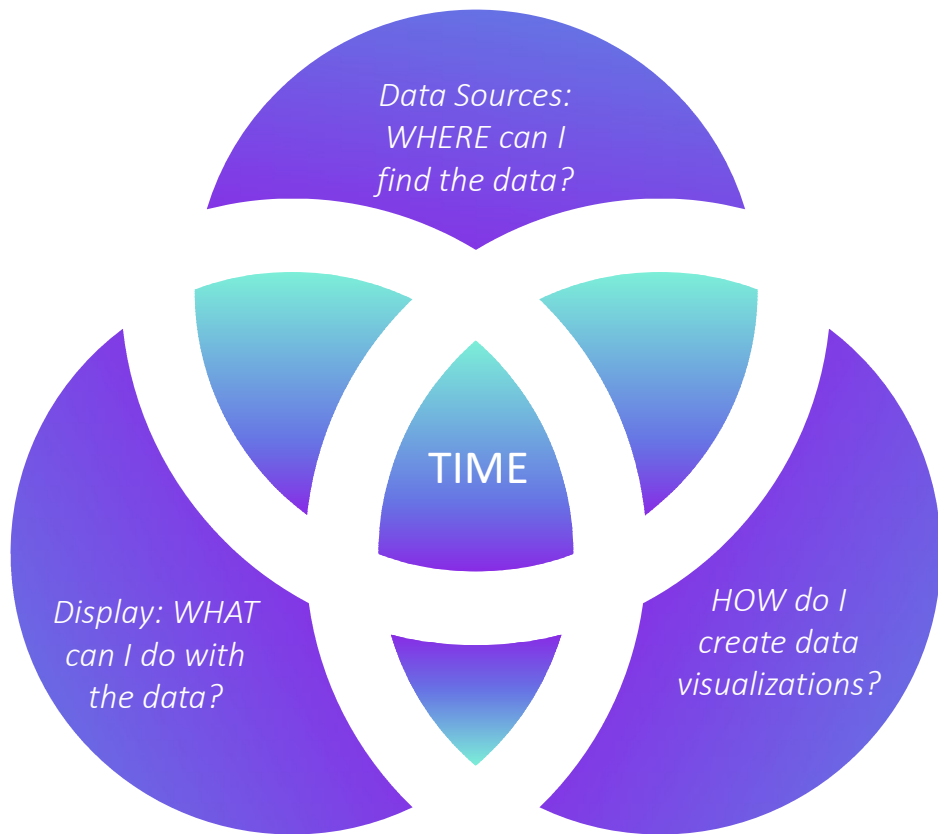


What to Do With All this DATA?

*Terri Hall
Notre Dame Research
University of Notre Dame
thall2@nd.edu 574.631.7378
Dec 11, 2020*



In the next 30 minutes...

What Notre Dame has done and is doing, and resources I used to teach myself.

