - **rpilgrim.com/networkdata**
 - Or get usb from me



Open Power BI Desktop

FileHomeInsertModelingViewOptimizeHelpExternal tools

PasteCutCopyFormat painterClipboard

Get dataExcel workbook data hubOneLake SQL Server Enter data Dataverse Recent sources

Transform dataRefreshQueries

New visualText boxMore visualsInsert

New measureQuick measureCalculations

SensitivitySensitivity

PublishShare

Search

Sign in

Share

Visualizations

Build visual

Performance analyzer

Selection

Bookmarks

Filters

Values

Add data fields here

Drill through

Cross-report

Keep all filters

Add drill-through fields here

Data

Search

You haven't loaded any data yet. Get data

Add data to your report

Once loaded, your data will appear in the Data pane.

Import data from Excel

Import data from SQL Server

Paste data into a blank table

Try a sample semantic model

Get data from another source →

What is a Research Network

Visualizing your Research Community



Concept

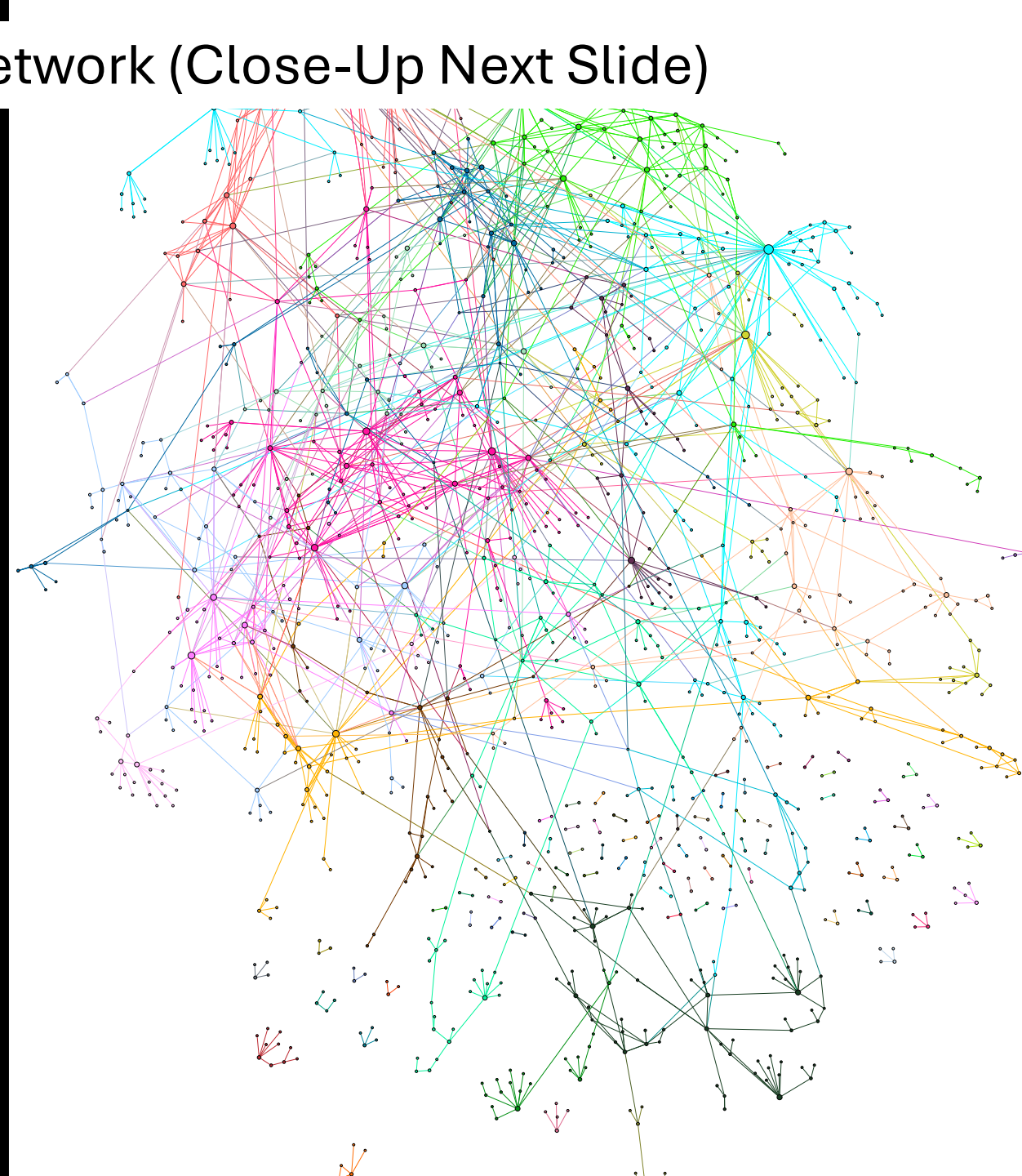
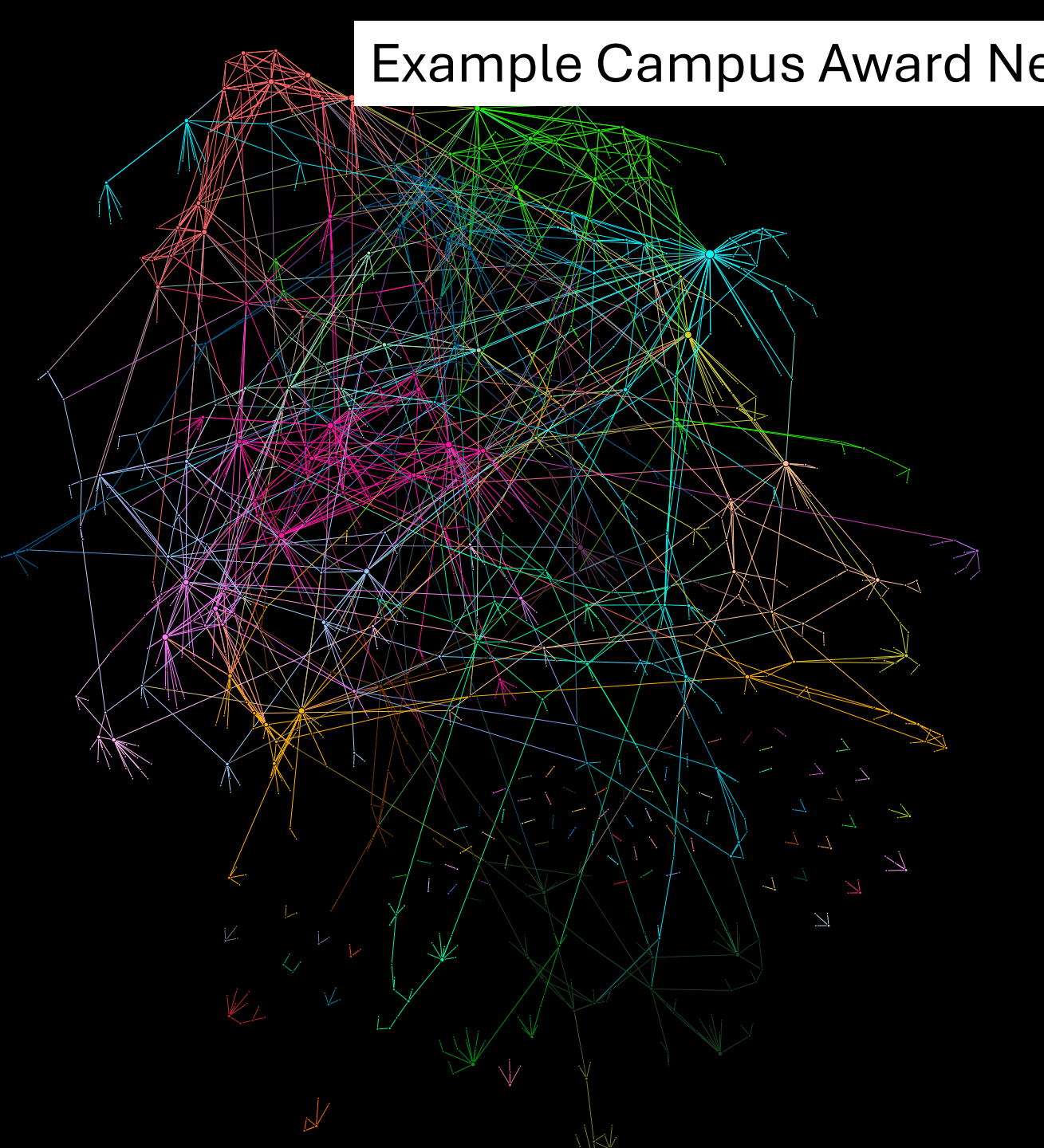
- List all research faculty on Post-it Notes
 - Join PI-COI by a line
 - The more lines connecting the same people, the closer the post-it notes
 - Let's look at an example
-

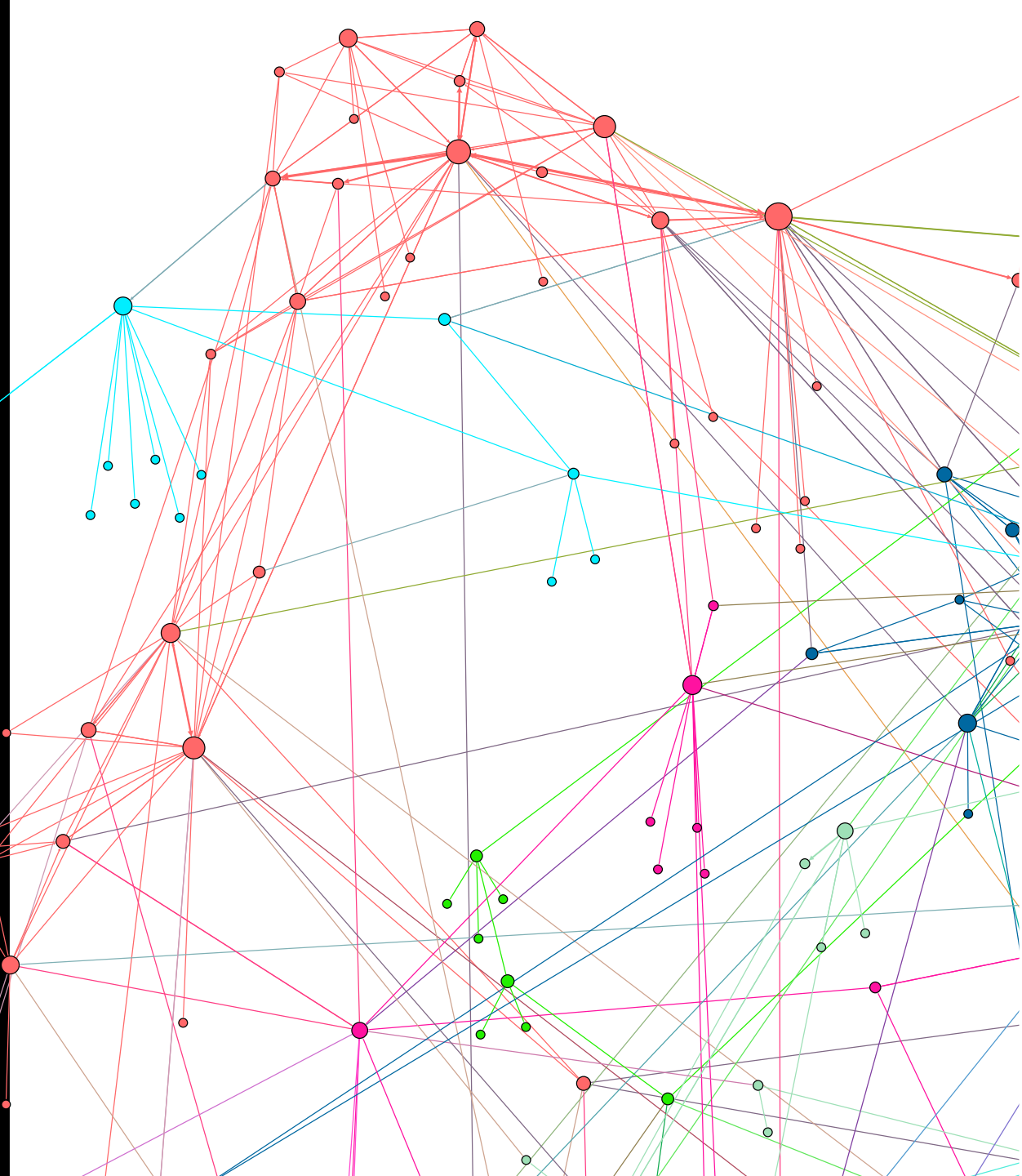
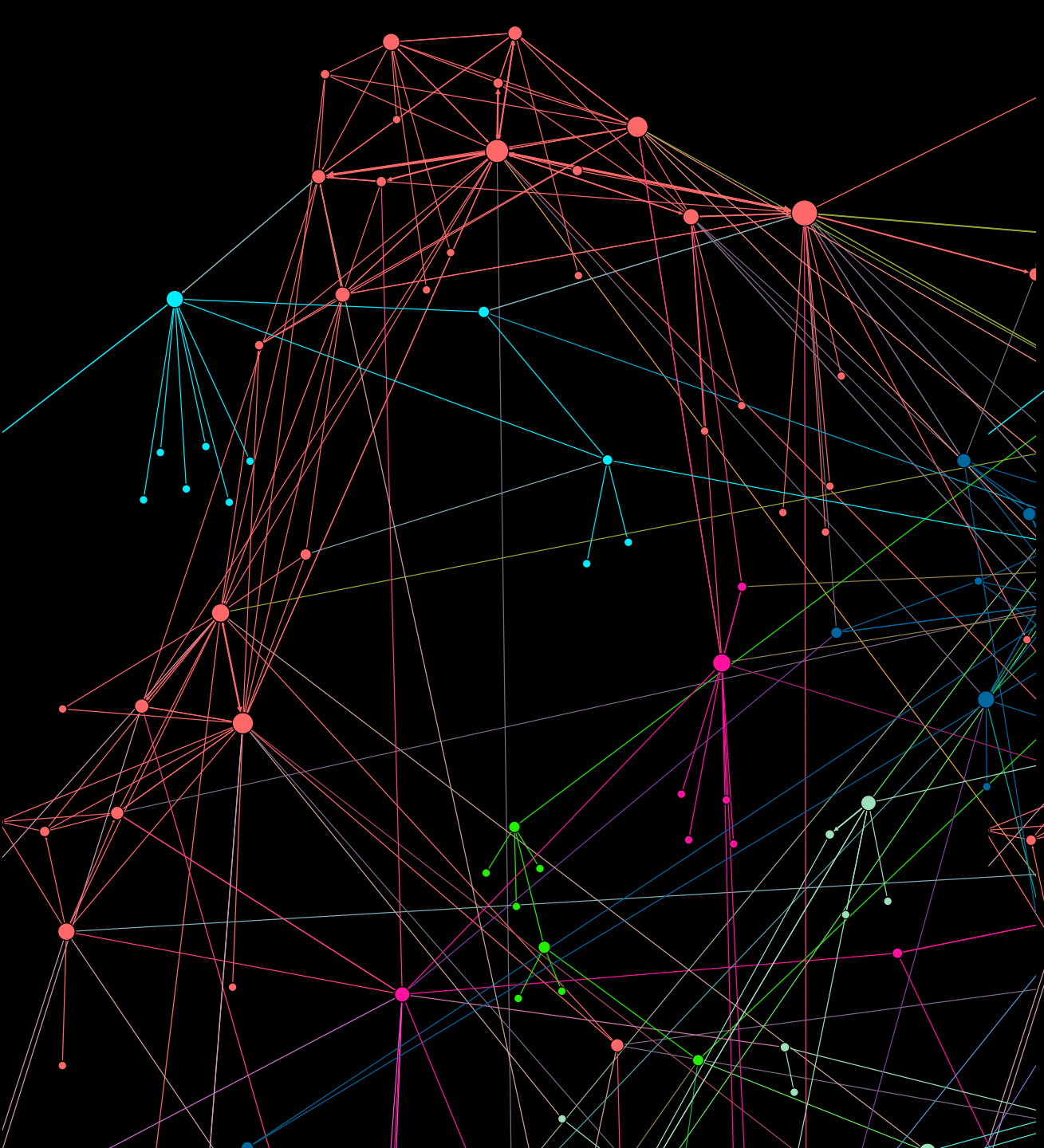


Picture is
worth
“1,000
Words”



Example Campus Award Network (Close-Up Next Slide)





Power BI 101

Quick Start

Open Power BI Desktop | Do this First

The image shows the Power BI Desktop interface with the 'Options and settings' menu open. The 'Options' tab is selected, and the 'Data Load' section under 'CURRENT FILE' is highlighted. A red box highlights the 'Autodetect new relationships after data is loaded' checkbox, which is unchecked. A black box with white text says 'Make sure this is NOT CHECKED'.

