



Stony Brook University

HOW I LEARNED TO STOP WORRYING AND TRUST LIVE DATA

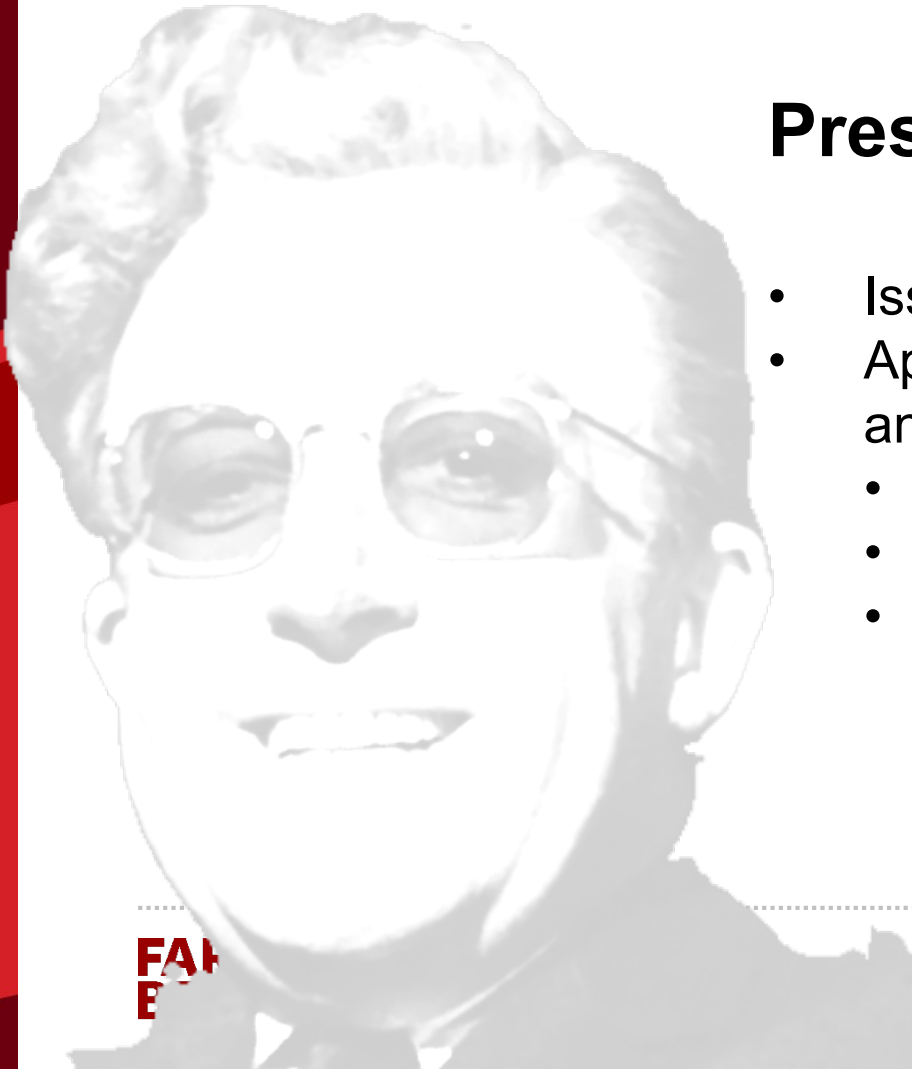
Presented at the 50th Annual Meeting of the North East Association for
Institutional Research, Baltimore, Maryland, November 6, 2023