DATA SOURCES: Data Connect

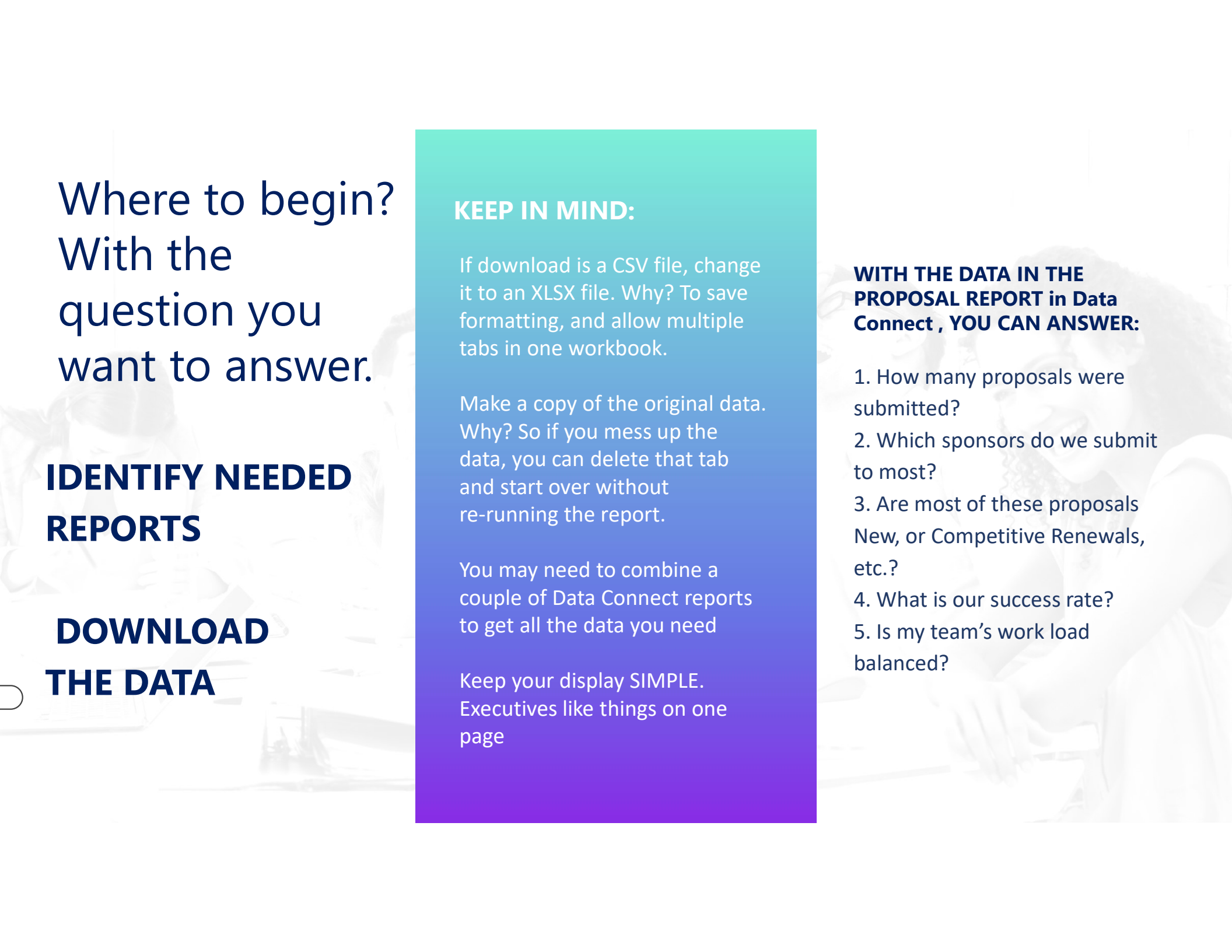
OPERATIONAL REPORTING

Dashboard of Research Activity, & Pre-award Workload using Excel

Post-award Workload Dashboard in Power BI

Collaborations in Campus Centers / Institutes using Power BI and Developer

RESOURCES



Where to begin?
With the
question you
want to answer.

IDENTIFY NEEDED REPORTS

DOWNLOAD THE DATA

KEEP IN MIND:

If download is a CSV file, change it to an XLSX file. Why? To save formatting, and allow multiple tabs in one workbook.

Make a copy of the original data. Why? So if you mess up the data, you can delete that tab and start over without re-running the report.

You may need to combine a couple of Data Connect reports to get all the data you need

Keep your display SIMPLE. Executives like things on one page

WITH THE DATA IN THE PROPOSAL REPORT in Data Connect , YOU CAN ANSWER:

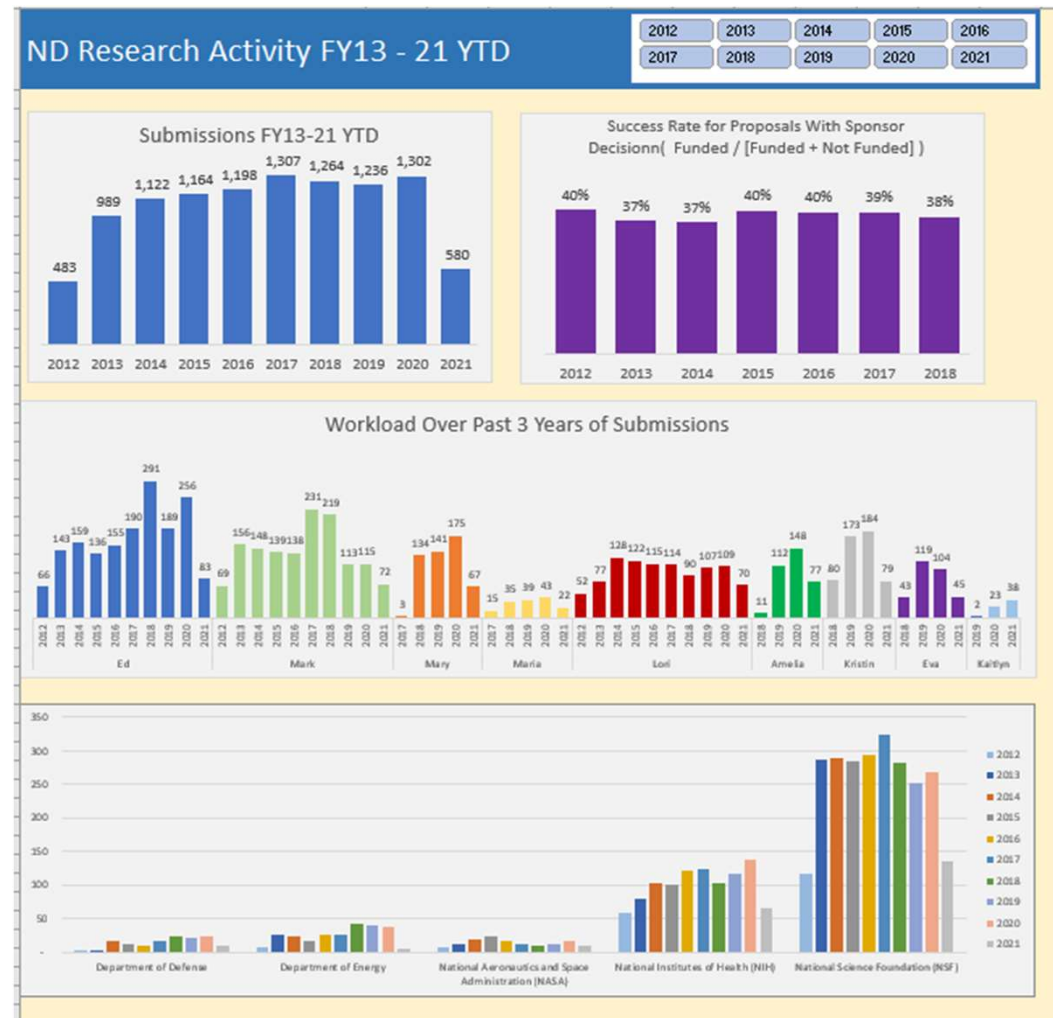
1. How many proposals were submitted?
2. Which sponsors do we submit to most?
3. Are most of these proposals New, or Competitive Renewals, etc.?
4. What is our success rate?
5. Is my team's work load balanced?

Multi-Yr dashboard with filters by year

How to:

<https://www.youtube.com/watch?v=9p6tWCHbtPQ>
runs 13:19

From MyOnline Training Hub on YouTube
– a good resource for Excel, Power Query/Pivot,
and Power BI



Combine multiple Data Connect reports using Excel's Power Pivot

How to:

From Simon Sez IT – Getting Started with Power Pivot runs 1:02:29
<https://www.youtube.com/watch?v=80htpBa6OaM>

From Mike Girvin, Excel Is Fun
Introduction to Power Query & Power Pivot Data Model in Excel 2016 runs: 50:05
<https://www.youtube.com/watch?v=ohGFPP12Qwc>

From MSPTDA 03: Power Query Introduction: Importing & Transformation Data in Excel & Power BI Desktop runs 57:12
<https://www.youtube.com/watch?v=BLI7DpL7Jrl>

From MSPTDA 04: Power Query: Import Multiple Excel Files & Combine (Append) into Proper Data Set runs 32:03
<https://www.youtube.com/watch?v=rSQwZ1d3b1g>