Options and settings

- Home
- Open
- Save
- Save as
- Share
- Get data
- Import
- Export
- Publish
- Sign in
- Options and settings**
- About

Options

- GLOBAL
 - Data Load
 - Power Query Editor
 - DirectQuery
 - R scripting
 - Python scripting
 - Security
 - Privacy
 - Regional Settings
 - Updates
 - Usage Data
 - Diagnostics
 - Preview features
 - Save and Recover
 - Report settings
 - Copilot (preview)
- CURRENT FILE**
 - Data Load**
 - Regional Settings
 - Privacy

Type Detection

- ☒ Detect column types and headers for unstructured sources

Relationships

- ☒ Import relationships from data sources on first load ⓘ
- ☐ Update or delete relationships when refreshing data ⓘ
- ☐ Autodetect new relationships after data is loaded ⓘ
- [Learn more](#)

Background Data

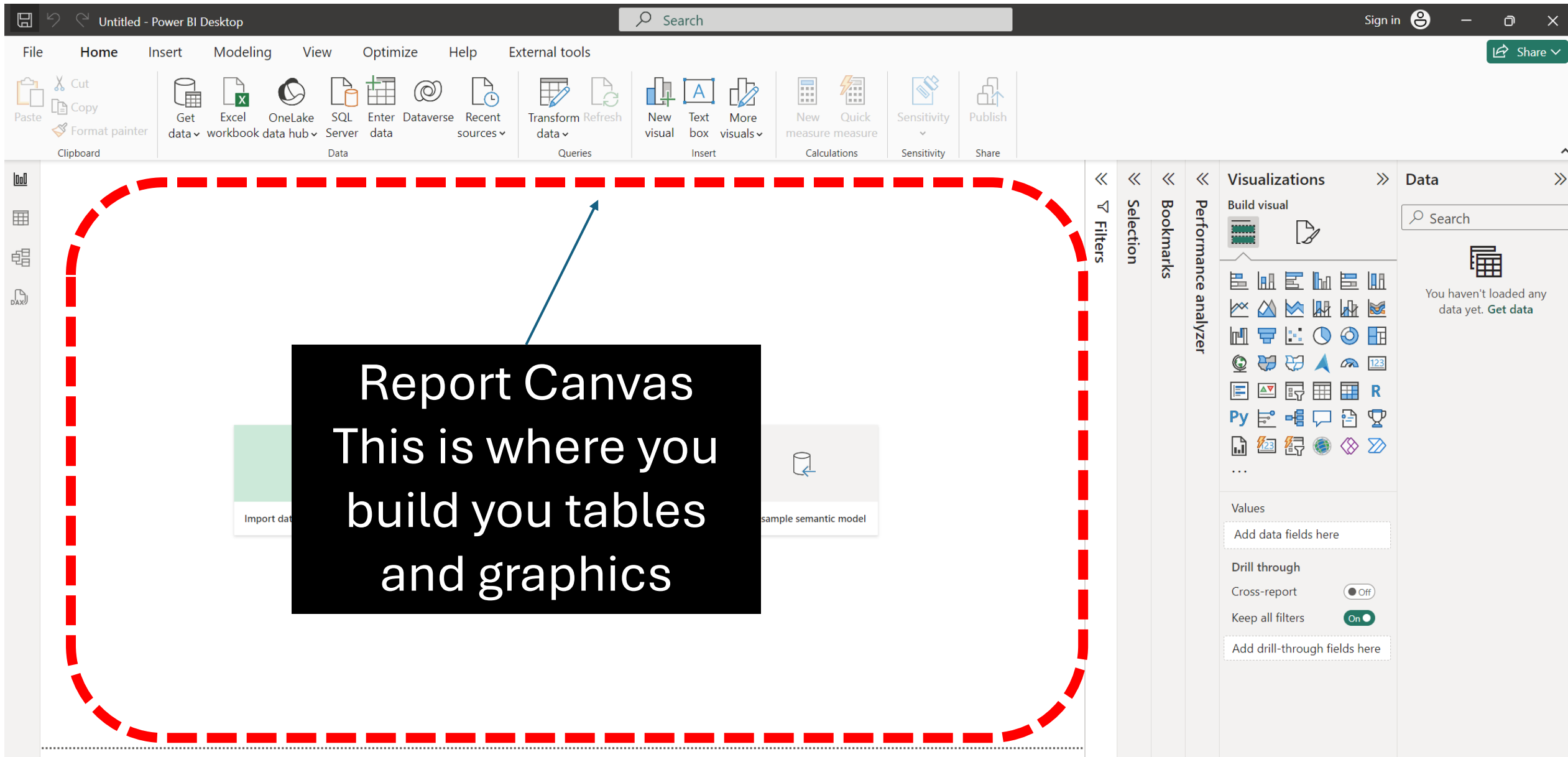
- ☐ Allow data previews to download in the background

Parallel loading of tables ⓘ

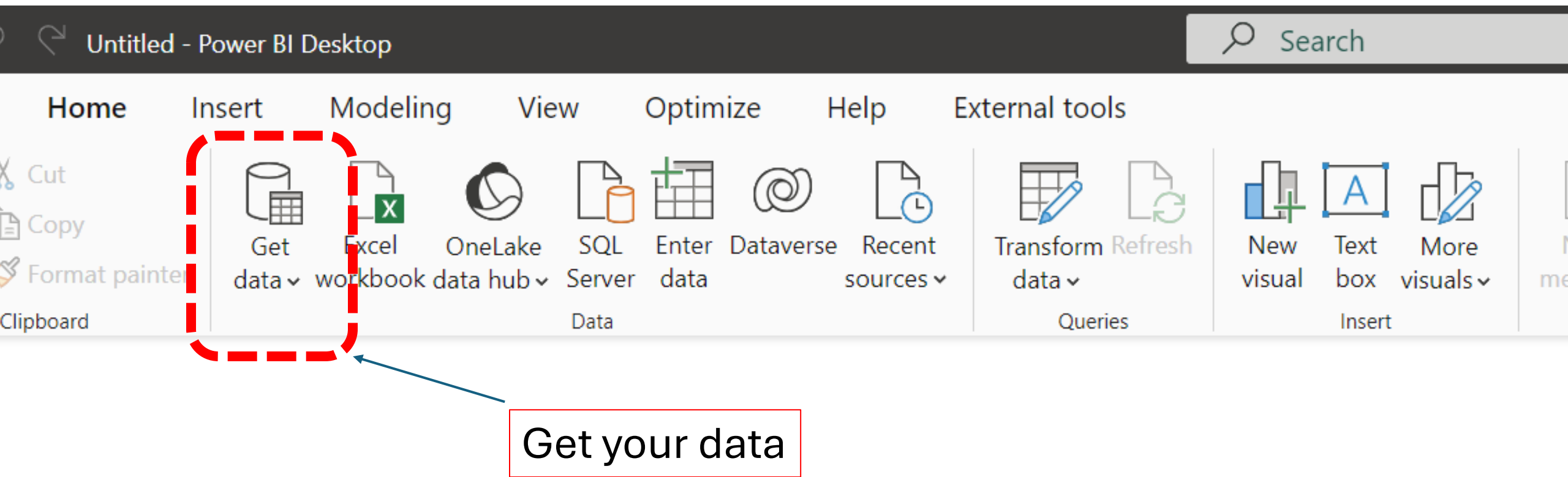
Maximum number of concurrent jobs [Learn more](#)

- ☒ Default
- ☐ One (disable parallel loading)
- ☐ Custom

Power BI 101



Power BI 101





File

Home

Insert

Modeling

View

Optimize

Help

External tools



Paste



Cut



Copy



Format painter

Clipboard



Get data ▾



Excel

workbook data hub ▾



OneLake



SQL Server



Enter data



Dataverse



Recent sources ▾

Data



Transform data ▾



Refresh

Queries



New visual



Text box



More visual

Insert



Canvas



Data View



Data Model

Add data to your report

Once loaded, your data will appear in the **Data** pane

report

ar in the Data pane.



into a blank table



Try a sample semantic model

source →

Filters

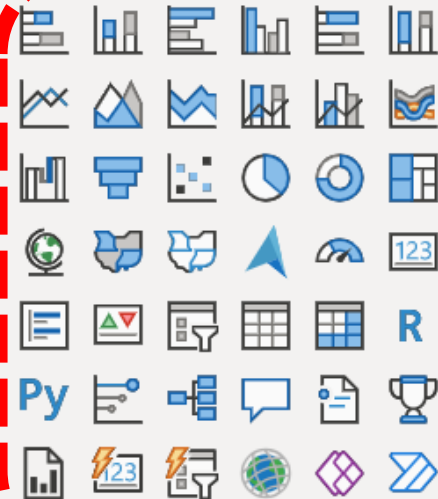
Selection

Bookmarks

Performance analyzer

Visualizations

Build visual



Default Visuals

Data

Search



You haven't loaded any data yet. [Get data](#)

Data Variables

Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

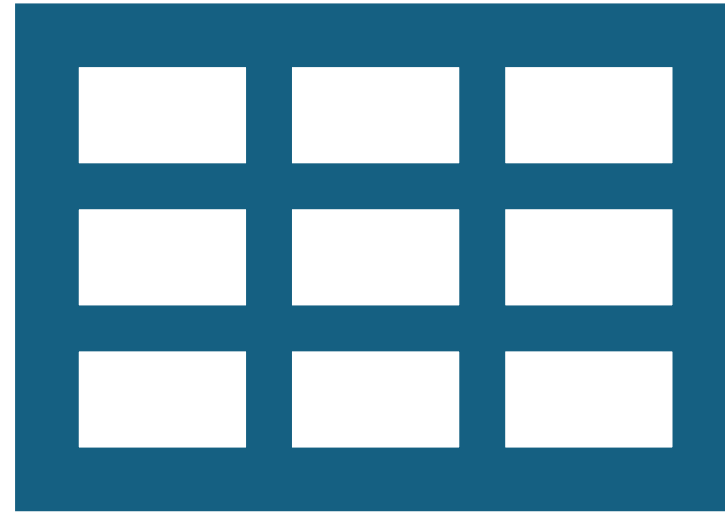
On

Add drill-through fields here



Data Load

We will make 2 Tables:
“Proposals” and “Proposal
Networks”



This Data I Found Online

It has been modified for this talk,
it is not real



Using your Own Data

- It must be in this format
- Columns for PI
- Column for COI/Investigators

Proposal Number	PI	Investigator
FP00040740	Thornton, Trevor John	Alford, Terry Lynn
FP00040740	Thornton, Trevor John	Goodnick, Stephen Marshall
FP00040740	Thornton, Trevor John	Nemanich, Robert John
FP00040740	Thornton, Trevor John	Thornton, Trevor John

Load your Data

Navigator

Display Options ▾

📁 Network_Workshop_Data.xlsx [5]

☐ 📊 Awards

☐ 📊 Fiscal Year

☐ 📊 List Investigator

☒ 📊 Proposals

☐ 📊 Sheet4

Proposals

	Home College	Proposal Number	Strategic Initiative
2024	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00038953	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00038352	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037805	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037728	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037728	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037728	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037680	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037680	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037555	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037452	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037313	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037313	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037313	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037292	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037206	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037021	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037021	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037010	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00037009	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00036951	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00036767	None
2023	Engineering, Ira A. Fulton Schools of (IAFSE)	FP00036610	None

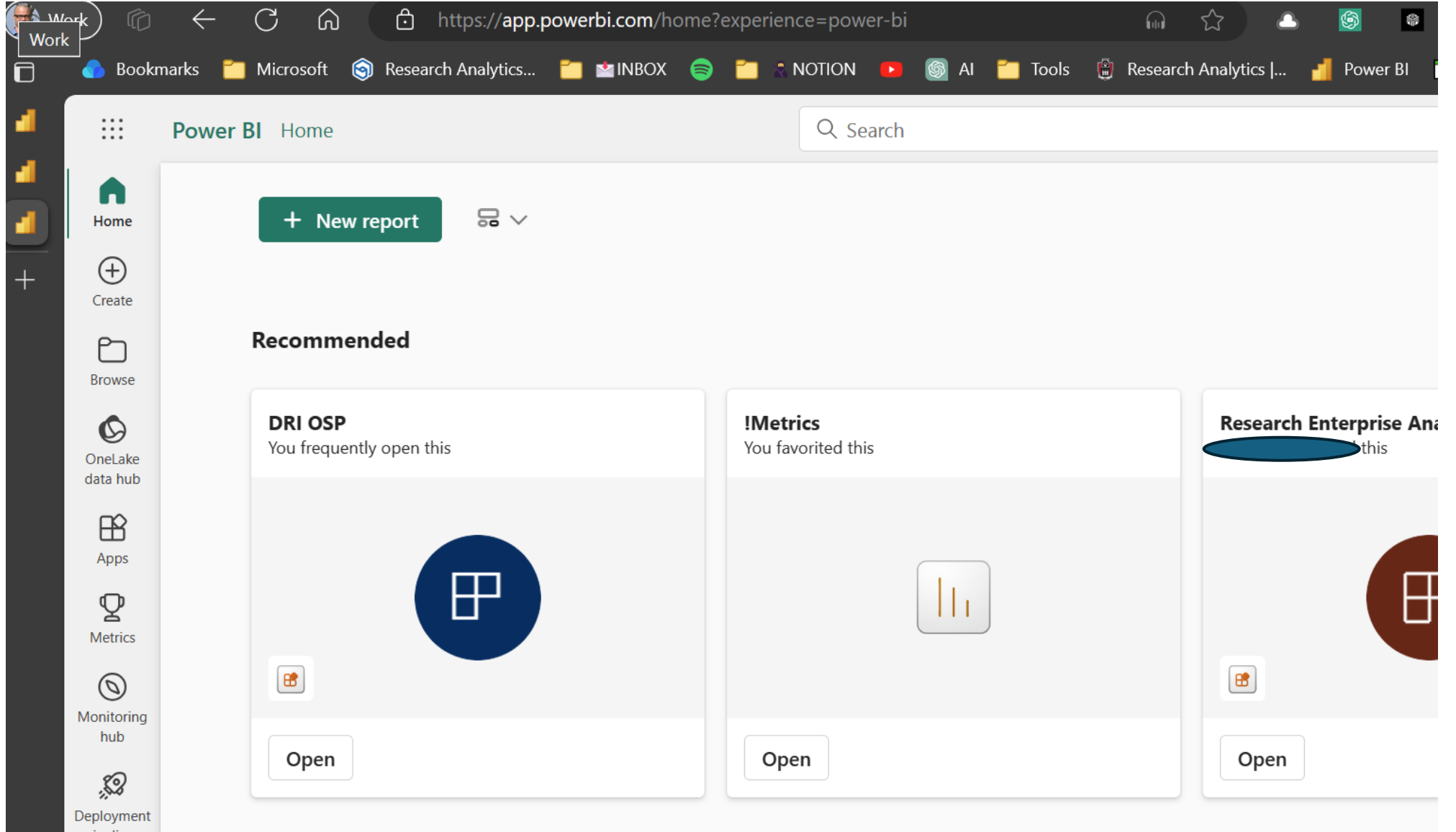
Load

Transform Data

Cancel

Web-Based

- Who is using web?



Web | Copy/Paste Data from Spreadsheet

Add data to start building a report



Paste or manually enter
data



Pick a published semantic
model

Don't see the source you're looking for? [Download the desktop app.](#)

Web

- Open Spreadsheet
- Copy/Paste proposal data
- Name “Proposals”

Auto-create report

Create a blank report

Create a semantic model only

Auto-create report

Power Query

Get data

Enter data

Copy and paste data into the table, or enter data manually. Be sure the data type matches the values in each column. [Learn more](#)

Use first row as headers

We have detected delimiters in the data that you pasted.

	Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11
1	Fiscal Year	Home College	Proposal Number	Strategic Initiative	Proposal Title	PI	PI ID	Investigator	Investigator ID	Direct Sponsor	Direct Sponsor Group
2	2024	Engineering, Ira A. Ful...	FP00038953	None	Transforming Enginee...	Johnson, Mina Cather...	1200807716	Mignolet, Marc Paul	1000421035	National Science Fou...	Federal
3	2023	Engineering, Ira A. Ful...	FP00038352	None	Mid-scale RI-2: ARISE...	Shrivastava, Aviral	1001056600	Tongay, Sefaattin	1208165227	National Science Fou...	Federal
4	2023	Engineering, Ira A. Ful...	FP00037805	None	FMRG Eco: A New 3D...	Song, Kenan	1214189300	Deng, Shuguang	1210058860	National Science Fou...	Federal
5	2023	Engineering, Ira A. Ful...	FP00037728	None	Global Centers Track ...	Finl, Elham H	1216000045	Deng, Shuguang	1210058860	National Science Fou...	Federal
6	2023	Engineering, Ira A. Ful...	FP00037728	None	Global Centers Track ...	Finl, Elham H	1216000045	Phelan, Patrick E	1000420782	National Science Fou...	Federal
7	2023	Engineering, Ira A. Ful...	FP00037728	None	Global Centers Track ...	Finl, Elham H	1216000045	Oswald, Jay	1204445185	National Science Fou...	Federal
8	2023	Engineering, Ira A. Ful...	FP00037680	None	Collaborative Researc...	Yan, Feng	1227798951	Zhuang, Houlong	1213769074	National Science Fou...	Federal
9	2023	Engineering, Ira A. Ful...	FP00037680	None	Collaborative Researc...	Yan, Feng	1227798951	Li, Lin	1227637933	National Science Fou...	Federal
10	2023	Engineering, Ira A. Ful...	FP00037555	None	FuSe: Next-generatio...	Sanchez Esqueda, Ivan	1000846792	Tongay, Sefaattin	1208165227	National Science Fou...	Federal
11	2023	Engineering, Ira A. Ful...	FP00037452	None	FUSE: Material and D...	Kalarickal, Nidhin Kuri...	1227571321	Susarla, Sandhya	1227337165	National Science Fou...	Federal
12	2023	Engineering, Ira A. Ful...	FP00037313	None	FMRG: ECO: Zero-Wa...	Hwa, Yoon	1220395683	Kasbaoui, Mohamed ...	1215879327	National Science Fou...	Federal
13	2023	Engineering, Ira A. Ful...	FP00037313	None	FMRG: ECO: Zero-Wa...	Hwa, Yoon	1220395683	Chan, Candace Kay	1204459420	National Science Fou...	Federal
14	2023	Engineering, Ira A. Ful...	FP00037313	None	FMRG: ECO: Zero-Wa...	Hwa, Yoon	1220395683	Kwon, Beomjin	1215875219	National Science Fou...	Federal
15	2023	Engineering, Ira A. Ful...	FP00037313	None	FMRG: ECO: Zero-Wa...	Hwa, Yoon	1220395683	Jamesari Ladani, Leila	1217783333	National Science Fou...	Federal
16	2023	Engineering, Ira A. Ful...	FP00037292	None	Defect and Surfactant...	Sieradzki, Karl	1000418742	Chan, Candace Kay	1204459420	National Science Fou...	Federal
17	2023	Engineering, Ira A. Ful...	FP00037206	None	Collaborative Researc...	Singh, Arunima	1215887764	Dey, Sandwip Kumar	1000418695	National Science Fou...	Federal
18	2023	Engineering, Ira A. Ful...	FP00037021	None	DMREF: Computatio...	Nannenga, Brent Lane	1000600030	Oswald, Jay	1204445185	National Science Fou...	Federal
19	2023	Engineering, Ira A. Ful...	FP00037021	None	DMREF: Computatio...	Nannenga, Brent Lane	1000600030	Nielsen, David Ross	1202345876	National Science Fou...	Federal
20	2023	Engineering, Ira A. Ful...	FP00037010	None	DMREF: Topological ...	Nian, Qiong	1203092275	Zhuang, Houlong	1213769074	National Science Fou...	Federal
21	2023	Engineering, Ira A. Ful...	FP00037009	None	ISS: Investigating the ...	Holloway, Julianne L	1210360785	Acharya, Abhinav P	1215875206	National Science Fou...	Federal
22											

Name
Table

Auto-create report

Auto-create report

Cancel

www.rpilgrim.com/networkdata

This is Power Query

Rename Data “Proposals”

1. Change Format

Queries [1]

Proposals

1.2 Decimal Number

\$ Fixed decimal number

123 Whole Number

% Percentage

Date/Time

Date

Time

Date/Time/Timezone

Duration

Text

True/False

Binary

Using Locale...

100% Valid

0% Error

0% Empty

4 distinct, 0 unique

100% Valid

0% Error

0% Empty

78 distinct, 2 unique

100% Valid

0% Error

0% Empty

2 distinct, 1 unique

1 SF) Denied

2 SF) Denied

3 SF) Denied

4 SF) Denied

5 SF) Denied

6 SF) Denied

7 SF) Denied

8 SF) Denied

45108 COI

45078 COI

45017 COI

45047 COI

45047 COI

45017 COI

45017 COI

null IAFSE-SEMTE: Eng

PAUSE: Does everyone have this loaded...