Braden J. Hosch, PhD

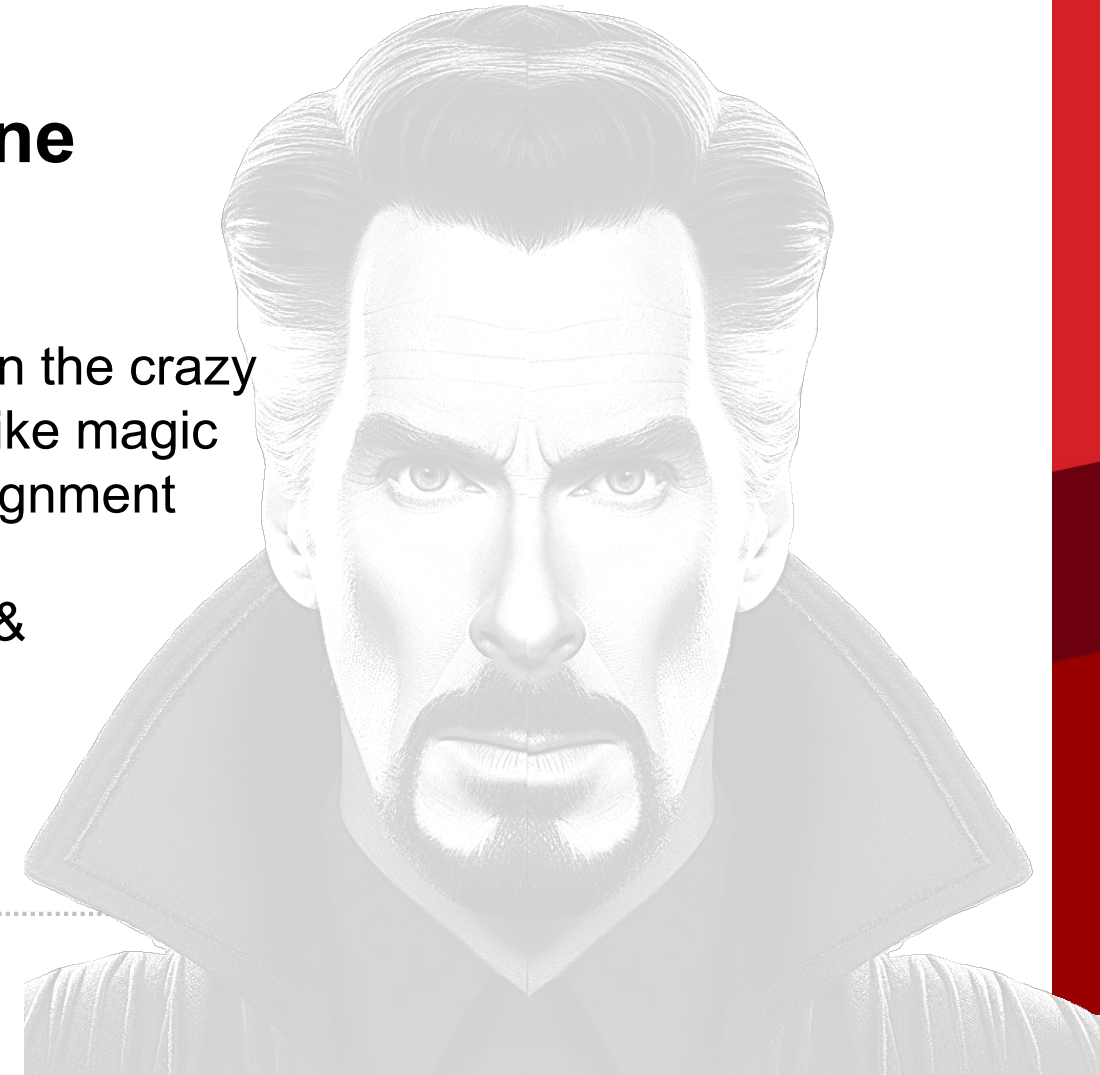
Vice President for Educational and Institutional Effectiveness

Who are you going to be?