Data Connect

Power Query / Pivot

No More VLOOKUP

proposal_id	proposal_number	er_legacy	parent_project	title
10980	00-0001	P0002003	A00-0007	Research in CP Violation in the B Meson
10981	00-0002	P0008035	A00-0007	Precursors of Retardation in Children
10982	00-0003	P0011009	A00-0012	Precursors of Retardation in Children
10983	00-0004	P0106035	A00-0007	Nuclear Properties at Extreme Density
10984	00-0005	P0112007	A00-0007	Research on Iterative Reconstruction
10985	00-0006	P9401913	A00-0007	Materials Research Collaborative Access
10986	00-0007	P9404914	A00-0007	Precursors of Retardation in Children
10987	00-0008	P9604047	A00-0007	Precursors of Retardation in Children
10988	00-0009	P9709021	A00-0007	Precursors of Retardation in Children
10989	00-0010	P9711017	A00-0007	Precursors of Retardation in Children
10990	00-0011	P9806010	A00-0007	Precursors of Retardation in Children
10991	00-0012	P9810024	A00-0007	Precursors of Retardation in Children
10992	00-0013	P9910033	A00-0007	Precursors of Retardation in Children

Interactive Operational Dashboard for Post Award

Created with Power BI

Download the free version of Power BI:

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

How to:

Guy In A Cube videos

<https://www.youtube.com/channel/UCFp1vaKzpfvoGaiOvE5VJ0w>

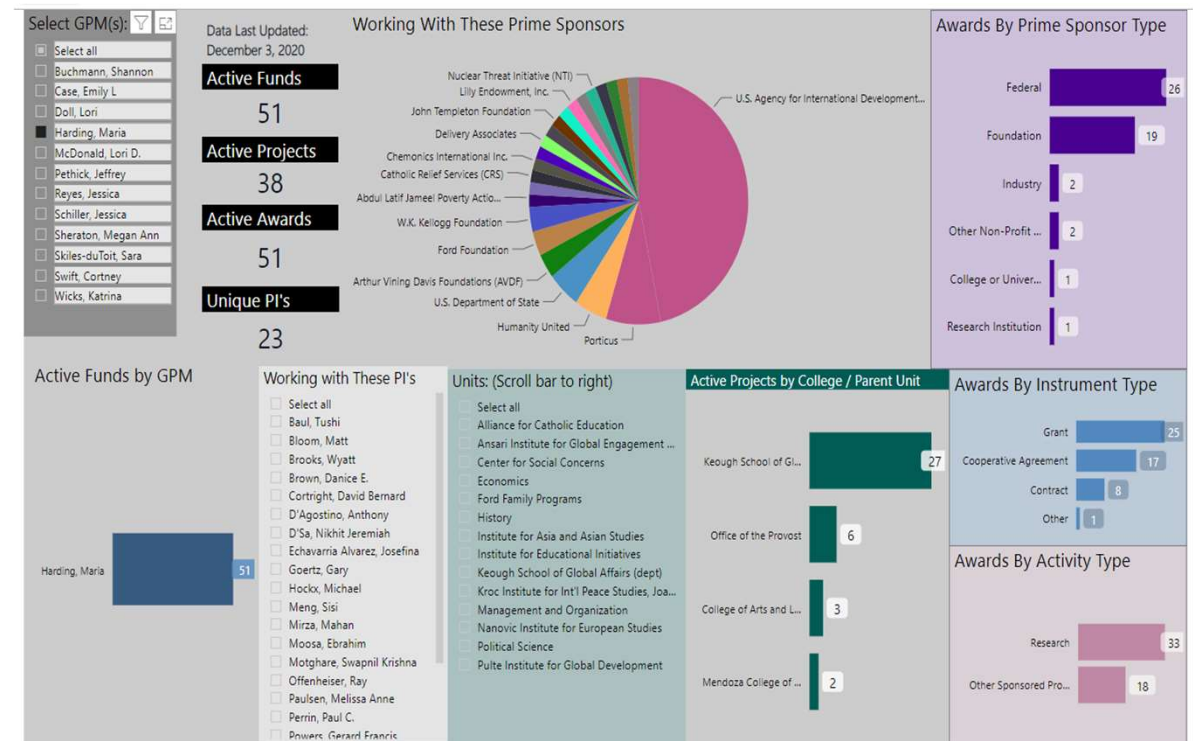
Power BI Bootcamp – runs: 2:08:33

<https://www.youtube.com/watch?v=i3CSD7bMMbg>

MyOnlineTrainingHub –

How to Build Power BI Reports from Start to Finish runs: 41:06

<https://www.youtube.com/watch?v=Z2t7l8b1uWU>



The VPR's Challenging Request from 2017

The **circular connection plot attached** is one I'd like you to create using **departments around the circumference and showing their connections for proposals**. It would be interesting to **compare 2010 – 2013 - 2017** connections to see if our interdisciplinary activities are growing. It'd be nice if the **data was below the chart**. The key will be whether this type of plot can be created relatively automatically without burdening the faculty or our staff.