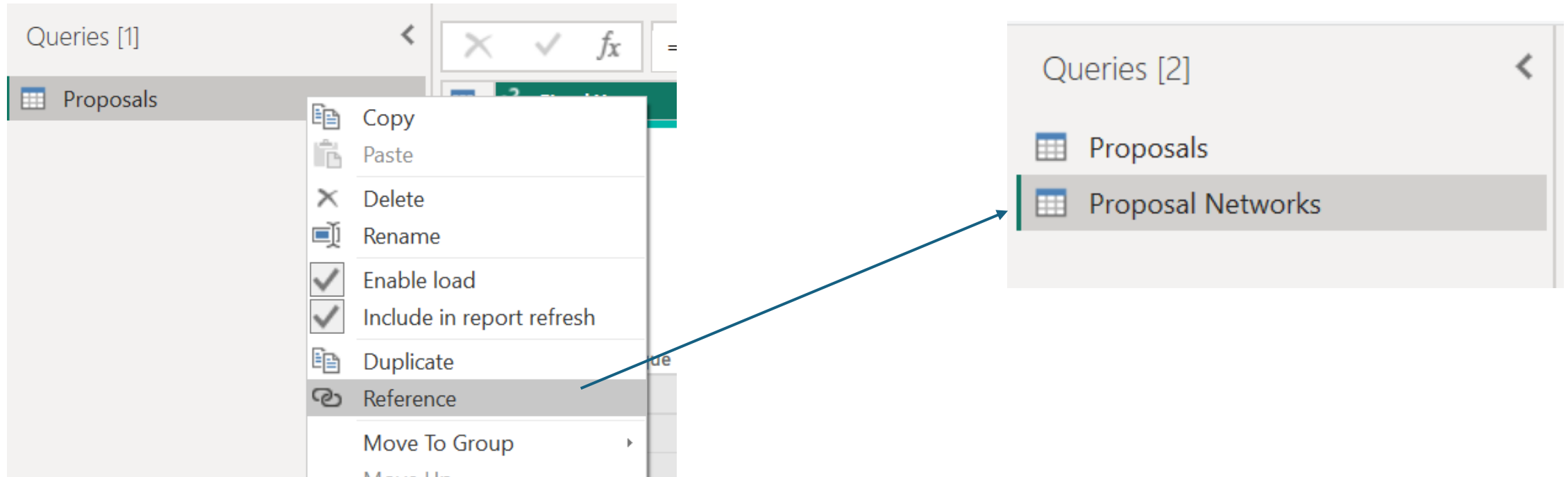
Next | PI -> COI Table

- Lets make a table containing the PI->COI connections
- We need to do some cleaning

Proposal Number	PI	Investigator
FP00040740	Thornton, Trevor John	Alford, Terry Lynn
FP00040740	Thornton, Trevor John	Goodnick, Stephen Marshall
FP00040740	Thornton, Trevor John	Nemanich, Robert John
FP00040740	Thornton, Trevor John	Thornton, Trevor John
FP00040731	Mousavi, Masoumeh	Lamanna, Anthony J
FP00040731	Mousavi, Masoumeh	Mousavi, Masoumeh
FP00040727	Adler, Jacob Benjamin	Adler, Jacob Benjamin
FP00040724	Arenz, Christian	Arenz, Christian
FP00040717	Takamura, John Hiroomi	Blum, Nita
FP00040717	Takamura, John Hiroomi	Takamura, John Hiroomi
FP00040712	Hartnett, Hilairy	Hartnett, Hilairy
FP00040710	Nittler, Larry R	Nittler, Larry R
FP00040709	Van Engelen, Alexander	Van Engelen, Alexander
FP00040706	Ozev, Sule	Ozev, Sule
FP00040706	Ozev, Sule	Sanyal, Arindam
FP00040701	Zhao, Ming	Pedrielli, Giulia
FP00040701	Zhao, Ming	Zhao, Ming
FP00040701	Zhao, Ming	Zhou, Xuesong
FP00040699	Harker, Samantha A	Braden, Brittany Blair
FP00040699	Harker, Samantha A	Chen, Kewei
FP00040699	Harker, Samantha A	Lewis, Candace Renee
FP00040699	Harker, Samantha A	Yudell, Michael

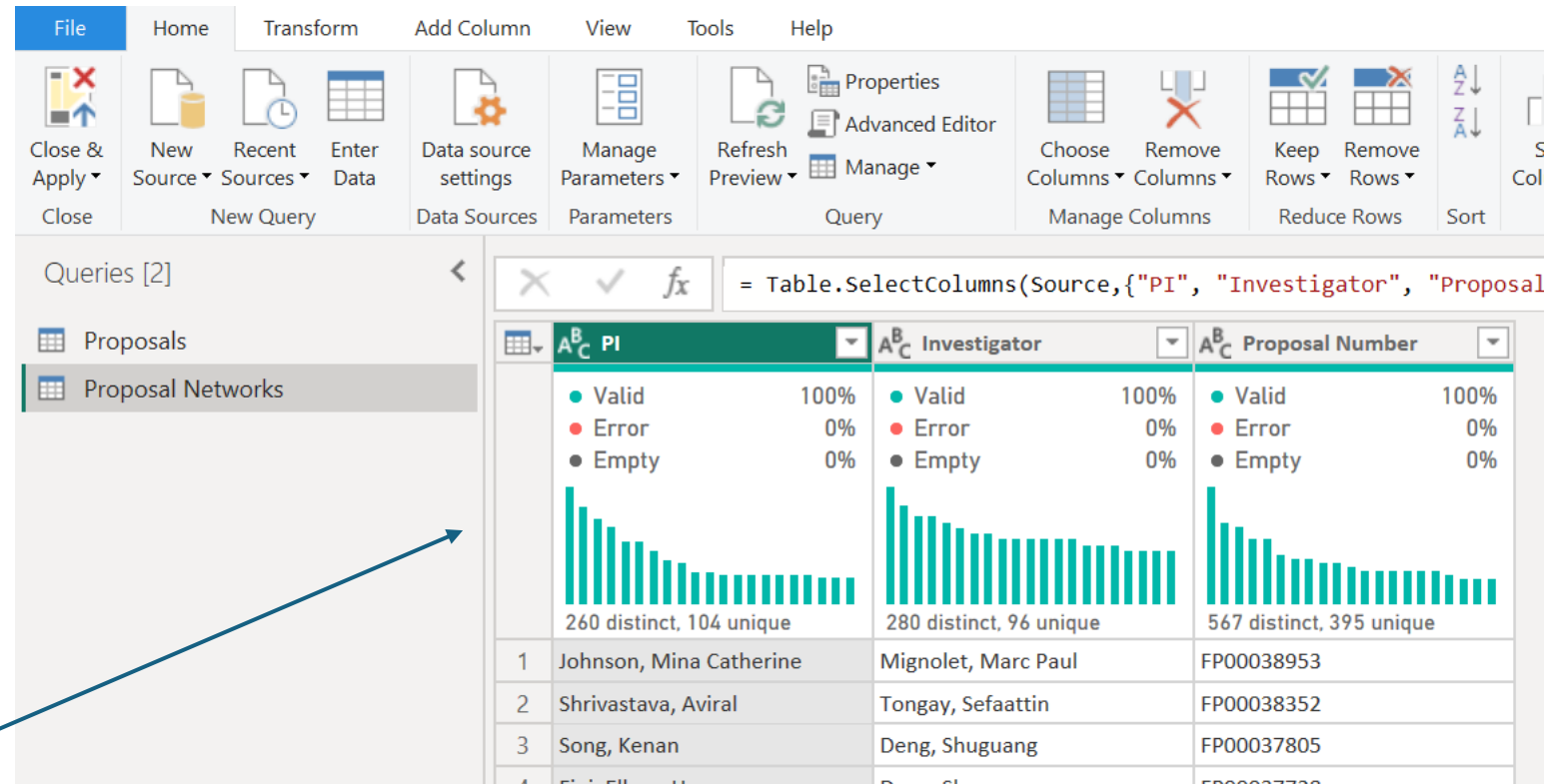
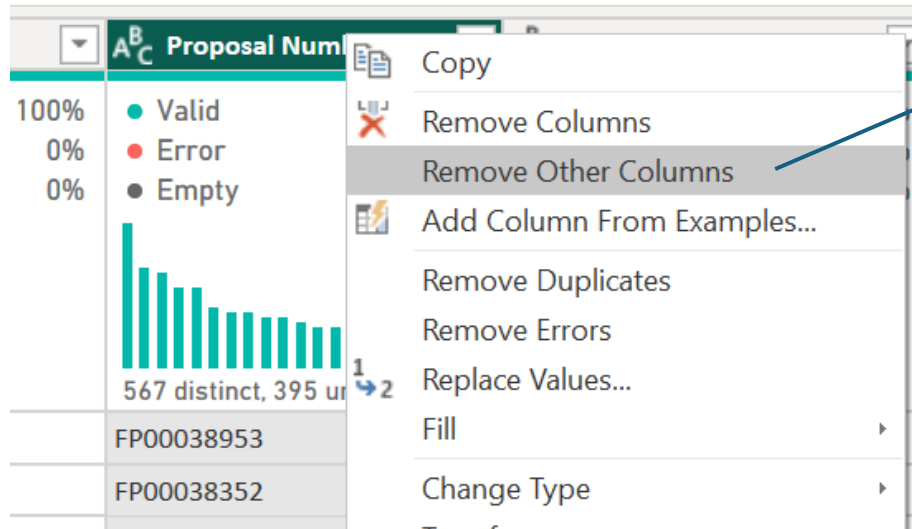
Make a Separate Table with the PI-COI Details

- 1. Right-Click “Proposals” then click “Reference”
 - This will make a copy
- 2. Rename it “**Proposal Networks**”

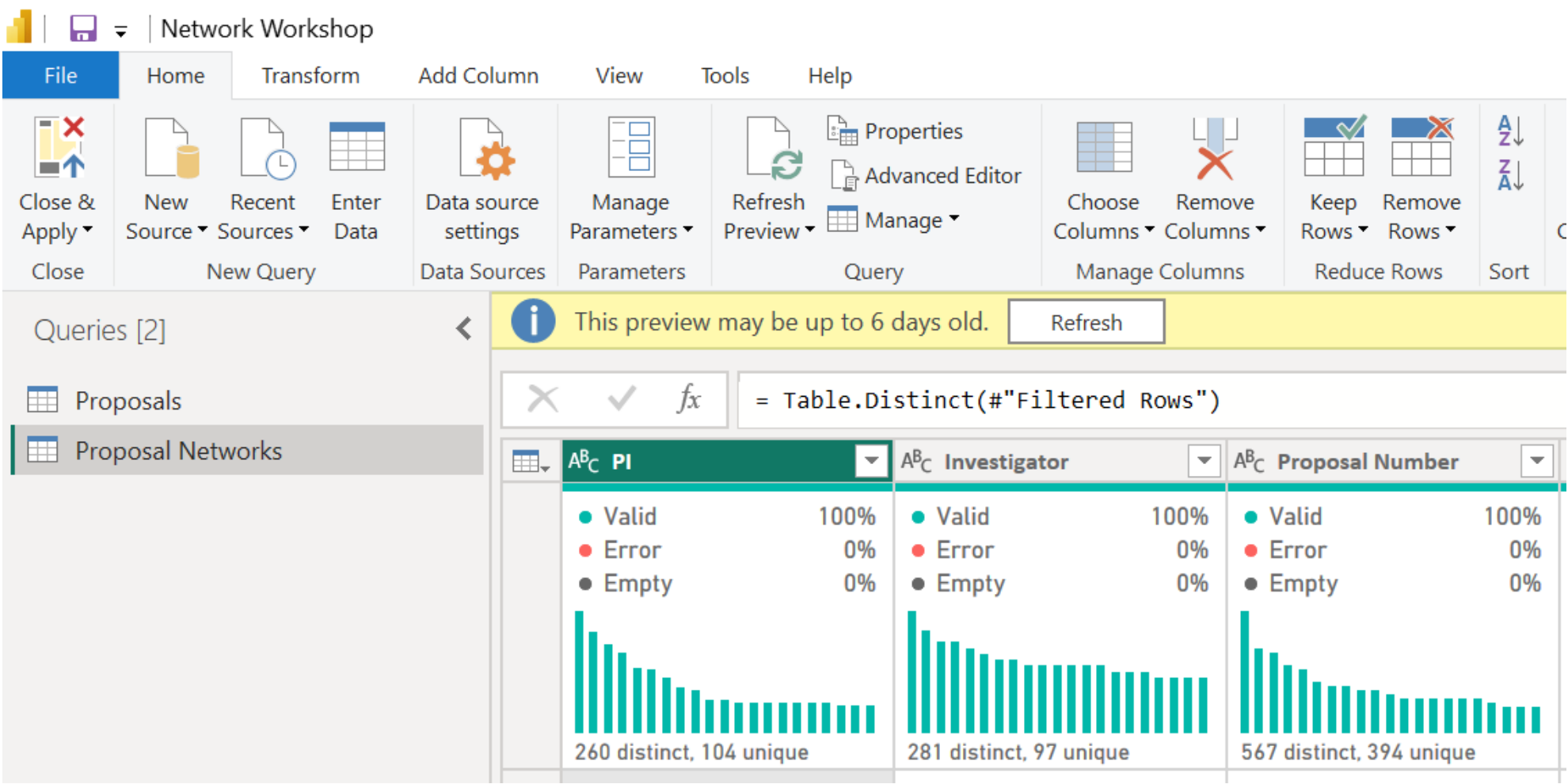


Proposal Networks | Keep Columns

- Select
 - PI
 - Investigator
 - Proposal Number
- Right-Click
- “Remove Other Columns”



It Should look like this



Remove Rows

- Networks=Connections
- Remove PI=COI

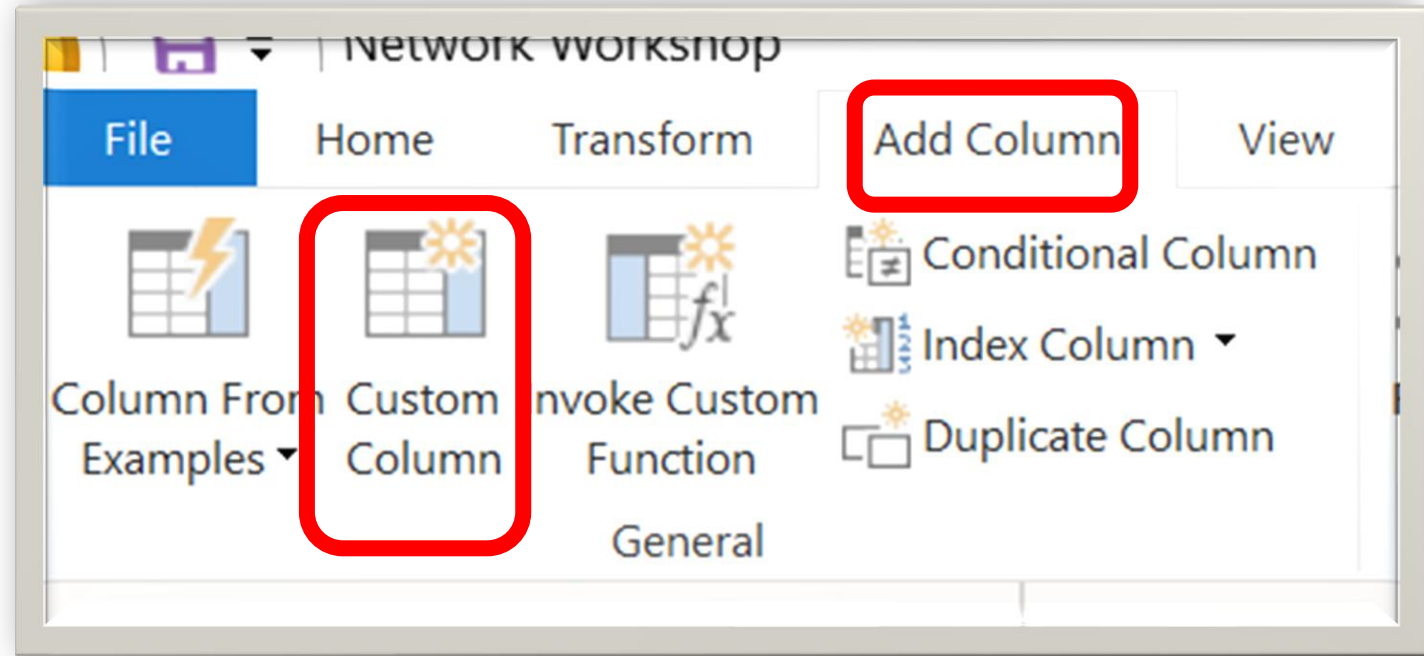
Proposal Number	PI	Investigator
☐ FP00040740	☐ Thornton, Trevor John	Alford, Terry Lynn
FP00040740	Thornton, Trevor John	Goodnick, Stephen Marshall
FP00040740	Thornton, Trevor John	Nemanich, Robert John
FP00040740	Thornton, Trevor John	Thornton, Trevor John
☐ FP00040731	☐ Mousavi, Masoumeh	Lamanna, Anthony J
FP00040731	Mousavi, Masoumeh	Mousavi, Masoumeh
☐ FP00040727	☐ Adler, Jacob Benjamin	Adler, Jacob Benjamin
☐ FP00040724	☐ Arenz, Christian	Arenz, Christian
☐ FP00040717	☐ Takamura, John Hiroomi	Blum, Nita
FP00040717	Takamura, John Hiroomi	Takamura, John Hiroomi
☐ FP00040712	☐ Hartnett, Hilairy	Hartnett, Hilairy
☐ FP00040710	☐ Nittler, Larry R	Nittler, Larry R
☐ FP00040709	☐ Van Engelen, Alexander	Van Engelen, Alexander
☐ FP00040706	☐ Ozev, Sule	Ozev, Sule
FP00040706	Ozev, Sule	Sanyal, Arindam
☐ FP00040701	☐ Zhao, Ming	Pedrielli, Giulia
FP00040701	Zhao, Ming	Zhao, Ming
FP00040701	Zhao, Ming	Zhou, Xuesong
☐ FP00040699	☐ Harker, Samantha A	Braden, Brittany Blair
FP00040699	Harker, Samantha A	Chen, Kewei
FP00040699	Harker, Samantha A	Lewis, Candace Renee
FP00040699	Harker, Samantha A	Yudell, Michael

Proposal Networks

Let's Add a Column to Remove Self References

- Columns
 - PI
 - Investigator
- We want to remove rows PI=Investigator

Award	PI	Investigator	Role
A001	Person A	Person A	PI
A001	Person A	Person B	COI
A001	Person A	Person C	COI



Proposal Networks | Custom Columns

Custom Column

Add a column that is computed from the other columns.