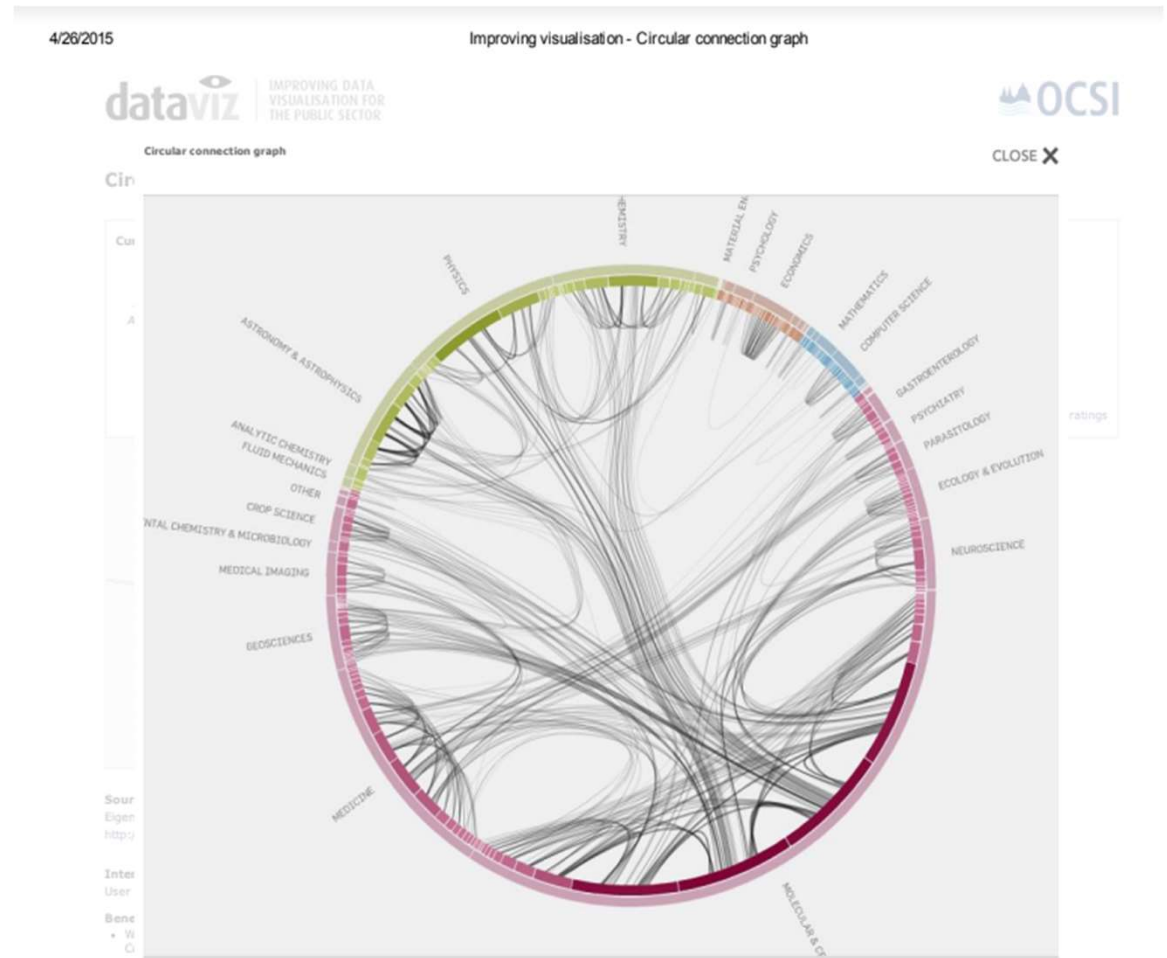
Follow-up provided this backstory: University is considering a new building where faculty who regularly collaborate with one another would be in the same building. Thinking is that this will facilitate the research if faculty can walk across the hall for a conversation about an idea rather than walking across campus or picking up a phone.