New column name

isSamePerson

Custom column formula ⓘ

```
= if [PI]=[Investigator] then "true" else "false"
```

Available columns

PI

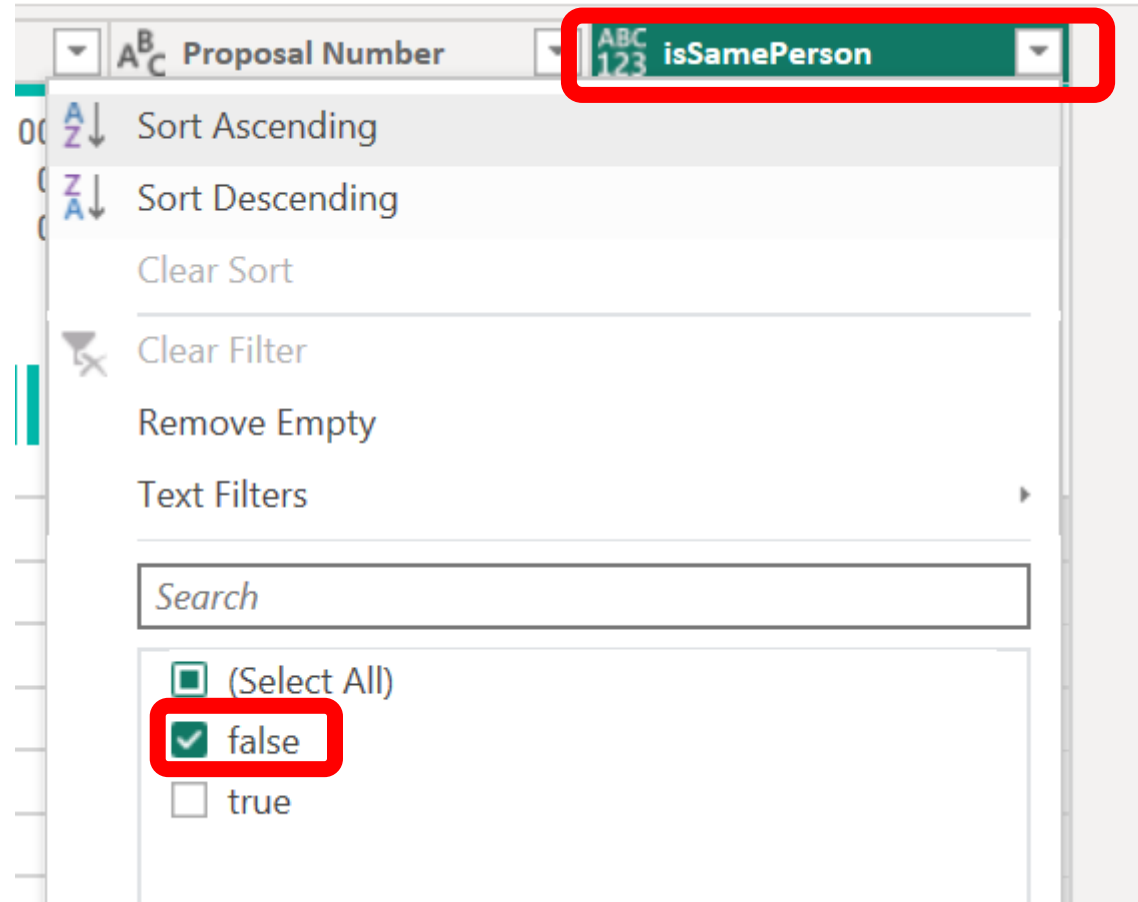
Investigator

Proposal Number

You can click variable names

isSamePerson | Filter=False

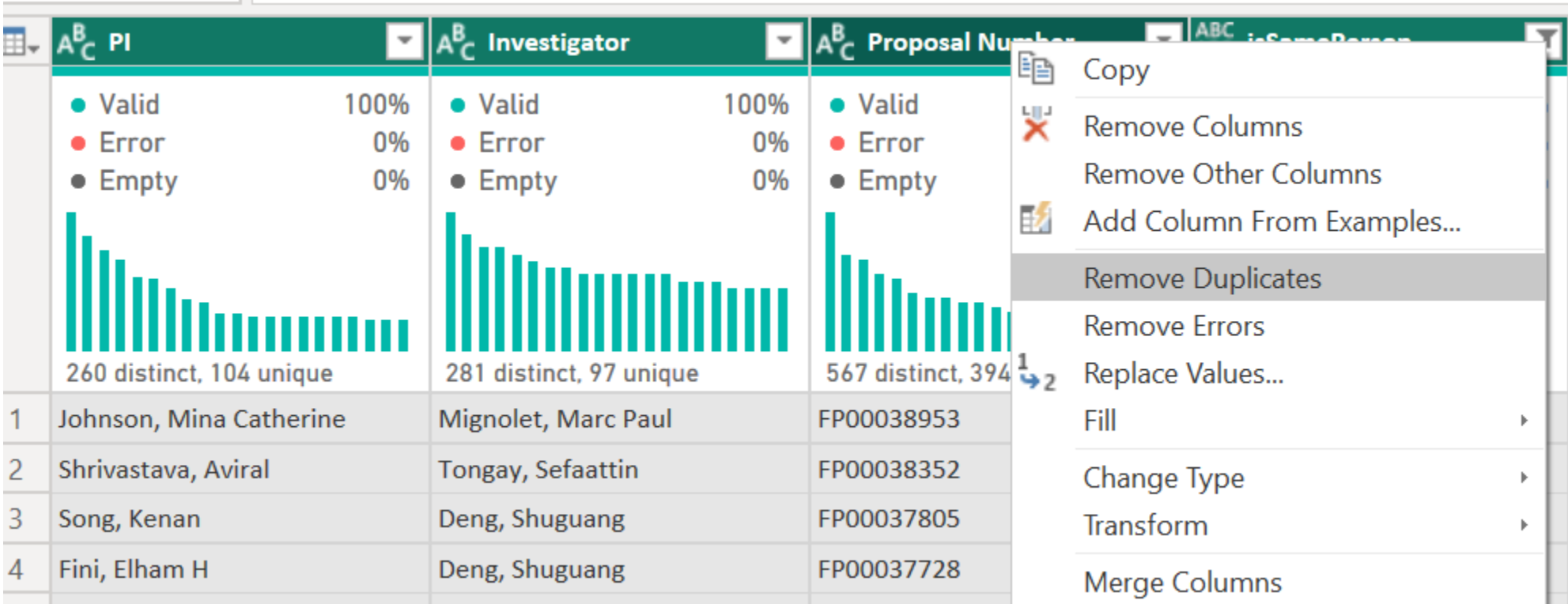
- IF PI=COI then remove
- Click Drop-Down
- Only keep “false”



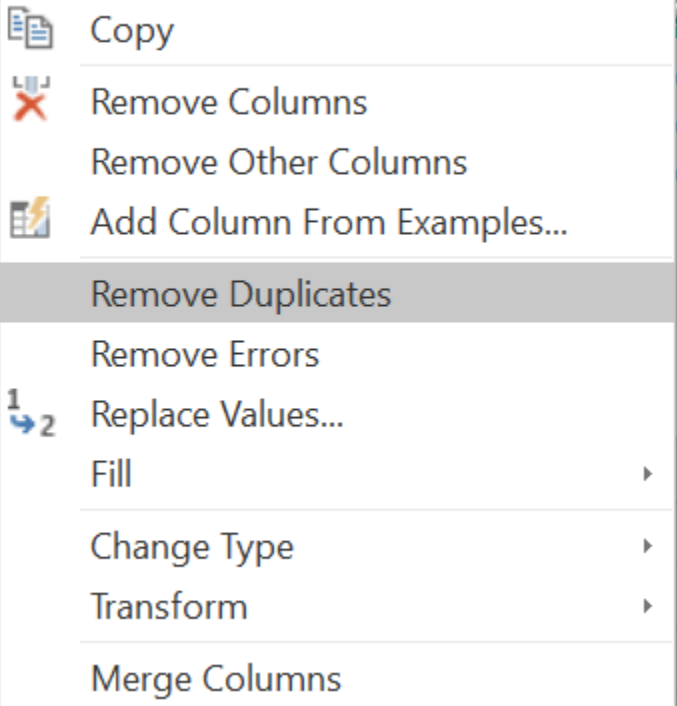
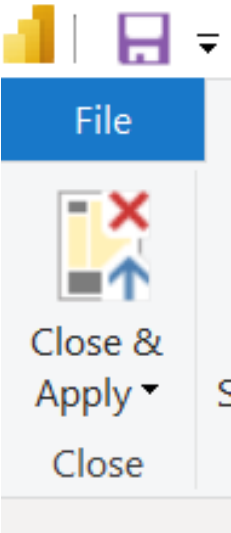
Proposal Networks | Remove Duplicates

- Select all Columns, “Remove Duplicates”
- Once done, “Close & Apply”

1.

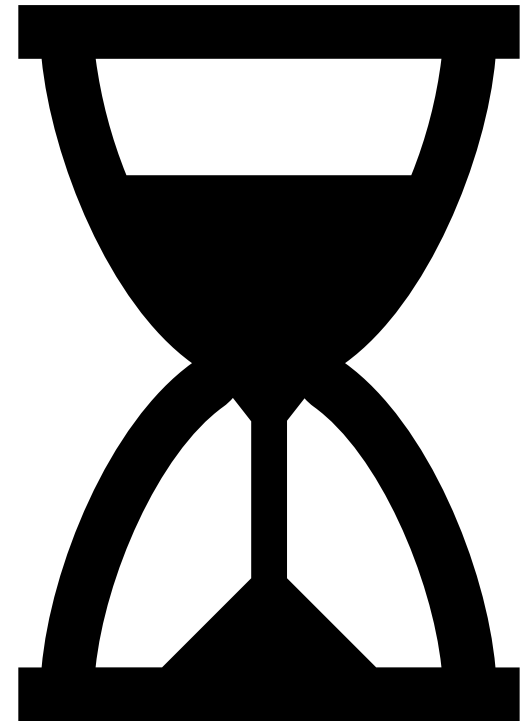


2.

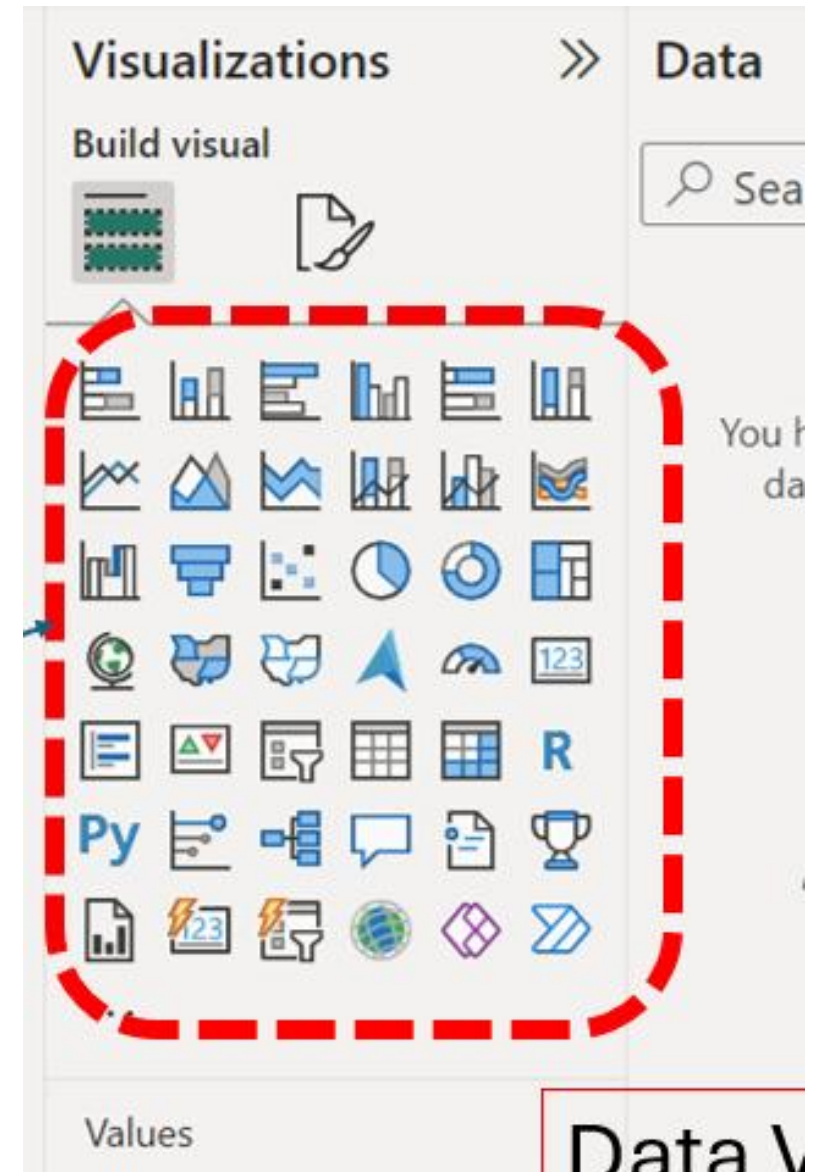


Let's Take a Second to Catch Up

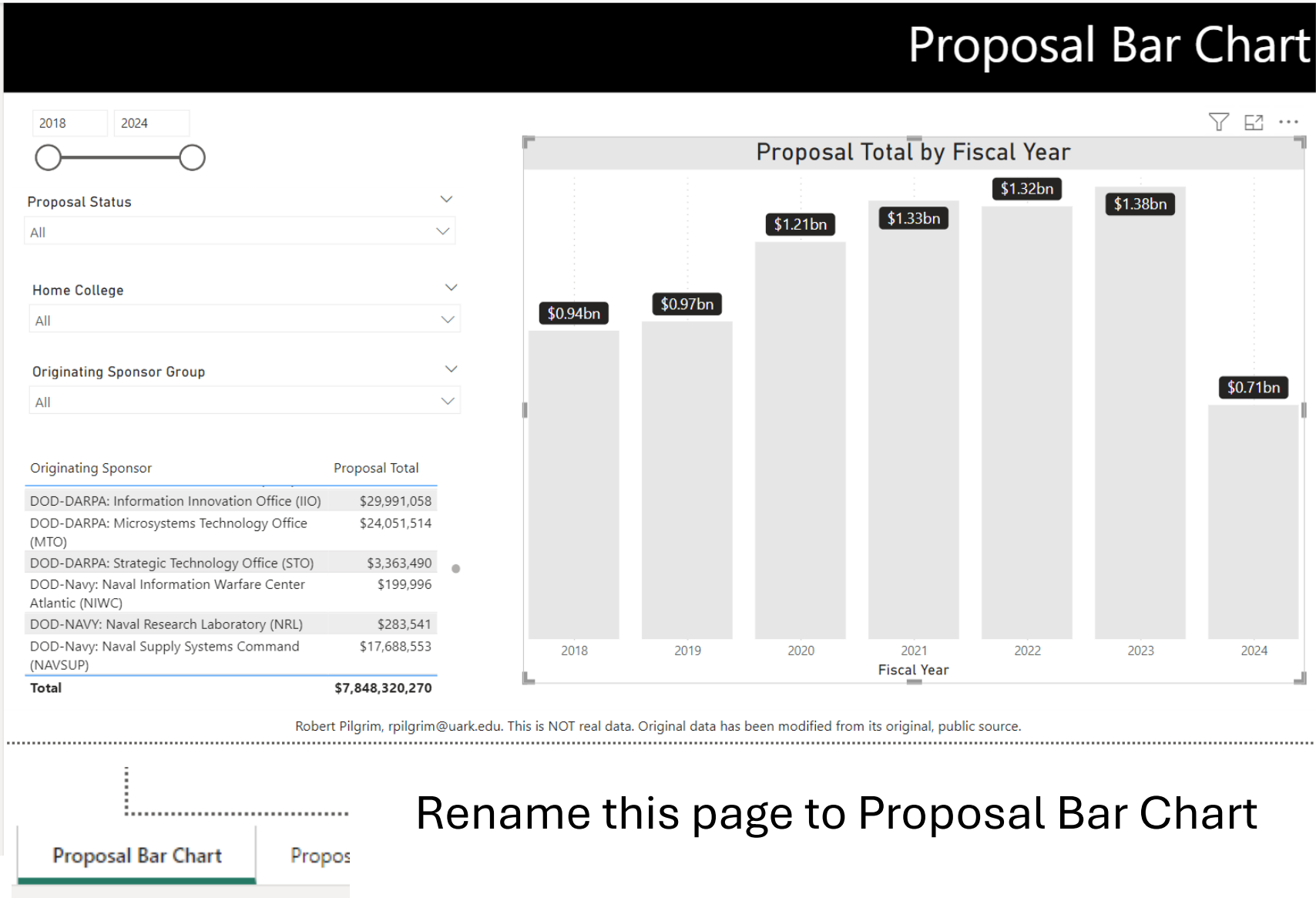
- Two Tables
 - “Proposals”
 - “Proposal Networks”



Let's Build a Report Page



“Proposal Table” Variables (Hints Next Page)



Rename this page to Proposal Bar Chart

Visualizations >> Build visual

Filters

Search

Proposals

Proposal Networks

Proposal Total

Calendar M/Y

Direct Sponsor

Direct Sponsor Group

Direct Sponsor Type

Fiscal Year

Home College

Home Unit

Investigator

Investigator ID

isSameName

Originating Sponsor

Originating Sponsor Group

Originating Sponsor Type

PI

PI ID

Proposal Number

Proposal Status

Proposal Title

Role

Strategic Initiative

X-axis: Fiscal Year

Y-axis: Proposal Total

Legend: Add data fields here

Small multiples: Add data fields here

Tooltips: Add data fields here

Proposal Bar Chart

2018 2024



Proposal Status

All

Home College

All

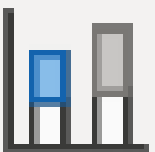
Originating Sponsor Group

All

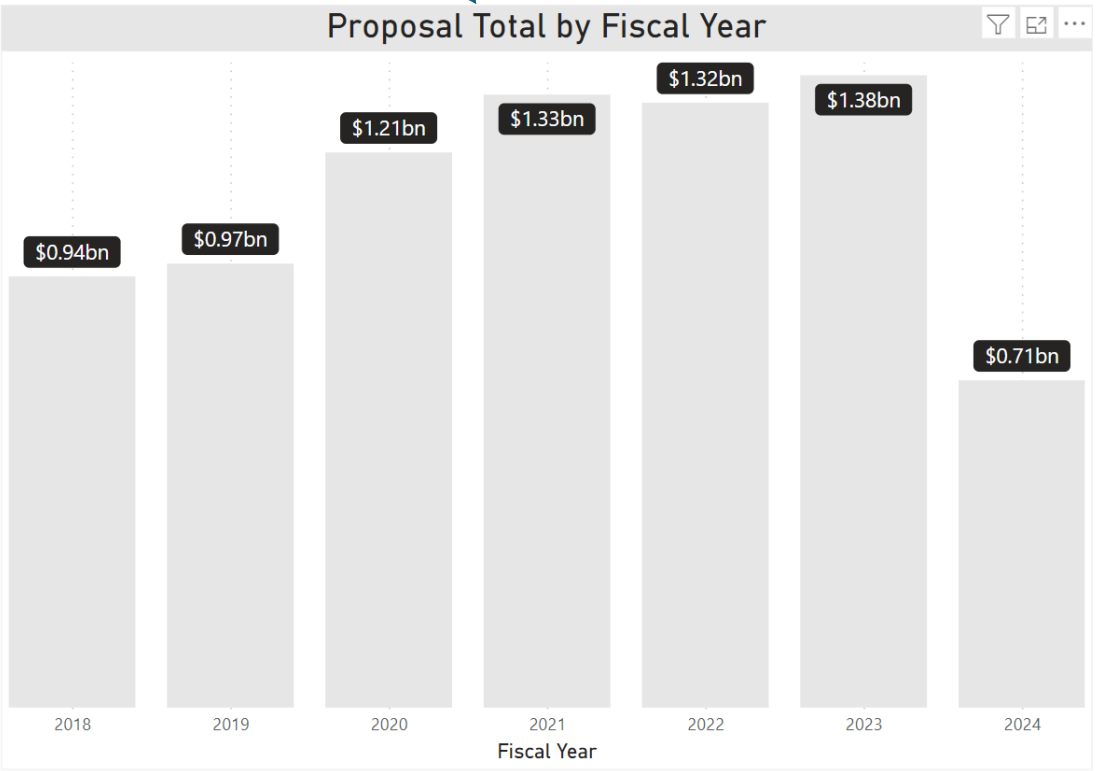
Originating Sponsor

Proposal Total

HHS: National Institutes of Health (NIH)	\$2,040,883,868
National Science Foundation (NSF)	\$1,773,992,450
US Department of Education (DOEd)	\$484,773,461
National Aeronautics Space Administration (NASA)	\$408,753,882
NASA: Headquarters	\$242,849,422
DOE: Office of Energy Efficiency and Renewable	\$228,954,609
science (OS)	\$139,392,373
	\$7,848,320,270



Proposal Total by Fiscal Year



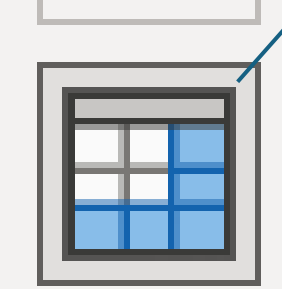
Visualizations

Build visual

Values

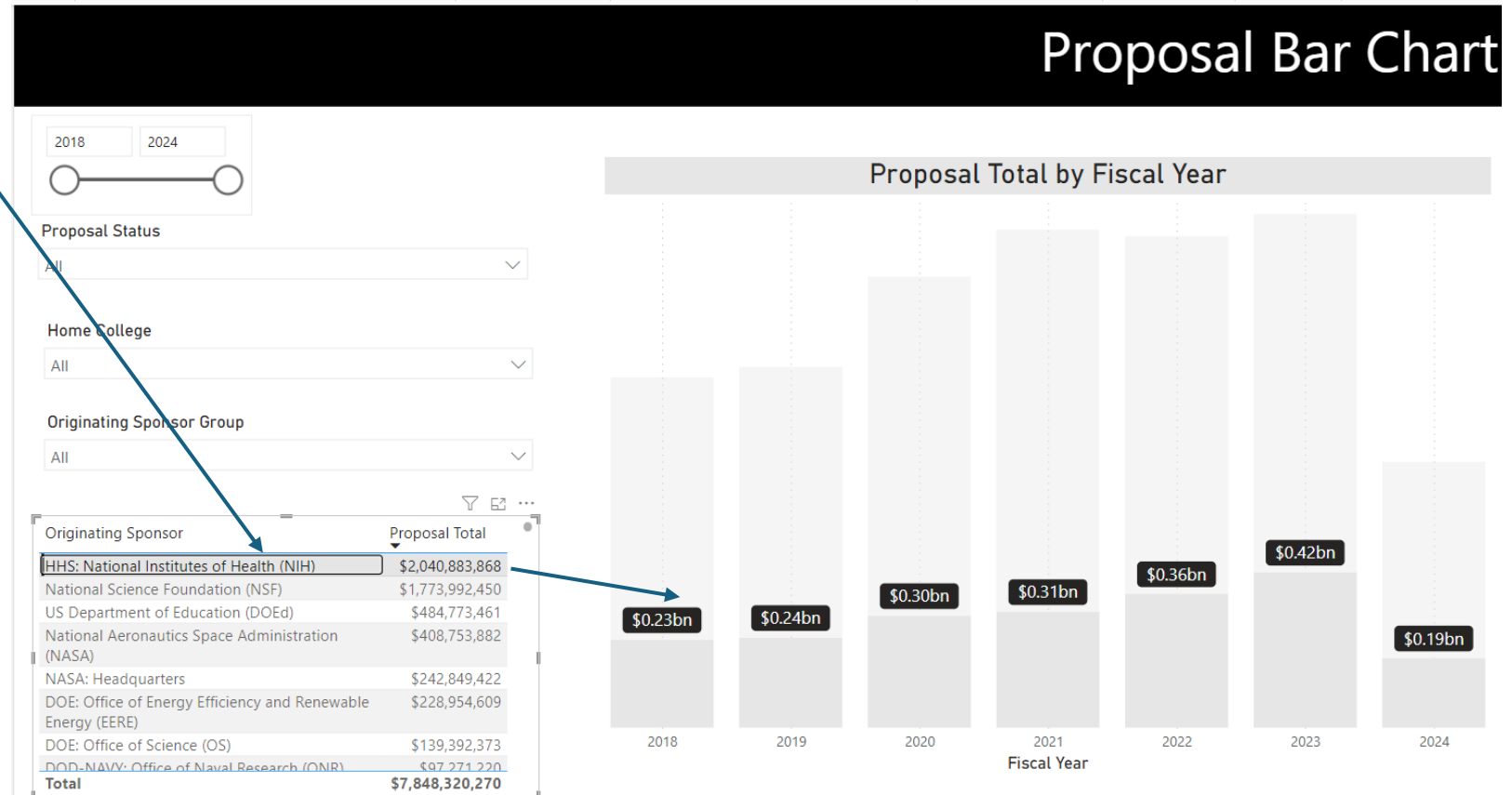
Data

Search



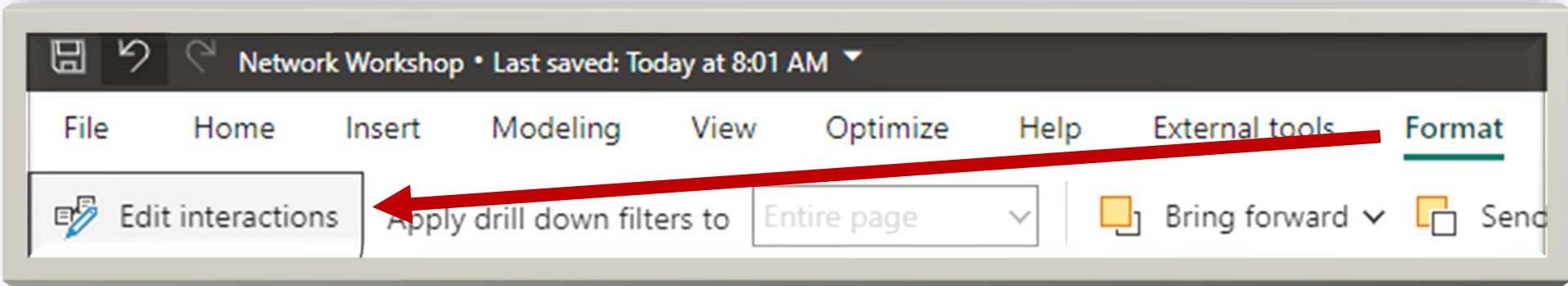
Fix the Interaction “Highlight” or Filter?

- Click a row
- How do you want the bar chart to react?



Change “Interaction”

1. Edit Interactions

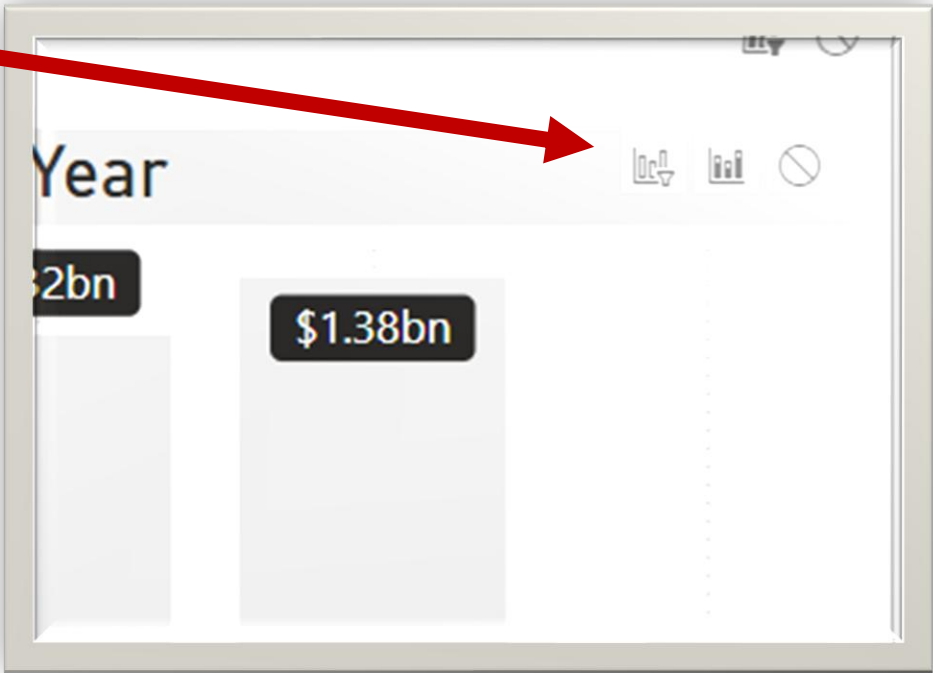


2. Click on your table

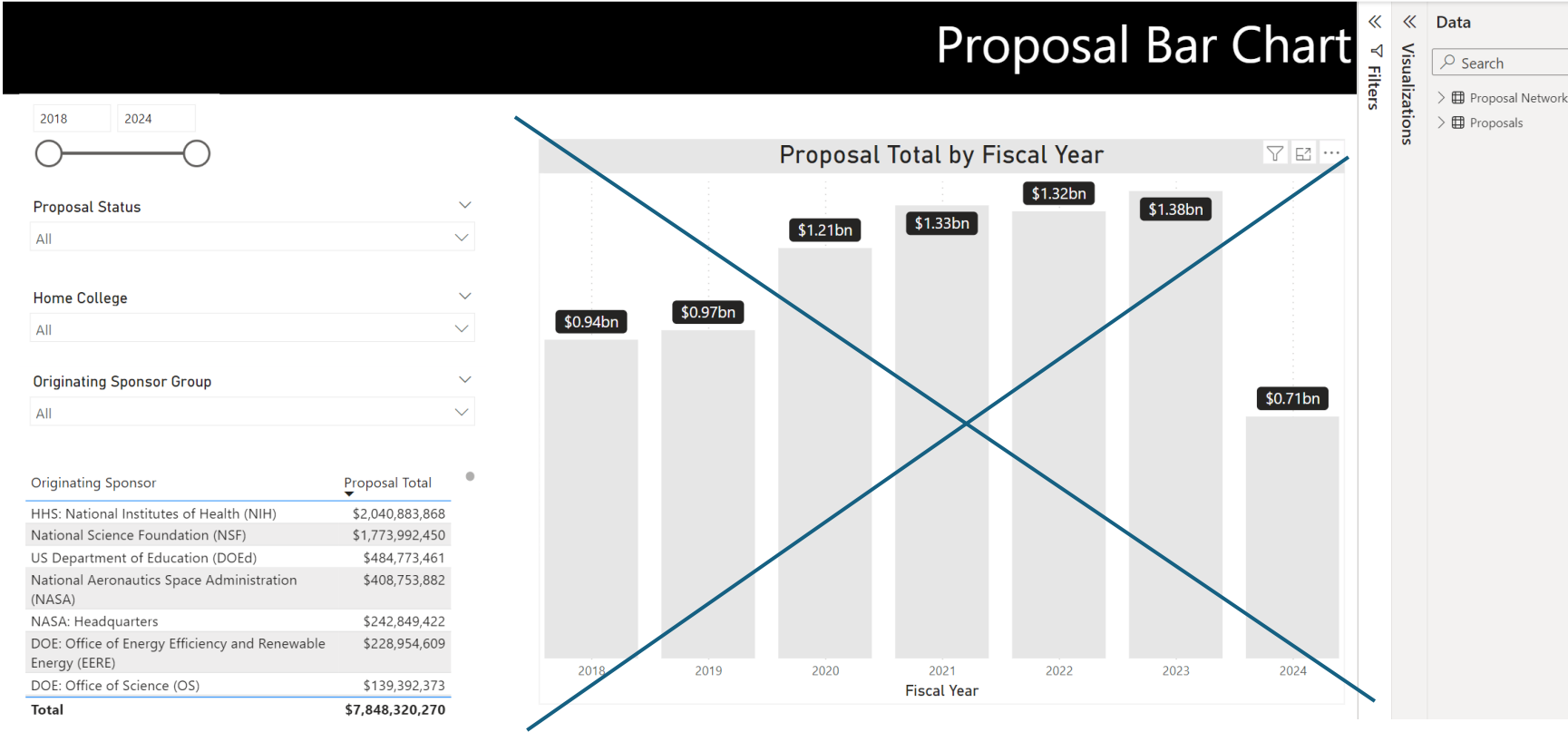
The screenshot shows a table with two columns: 'Originating Sponsor' and 'Proposal Total'. The table lists various sponsors and their corresponding proposal totals. A red arrow points from the text '2. Click on your table' to the table.

Originating Sponsor	Proposal Total
100,000 Strong In The Americas	\$49,996
1907 Research	\$120,000
3M Company	\$659,795
Abdulla Al Ghurair Foundation for Education	\$4,041,514
ACF: Burton Family Foundation	\$202,264
ACS: Herman Frasch Fund for Chemical Research	\$250,000
ACS: Petroleum Research Fund	\$4,729,999
Act One	\$70,465
Acumen, LLC	\$98,202
Total	\$7,848,320,270

3. Select “Filter”



Duplicate the First Page Rename “Proposal Network”



Build a Network Table

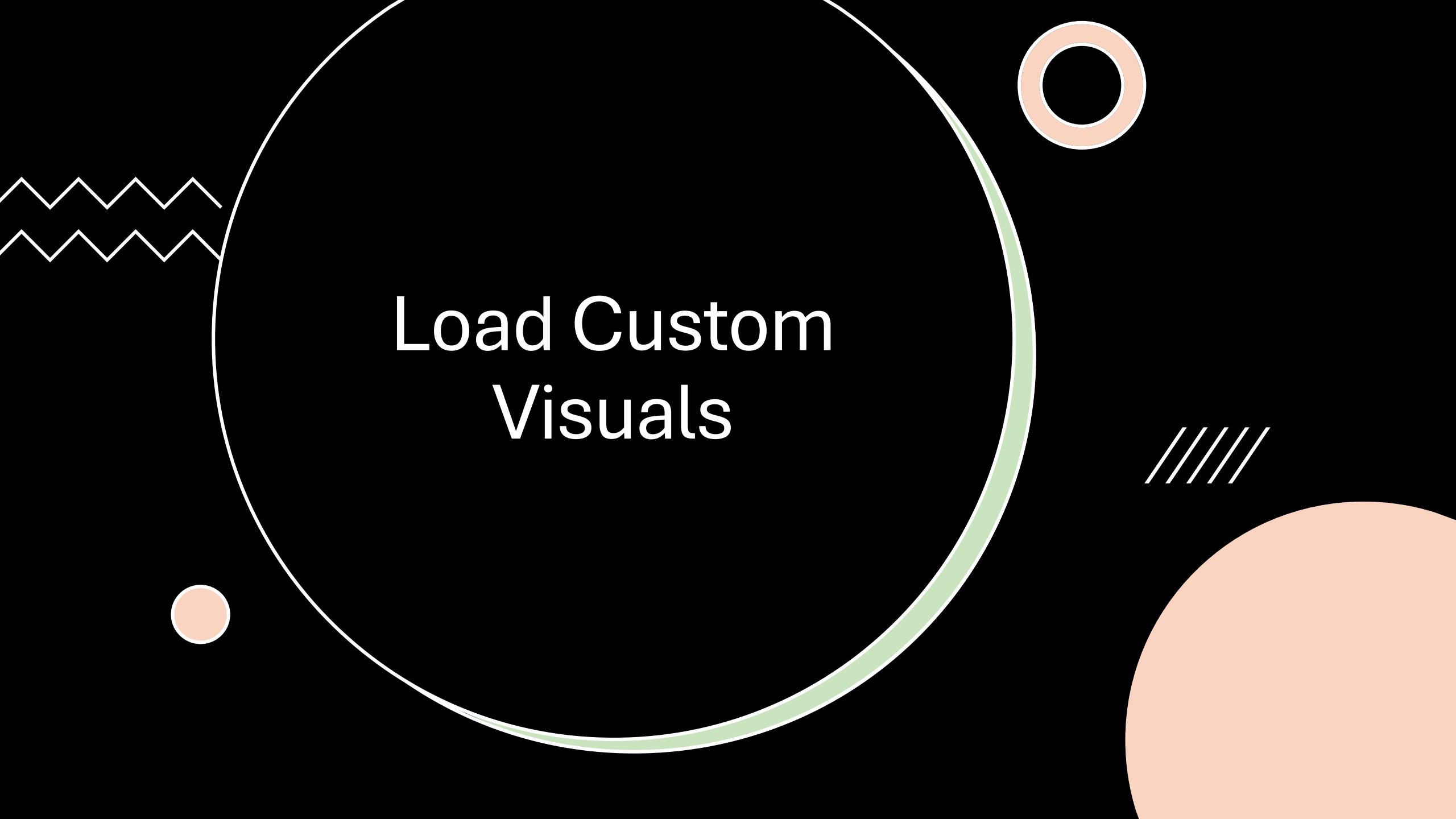
- Replace bar chart with table
- “**Proposal Network**” Table