*Additional interest in **center involvement**; wants split by centers reporting to him (Strategic Research Initiatives, SRIs)*

I eagerly (OK, hesitantly) opened the “circular connection plot attached”.

Yikes !!!!
**WTF **

I mean,
Yippee – an
opportunity to
learn!



Have mercy,
Lord

Help me, google

Google


How to create a circular connection plot

Q All Images Videos News Shopping More Settings Tc

About 66,400,000 results (0.56 seconds)

www.youtube.com > watch

the Three-Ring %CIRCOS: An Example of Creating a Circular ...

 A circos **plot** is a **circular** visualization of the **relationship** between ... do not include polar axes to simplify ...
Jun 4, 2019 · Uploaded by SAS Users

jokergoo.github.io > circlize_book > book ▾

circlize package - Circular Visualization in R

12.1004. If you use circlize in your publications, I am appreciated if you can cite: Gu, Z. (2014) circlize implements and enhances **circular** ...

www.r-graph-gallery.com > chord-diagram ▾

Chord diagram | the R Graph Gallery

The circlize package allows to **build** all kinds of **circular chart**. ... function builds **connection** one by one, when chordDiagram() **plot** a whole dataset in one shot.

rstudio-pubs-static.s3.amazonaws.com > ...

Creating a Network Plot in R - Amazon AWS

In order to **create** an igraph **circular** network **plot**, you need a matrix of vertex points (i.e., point As and point Bs for the lines to **connect**). In this case, it's a list of ...

www.mathworks.com > 48576-circulargraph ▾

circularGraph - File Exchange - MATLAB Central - MathWorks

Plot an interactive **circular graph** to illustrate **connections** in a network. ... You can also **create** a custom colormap that is the length of the number of node ...

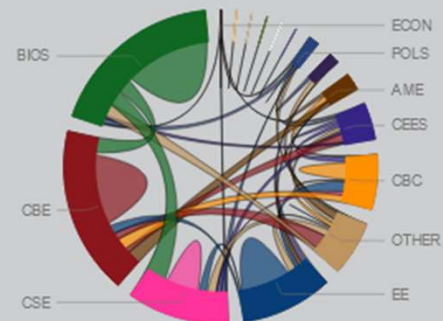
Select_SRI

AD&T
CRC
EIGH
HRCI
ICENSA
ND EQ
ND IGD
NDenergy
NDnano

Department

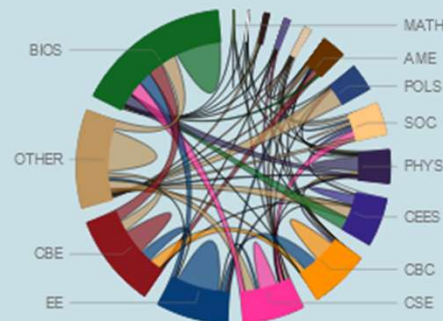
ACMS
AME
ANTH
BIOS
CBC
CBE
CEES
CSE
ECON
EE
MATH
OTHER
PHYS
POLY
PSYC
SOC

CY2010 Collaborations with SRI(s)



SRI name	Lead/Collab 1 Dept	Collab 2 Dept	Volume	Year Submitted
AD&T	ACMS	ACMS	0	2010
AD&T	AME	CBC	3	2010
AD&T	ANTH	ANTH	0	2010
AD&T	BIOS	BIOS	6	2010
AD&T	BIOS	CBE	4	2010
AD&T	CBC	CBC	3	2010
AD&T	CBE	AME	1	2010
AD&T	CBE	BIOS	5	2010
AD&T	CBE	CBC	3	2010
AD&T	CBE	CBE	5	2010
AD&T	CBE	EE	5	2010
AD&T	CEES	CEES	0	2010
AD&T	CSE	CSE	0	2010

CY2013 Collaborations with SRI(s)