Proposal Network

PI	Investigator
Ahn, Gail-Joon	Bao, Youzhi
Ahn, Gail-Joon	Wang, Ruoyu
Aktipis, C Athena	Fewell, Jennifer Harrison
Aktipis, C Athena	Pavlic, Theodore Paul
Aktipis, C Athena	Pilarski, Nicholas Leo Casmir
Aktipis, C Athena	Roschke, Kristy Joanne
Ameri, Farhad	Bansal, Srividya Kona
Ameri, Farhad	Ko, Hyunwoong
Ameri, Farhad	Starly, Binil
Barnaby, Hugh James	Boyce, Ayesha Sherita
Barnaby, Hugh James	Holbert, Keith Edwin
Barnaby, Hugh James	Jamison-Hooks, Tracee L
Bartelle, Benjamin B	Andrews, Madeline Gail
Bartelle, Benjamin B	Plaisier, Christopher L
Birkel, Christina	Azeredo, Bruno Pavanelli
Bliss, Daniel Wesley	Brunhaver, John Steven
Bliss, Daniel Wesley	Chakrabarti, Chaitali
Bliss, Daniel Wesley	Michelusi, Nicolo
Bliss, Daniel Wesley	Rong, Yu
Calhoun, Ronald Joseph	Yang, Sui
Cao, Yu	Barnaby, Hugh James
Cao, Yu	Kozicki, Michael N
Cao, Yu	Sanchez Esqueda, Ivan
Cao, Yu	Seo, Jae-sun
Chakrabarti, Chaitali	Cao, Yu

from its original public source

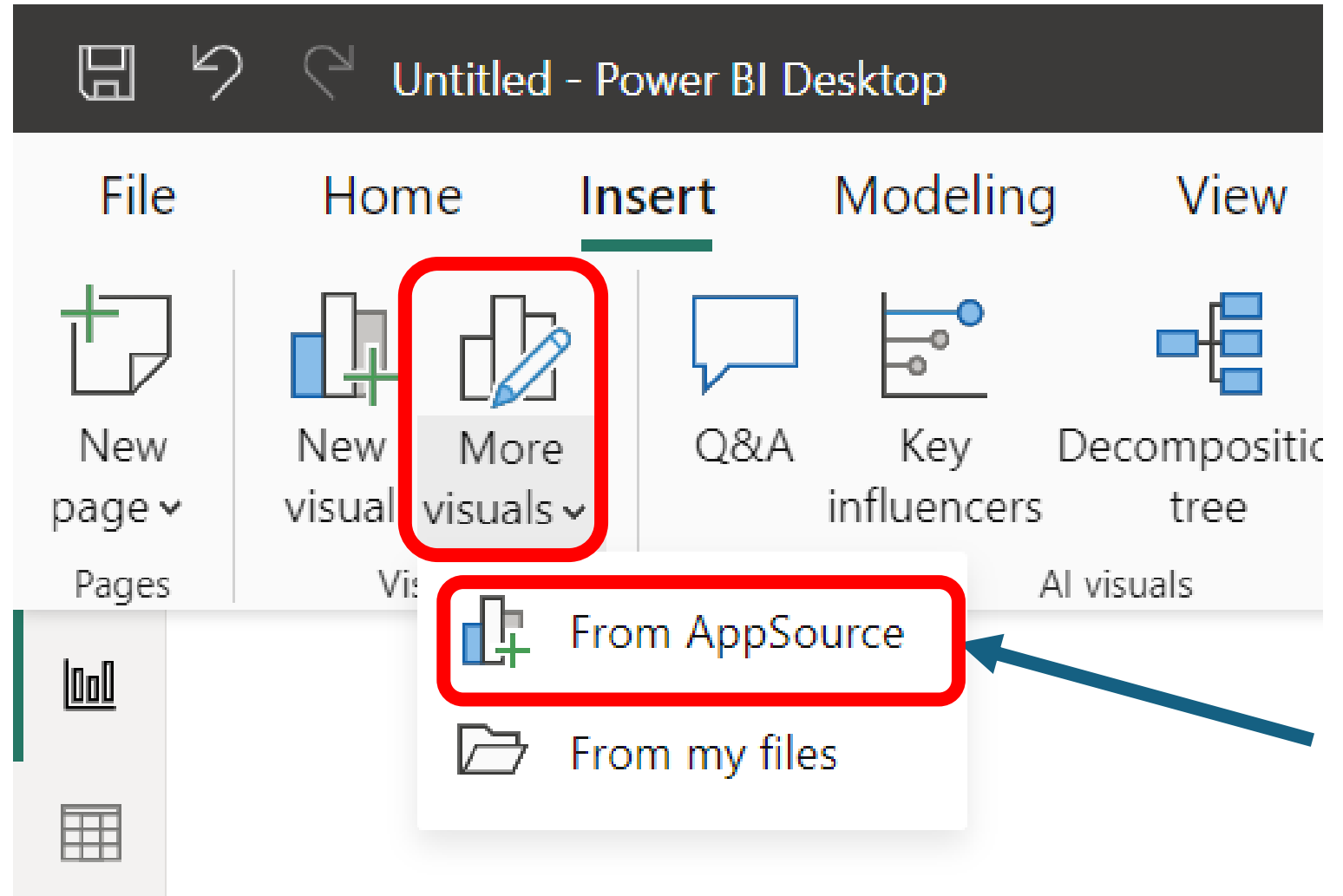
[illegible]

The background is black and features several abstract geometric elements. A large circle with a thin white outline and a thick light green inner border is centered on the left. To its left are two white wavy lines. Above the circle is a small orange circle with a white outline. To the right of the circle is a larger orange circle with a white outline. Below the circle is a small orange circle with a white outline. To the right of the circle are four white diagonal lines. In the bottom right corner is a large solid orange circle.

Load Custom Visuals

We are going to use 2 custom visuals

Open the
Custom
Visual Store



Magical Place

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Filter by

All

All

Change Over Time

Comparison

Correlation

Distribution

Filters

Flow

Infographics

KPI

Maps

Narratives

Other

Part-to-Whole

R visuals

All the visuals approved for use in your organization.



HTML Content
Daniel Marsh-Patrick
★★★★★ (29)



Animated Bar Chart...
Wishyoualization
★★★★★ (44)



Calendar by MAQ S...
MAQ LLC
★★★★★ (64)



Zebra BI Charts
Zebra BI
★★★★★ (38)



Gantt Chart - xViz
xViz LLC
★★★★★ (25)



Filter by List
DEVSCOPE
★★★★★ (7)



Gantt Timeline
Stratada

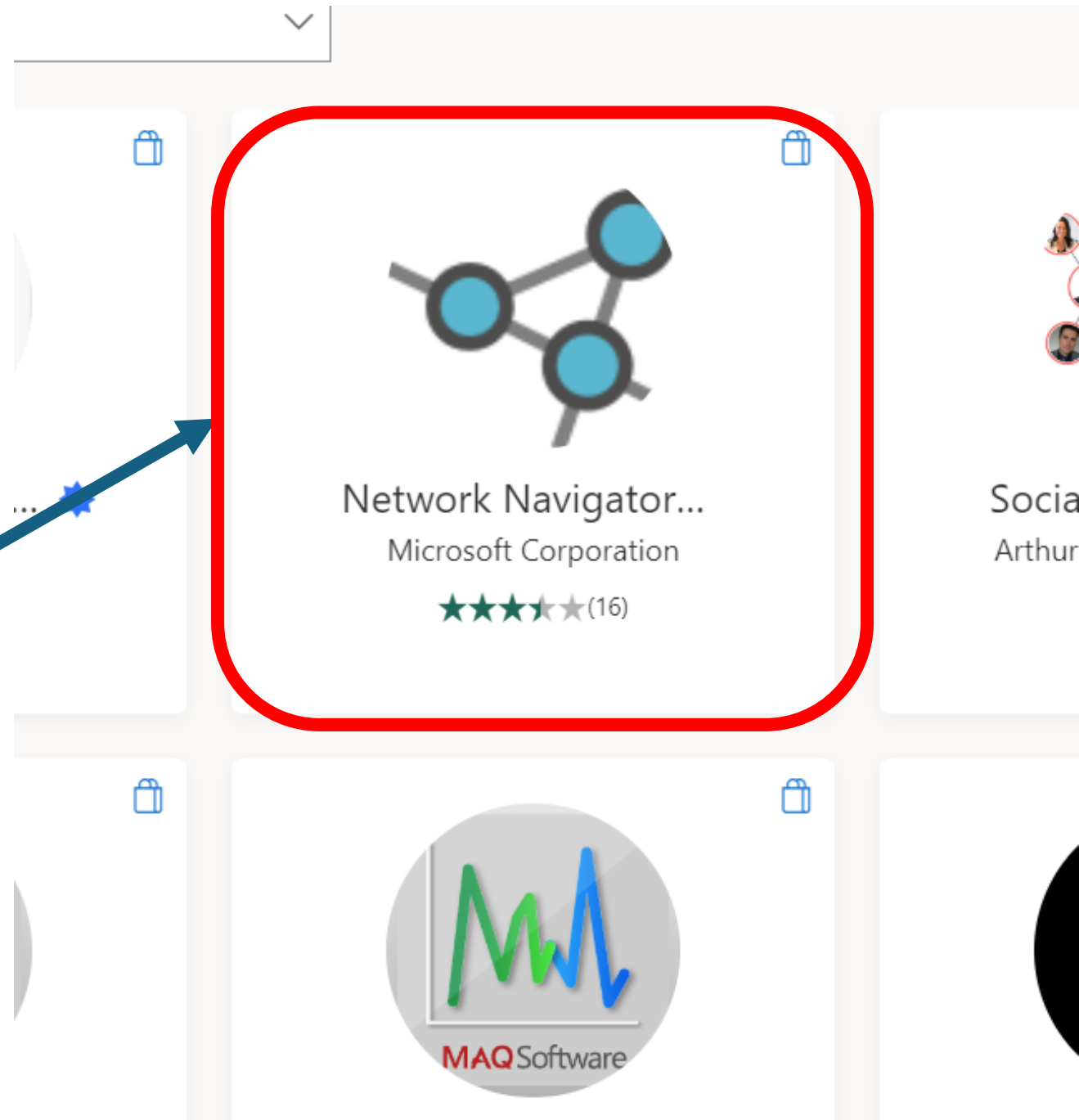
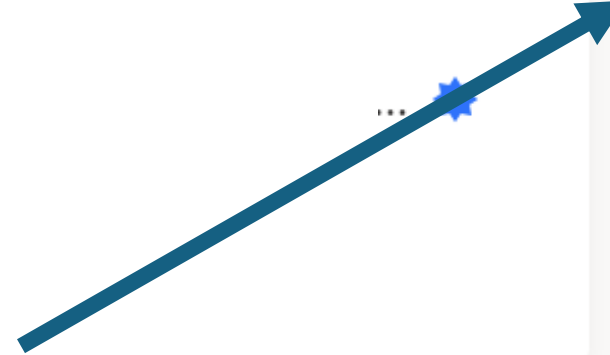


Drilldown Chorople...
Microsoft Corporation
★★★★★ (28)



Bullet Chart
Microsoft Corporation
★★★★★ (40)

Load the
Network
Visual



Load the Word Cloud Visual



Power BI visuals

By clicking 'Add' and/or 'Download Sample' and downloading a visual, you agree to our terms of use. Use of Microsoft's AppSource is subject to the [Microsoft AppSource Terms of Use](#).

All visuals

Organizational visuals

AppSource visuals

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Filter by

All



Word Cloud



Microsoft Corporation

★★★★★ (140)



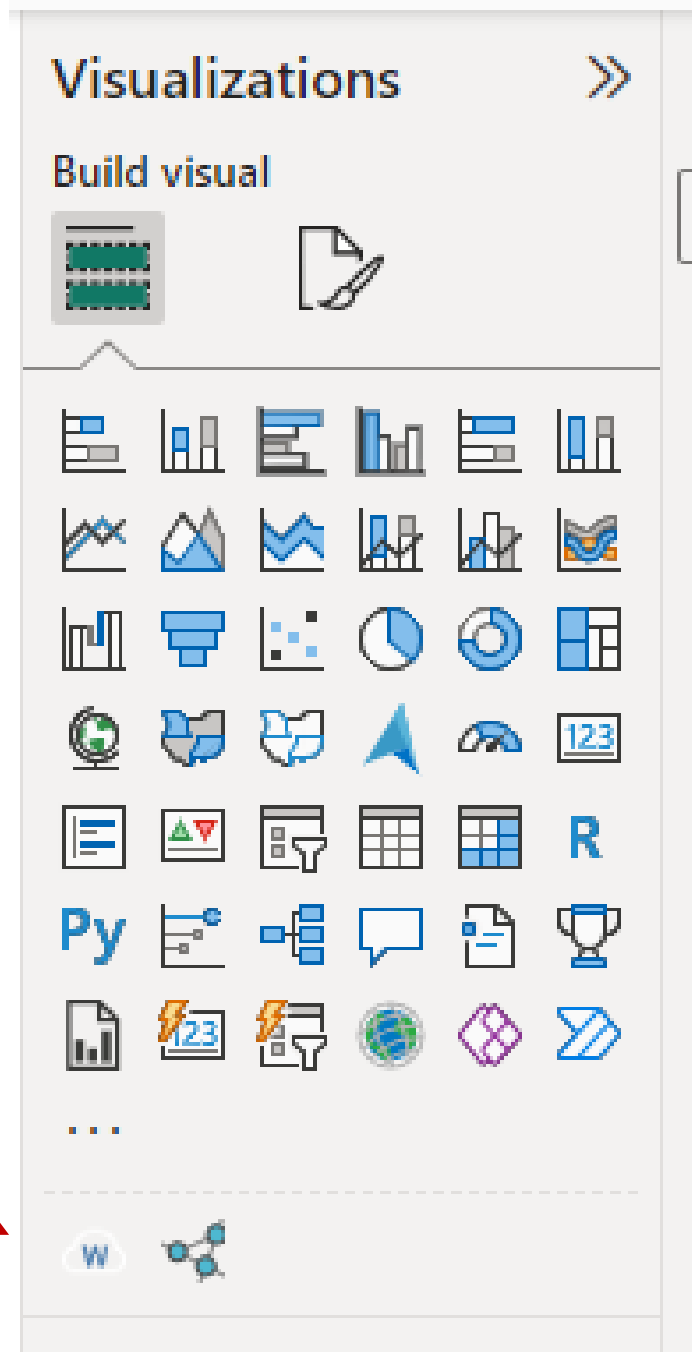
Mass Filter



Insiders.coop

★★★★★ (11)

Where are
my Custom
Visuals?

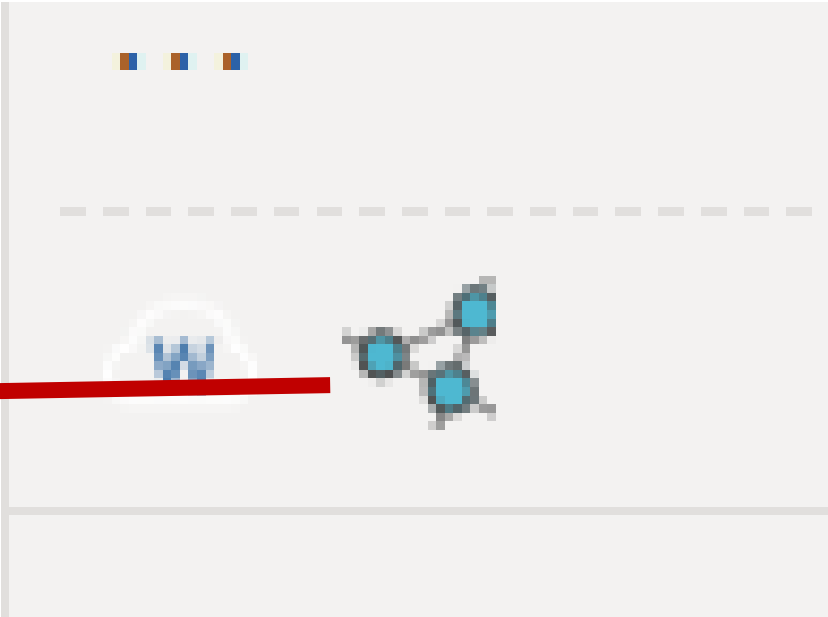


Our First Network

- “Proposal Network” Page
- Change “Table” to “Network.”

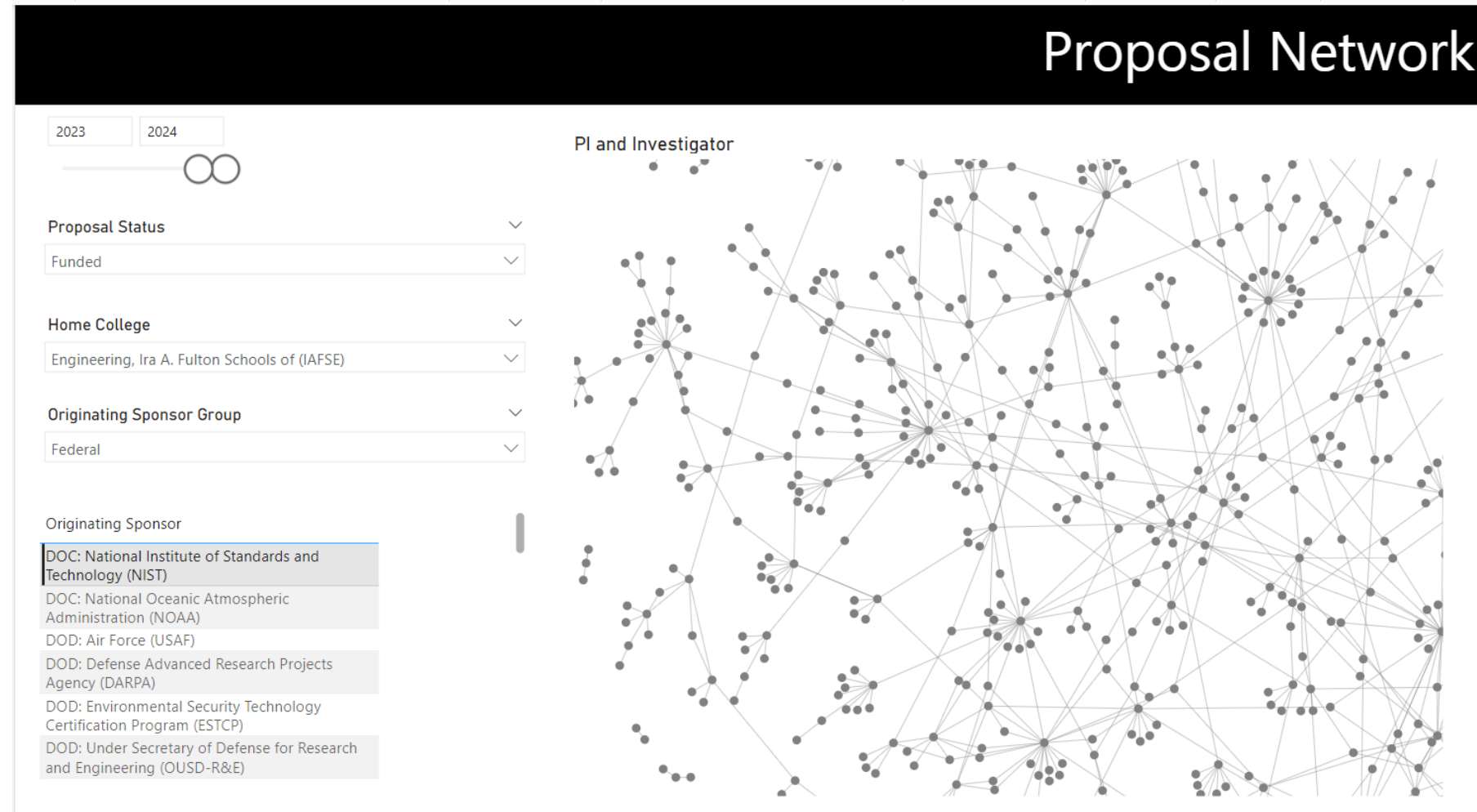
Proposal Network

PI	Investigator
Adams, Marc Anthony	Sklar, David
Adams, Marc Anthony	Todd, Michael Wayne
Adams, Marc Anthony	Vega-Lopez, Sonia
Adler, Jacob Benjamin	Kerner, Hannah Rae
Adrian, Ronald John	Peet, Yulia V
Aggarwal, Rimjhim M	Anbar, Ariel David
Agloro, Alexandrina Renee	Guevarra Jr, Rudy Poscablo
Agloro, Alexandrina Renee	Hita, Liza Cohen
Agusdinata, Buyung	Choi, Thomas Younghoon
Agusdinata, Buyung	Goodman, Rebekka
Agusdinata, Buyung	Mishra, Ashok Kumar
Ahmad, Adil	Xiao, Xusheng
Ahn, Gail-Joon	Bao, Youzhi
Ahn, Gail-Joon	Wang, Ruoyu
Ai, Weining	Peterson, Timothy Michael
Aktipis, C Athena	Bennett, Gaymon L
Aktipis, C Athena	Fewell, Jennifer Harrison
Aktipis, C Athena	Karimi, Robert Farid
Aktipis, C Athena	O'Neil, Erica L
Aktipis, C Athena	Pavlic, Theodore Paul
Aktipis, C Athena	Pilarski, Nicholas Leo Casmir
Aktipis, C Athena	Roschke, Kristy Joanne
Aktipis, C Athena	Scott, Jason Davids
Aktipis, C Athena	Zarka-Tsakiris, Emily Elizabeth
Alford, Terry Lynn	Liu, Jingyue
Alkhateeb, Ahmed A.	Trichopoulos, Georgios
Allee, David Ray	Marrs, Michael A