SRI name	Lead/Collab 1 Dept	Collab 2 Dept	Volume	Year Submitted
AD&T	ACMS	AME	1	2013
AD&T	ACMS	CBE	1	2013
AD&T	ACMS	CSE	1	2013
AD&T	AME	BIOS	2	2013
AD&T	AME	CBE	3	2013
AD&T	ANTH	ANTH	0	2013
AD&T	BIOS	BIOS	17	2013
AD&T	BIOS	CBE	16	2013
AD&T	BIOS	EE	13	2013
AD&T	BIOS	OTHER	1	2013
AD&T	BIOS	PHYS	7	2013
AD&T	CBC	AME	1	2013
AD&T	CBC	CBC	4	2013

CY2017 Collaborations with SRI(s)



SRI name	Lead/Collab 1 Dept	Collab 2 Dept	Volume	Year Submitted
AD&T	ACMS	AME	2	2017
AD&T	ACMS	CBC	4	2017
AD&T	ACMS	CBE	1	2017
AD&T	ACMS	CEES	1	2017
AD&T	AME	AME	1	2017
AD&T	AME	BIOS	2	2017
AD&T	AME	CBE	1	2017
AD&T	AME	EE	1	2017
AD&T	AME	OTHER	1	2017
AD&T	ANTH	ANTH	0	2017
AD&T	BIOS	AME	1	2017
AD&T	BIOS	CBE	2	2017

How it works, examples are next...

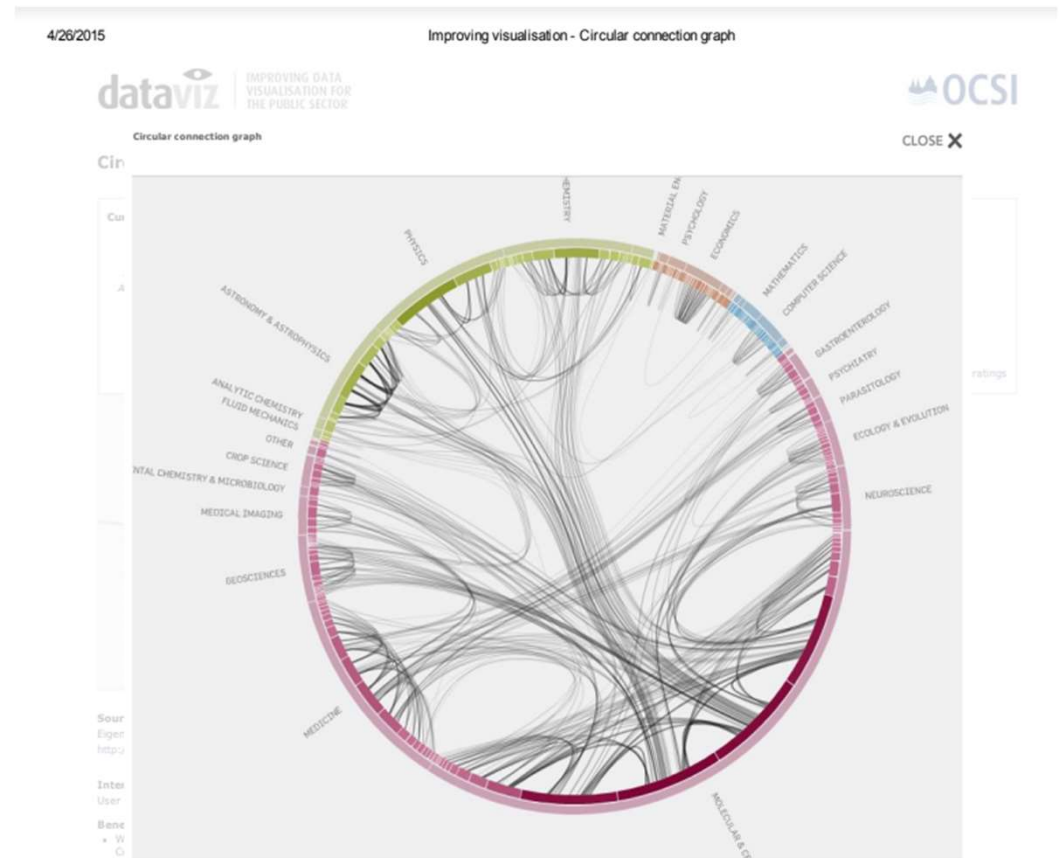
Interactive Collaboration Dashboard

Select a center
from list at the
top left, or a
dept from
bottom left



Reaction
from VPR...