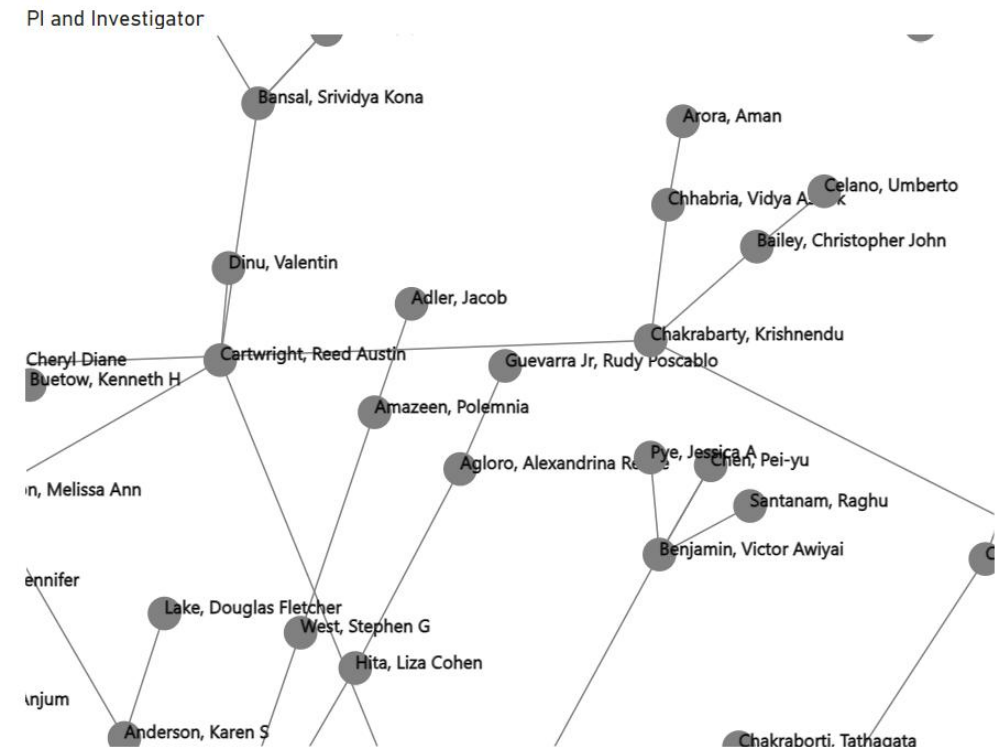
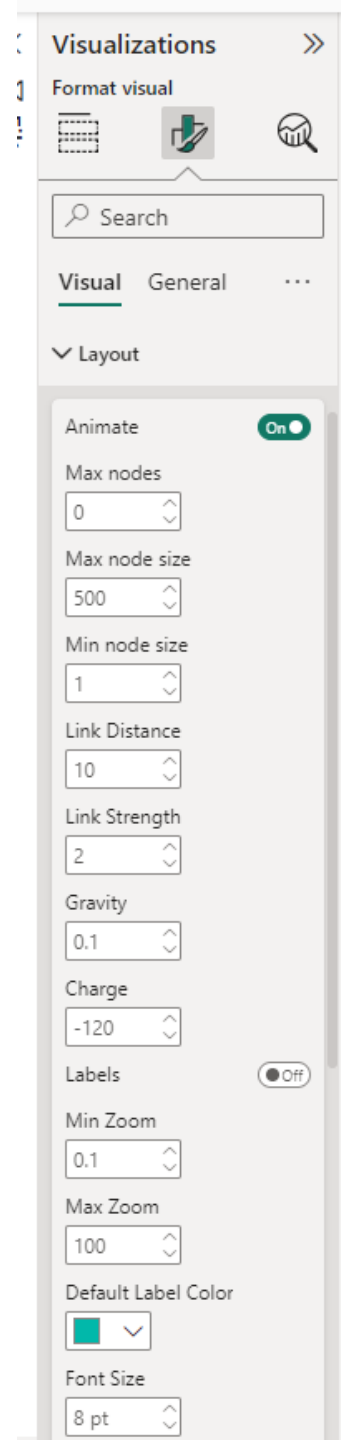
Network Diagram

- Make it larger
- Everyone have this?
- Let's add names



Play around with Format

- Turn “Labels” on
- Change color to black
- Basic navigation
- Zoom via mouse wheel
- Click and hold in network to move



What is Wrong with this Page?

20182024

Proposal Status

Funded

Home College

All

Originating Sponsor Group

Federal

Originating Sponsor

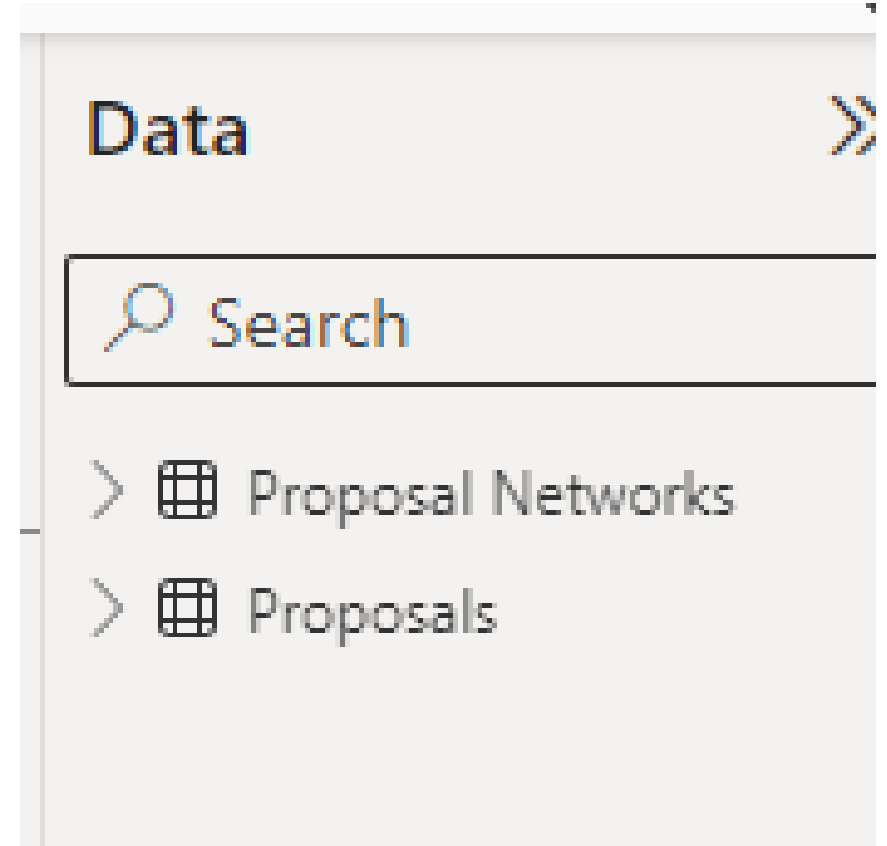
Proposal Total

National Science Foundation (NSF)	\$319,914,837
US Department of Education (DOEd)	\$255,092,163
HHS: National Institutes of Health (NIH)	\$226,690,110
National Aeronautics Space Administration (NASA)	\$176,572,171
NASA: Headquarters	\$48,957,336
DOE: Office of Science (OS)	\$45,381,351
NASA: Shared Services Center (NSSC)	\$35,504,339
DOD-NAVY: Office of Naval Research (ONR)	\$32,002,305
US Army for International Development	\$26,431,046
Total	\$1,566,585,647

PI and Investigator

5

Why are the filter NOT Working?

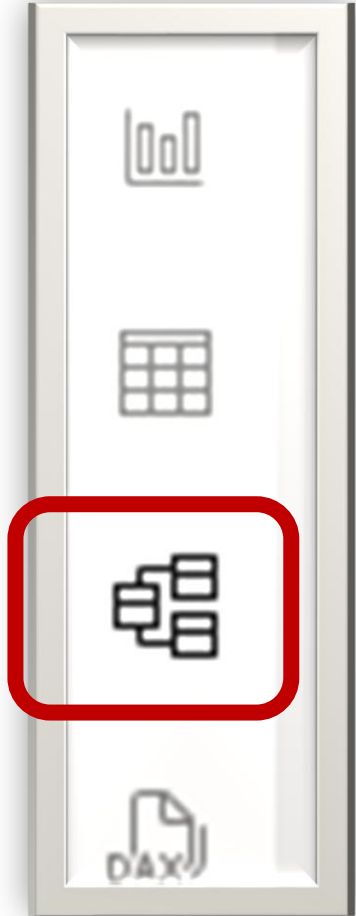




There is no Connection

We need a Data Model

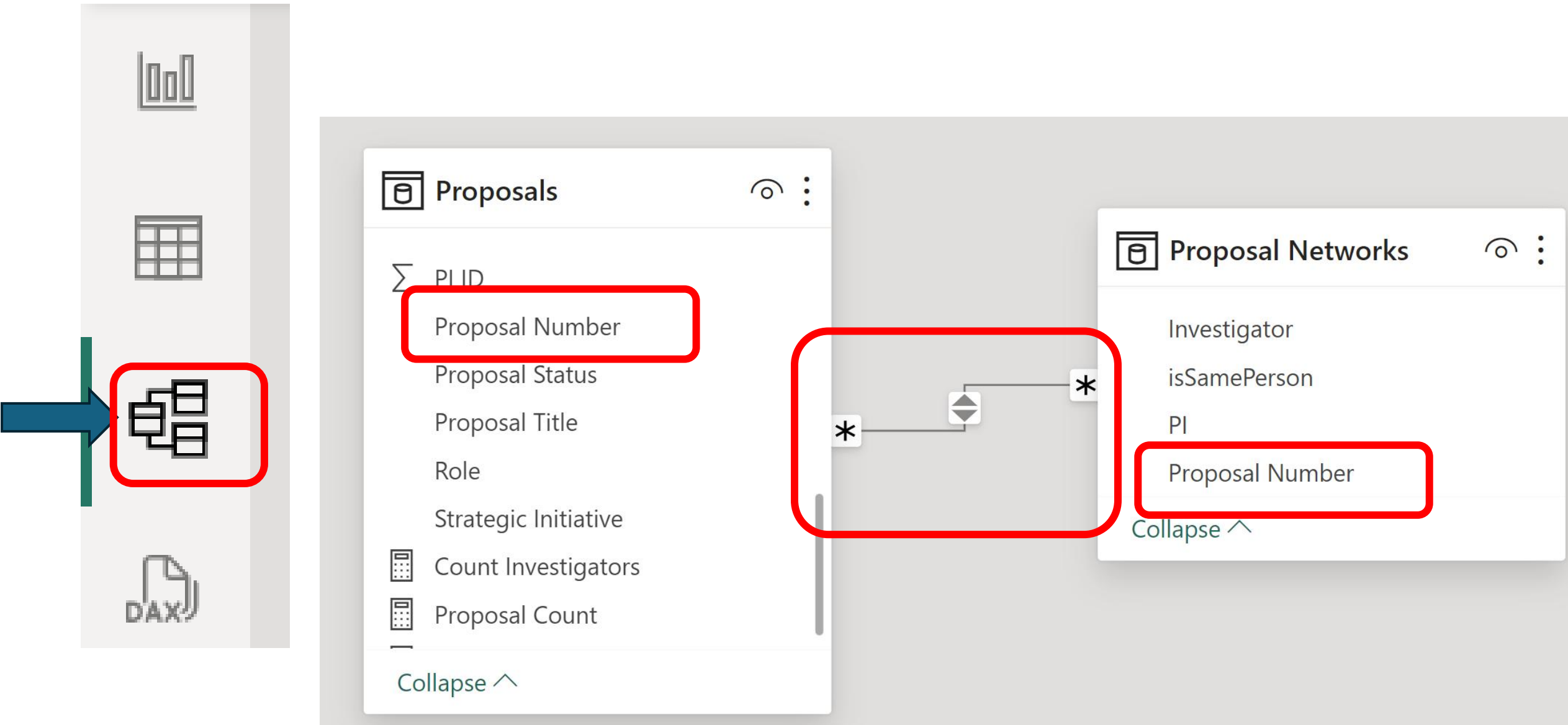
What is the Connection?



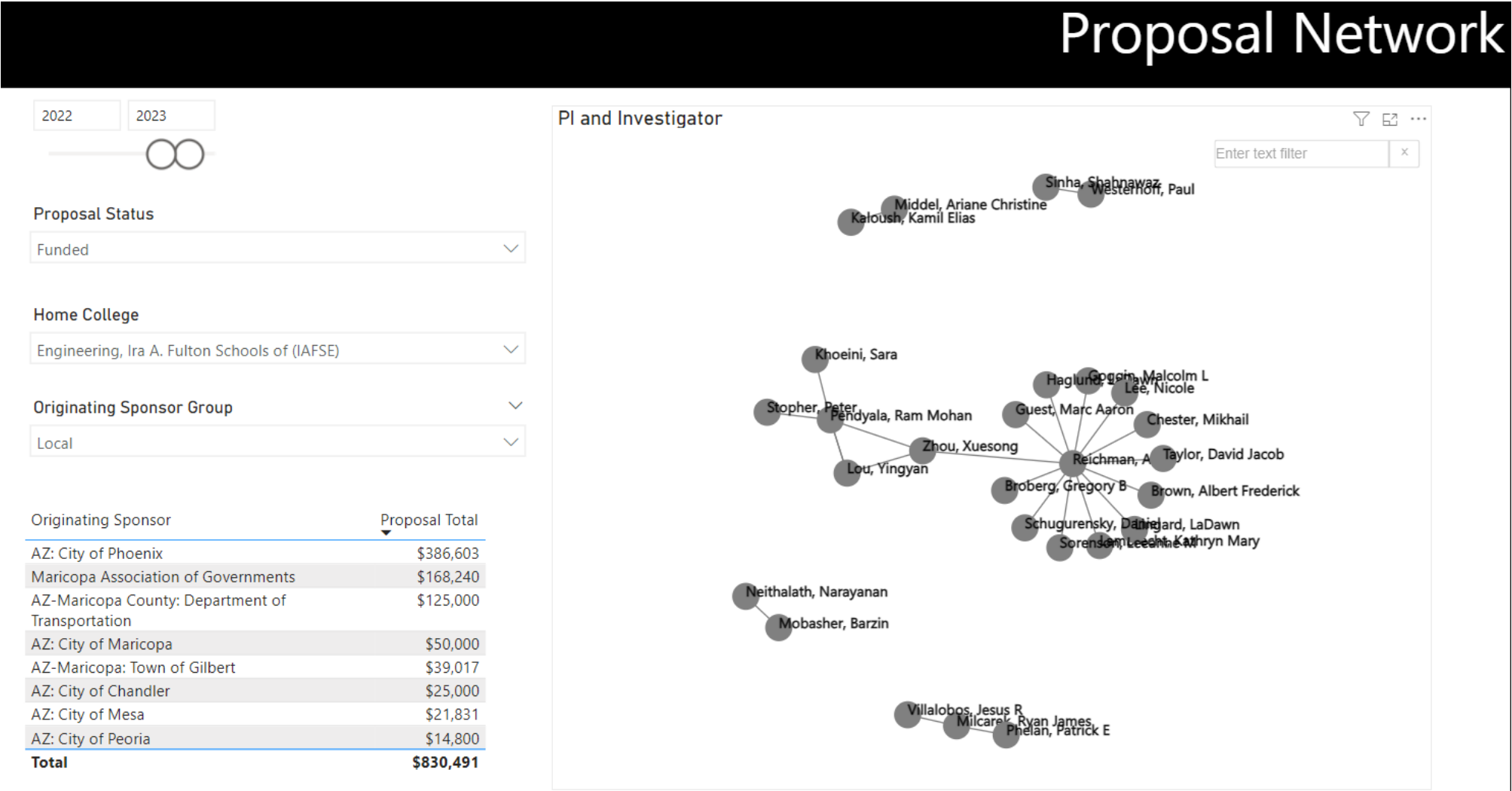
The screenshot shows a data model interface with two tables: 'Proposals' and 'Proposal Networks'. The 'Proposals' table has the following columns: Originating Sponsor Group, Originating Sponsor Type, PI, Σ PI ID, Proposal Number, Proposal Status, Proposal Title, and Role. The 'Proposal Networks' table has the following columns: Investigator, isSamePerson, PI, and Proposal Number. Both tables have a 'Collapse' button at the bottom. A vertical toolbar on the left side of the interface contains icons for a bar chart, a grid, a document with a red border, and a DAX icon.