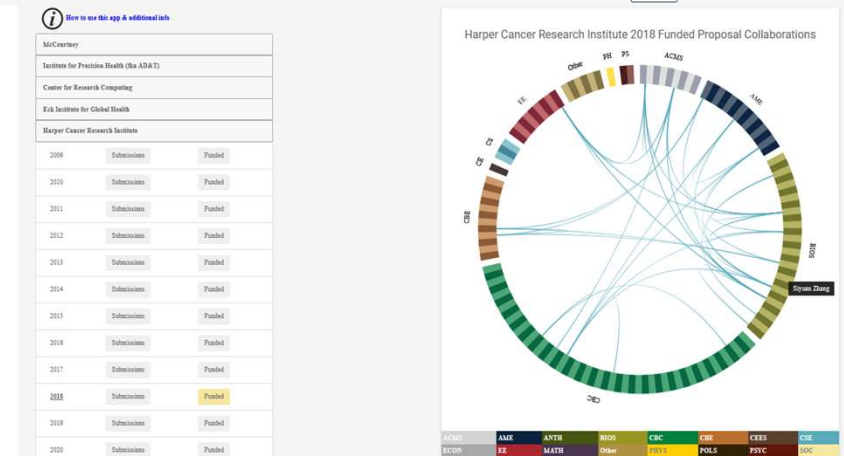
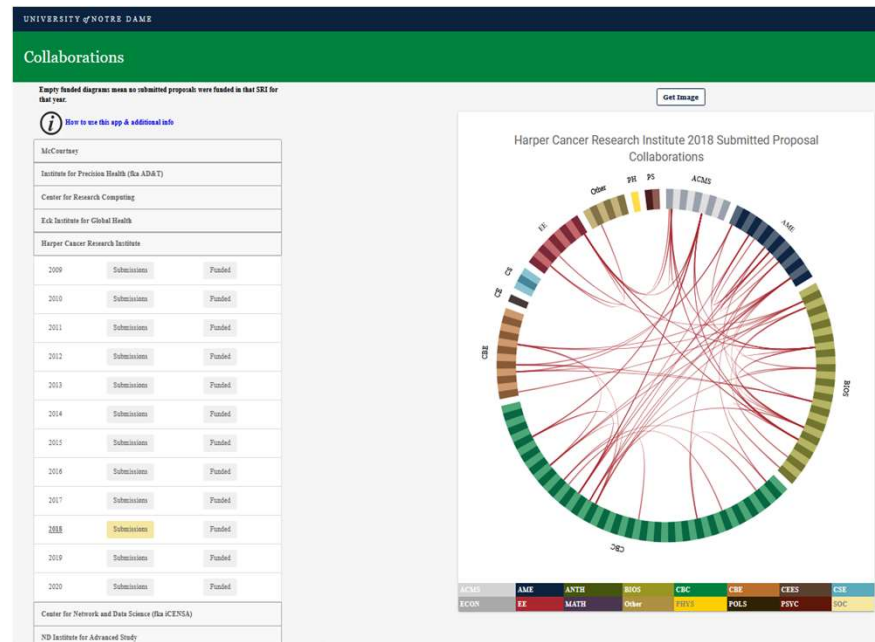
“It’s not what
I asked for.”



The rest of the story:

We gave him what he asked for.

And he wanted more. We added Awards in 2020.
** SUCCESS ! **



Be Brave, You Can Do This!

Find some time to learn and play. It's good for the soul !

The Cayuse User Community is AWESOME

Reach out and ask for/give help

Then allow us to learn from YOU

Volunteer to be next.

TODAY'S TAKE-AWAYS:



All of today's dashboards were created with FREE tools



Accept that you WILL mess things up. That's OK.

No one is going to die. Learn from it, and try again



How long will it take to learn?

It will take as long as it takes. Be patient with yourself and

the pieces will eventually fall into place.