Table	Columns
Proposals	Originating Sponsor Group, Originating Sponsor Type, PI, Σ PI ID, Proposal Number, Proposal Status, Proposal Title, Role
Proposal Networks	Investigator, isSamePerson, PI, Proposal Number

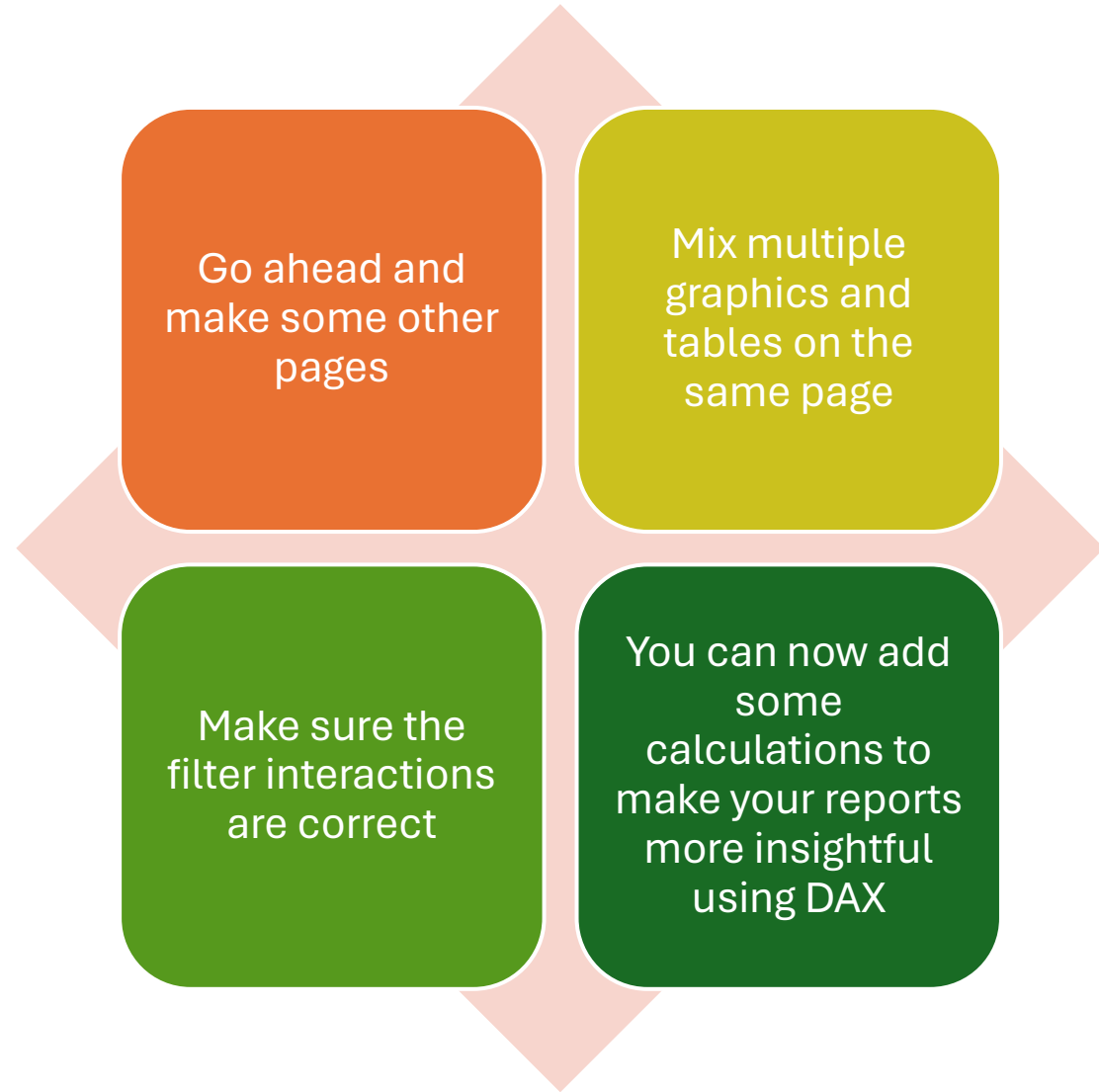
Build a Data Model | Connect the Tables



Now the Filters will Work



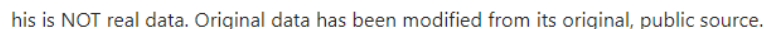
These are the Basics



Some Calculations

- Which faculty have collaborated the most?
- Are we becoming a more interdisciplinary campus , what does this look like broken down by Fiscal Year?
- Correlation between collaboration and funding?
- NOTE
 - Network are about collaborations
 - Research that involved just the PI will NOT show up

Formatting on next page



Improve the Look



Format visual

Visual General

Search

General

Minimum number of rep...
1

Max number of words
200

Min font size (%)
20

Max font size (%)
100

Word-breaking ☐

Special characters ☐

Reset to default

Format visual

Visual General

Search

General

Data colors

Stop Words ☒

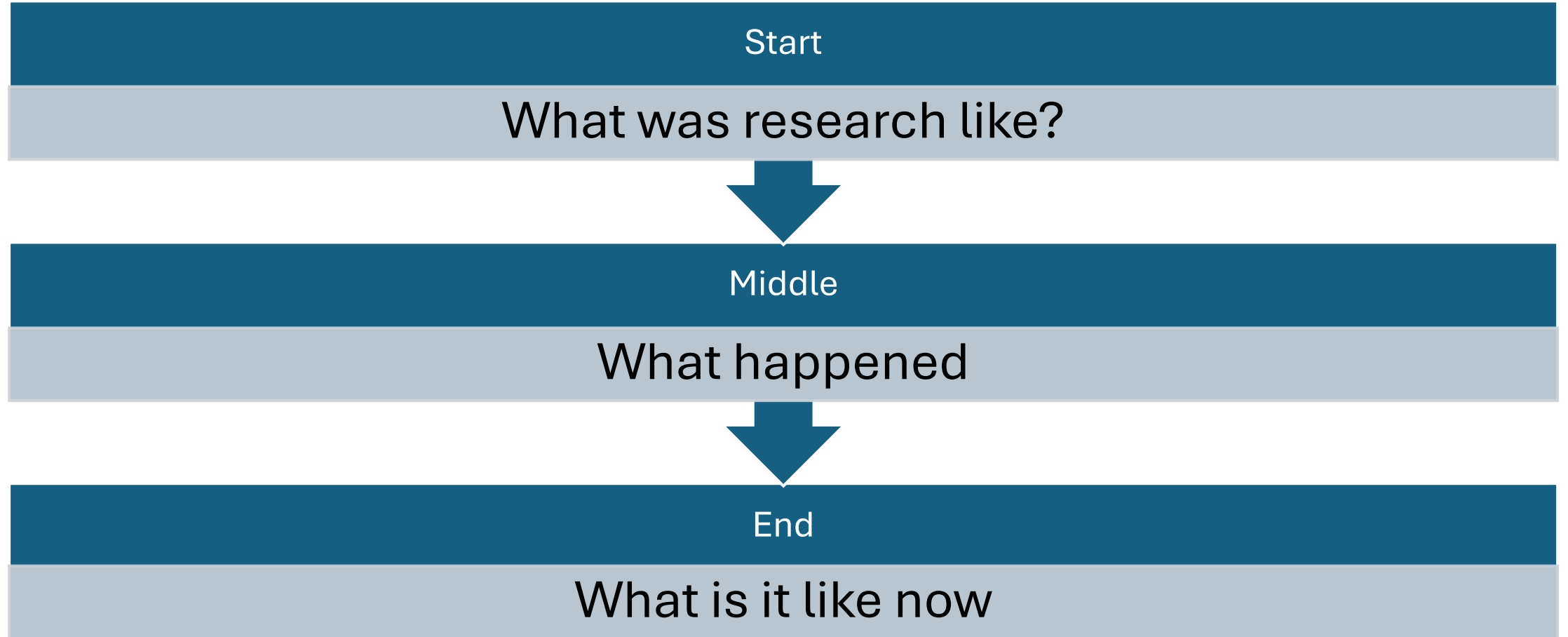
Rotate Text ☐

Performance

You are a Story Teller

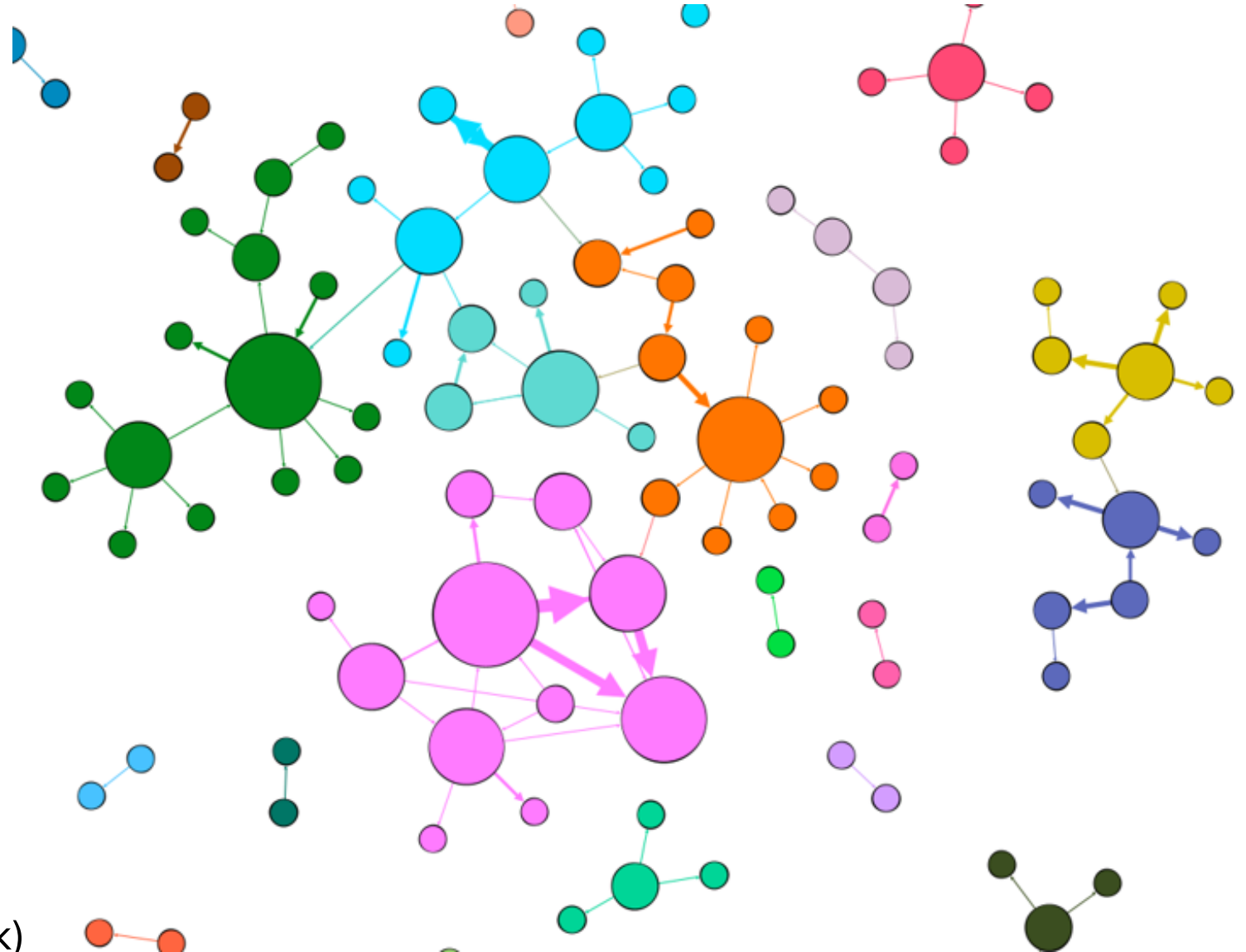
Networks are the best way for telling a stories

Stages in a Story



Example | Change in NSF Proposals Collaborations

- 5 Years Ago
- How would you describe this?
- Circles are people
- Color is research group
- Lines are connections



(Hypothetical Network)

Example | Change in NSF Proposals Collaborations

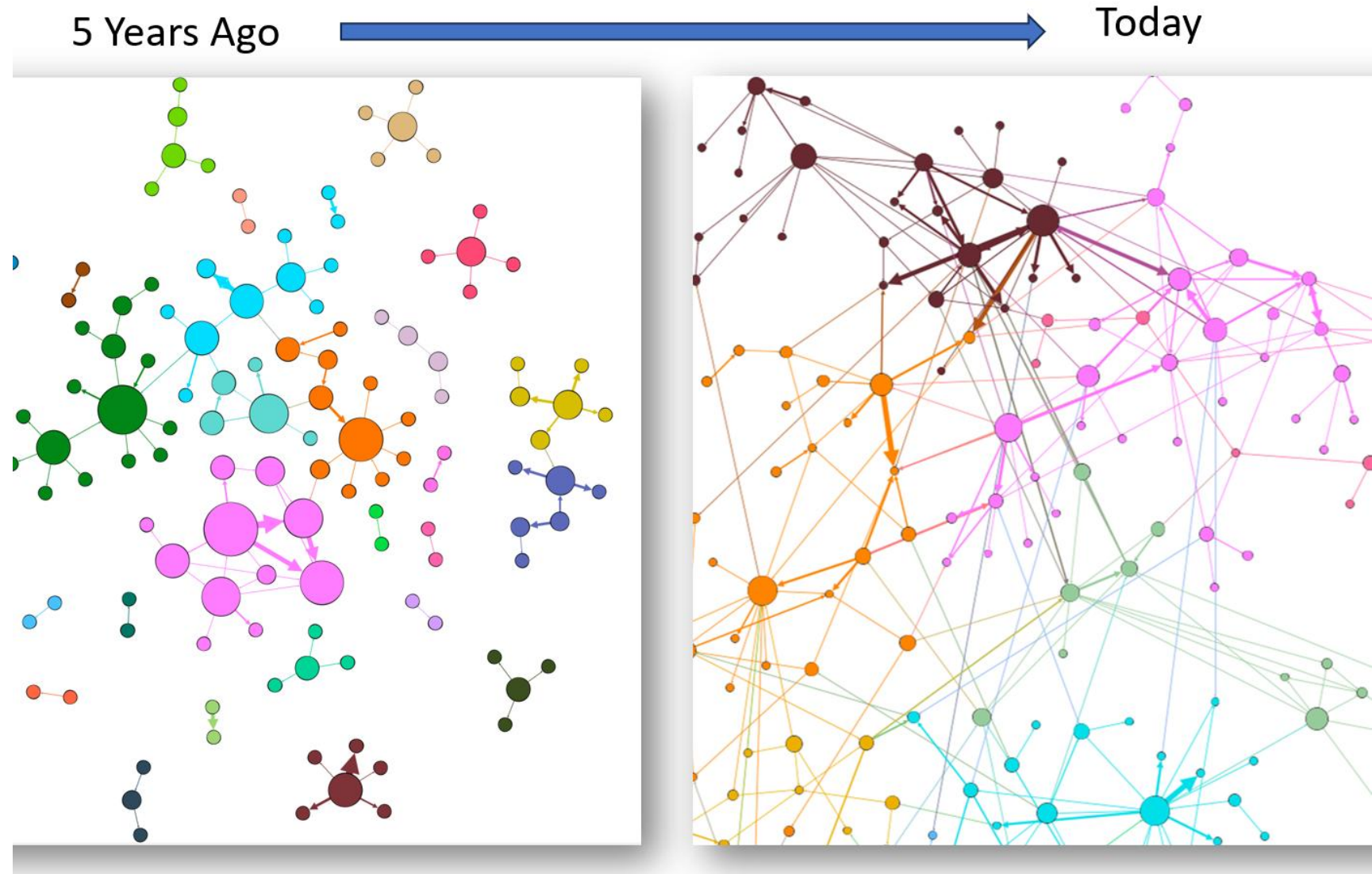
- Today
- How would you describe this?
- Circles are people
- Color is research group
- Lines are connections

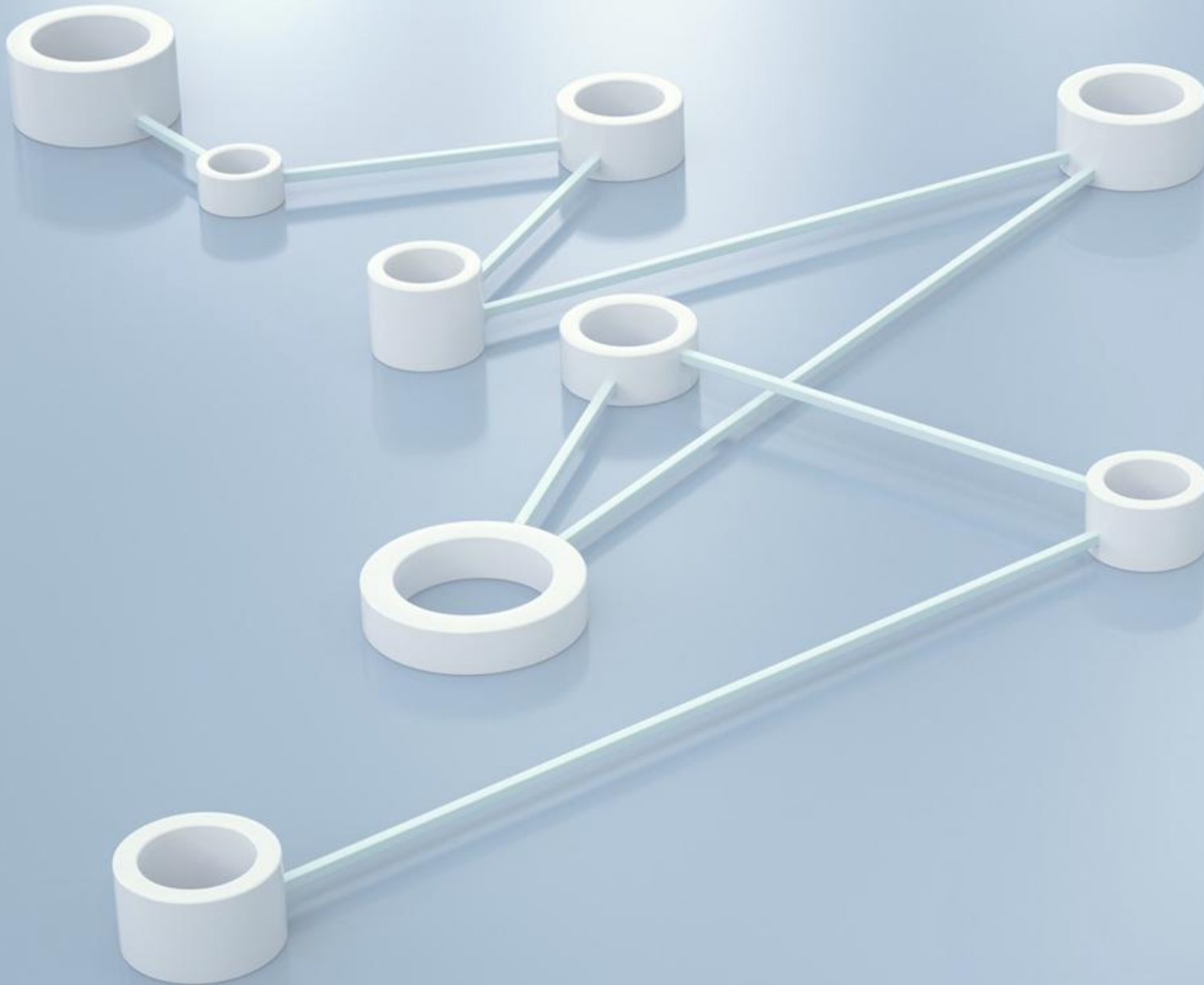


(Hypothetical Network)

Comparison

- Density Increased
- Which is more “resilient?”
 - 10 Random people leave.
- Decrease in group isolation





Strategic Initiatives

Leveraging Networks

Stories

- New Building
- Innovation Fund
- Strategic Hires
- Research Development
- Faculty Start-Up Funding
- Diversity Analysis