Dr. Strangelove



Dr. Strange



Presentation Outline

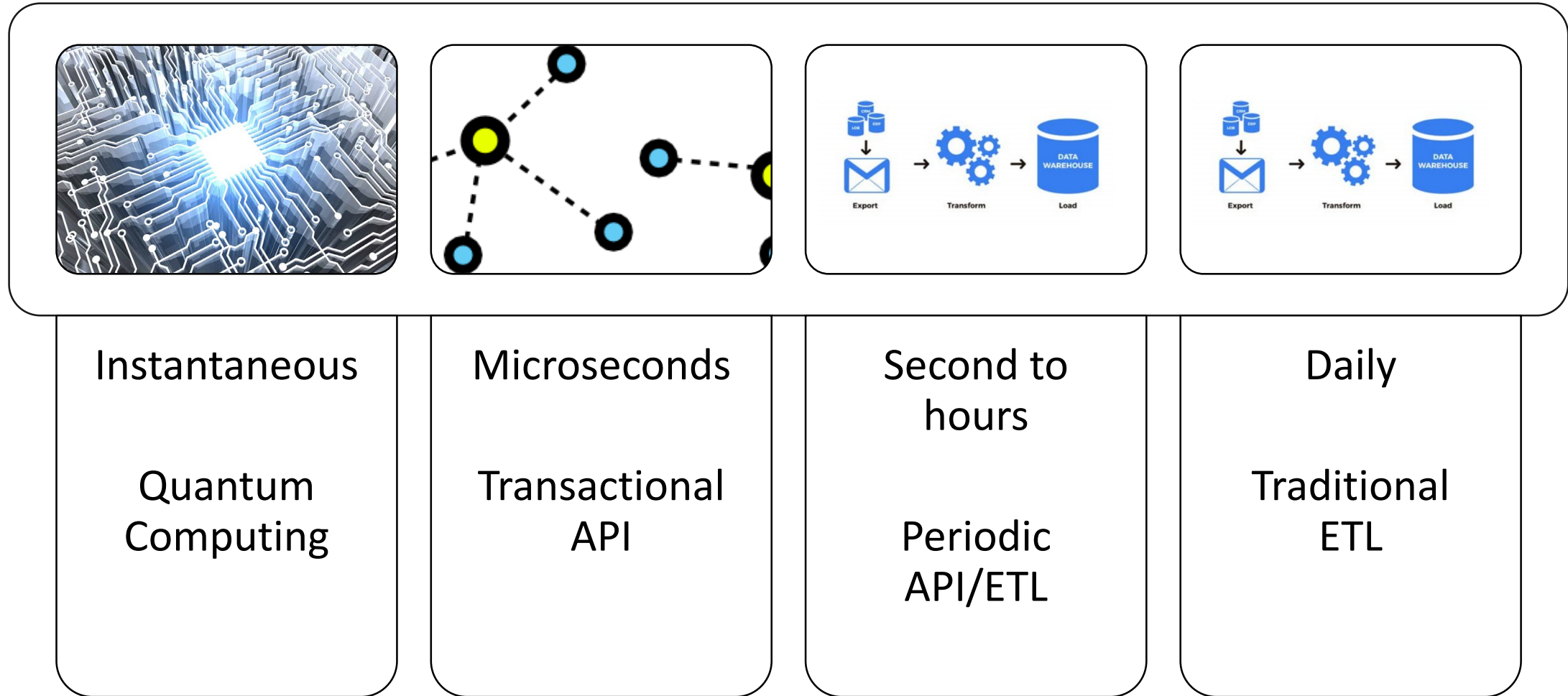
- Issues with live data
- Approaches to dial down the crazy and make it look more like magic
 - Organizational realignment
 - Data governance
 - Data management & handling

Stony Brook University

<p>25,865 Fall 2023 headcount enrollment</p>	<p>1400 Median SAT (test optional)</p>	<p>94 Avg. high school GPA</p>
<p>68% 32% Undergrad Graduate</p>	<p>38% Receive Pell grants</p>	<p>30% 21% White URM</p>
<p>16,309 Fall 2023 employees including hospital</p>	<p>3,027 Fall 2023 faculty full-time & part-time</p>	<p>#58 U.S. News & World Report Rank 2024</p>
<p>4 Billion USD annual budget 2023-24</p>	<p>1957 Founded</p>	<p>2001 Joined AAU</p>



How “live” is “live”?



Why do we worry about live data?

IR Values and Data



Accuracy & integrity



External standards



Replicability



Meaning



Trust

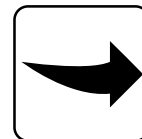
Issues with Live Data



Transactional errors



Internally defined



Unrepeatable

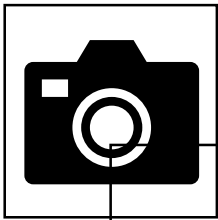


Uncertainty



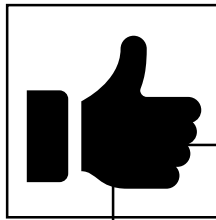
Unreliability

So what do institutional researchers do?



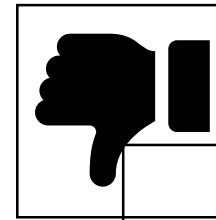
Take a “snapshot”

- Extract needed data at a specific point in time, curate it, and preserve it



Advantages

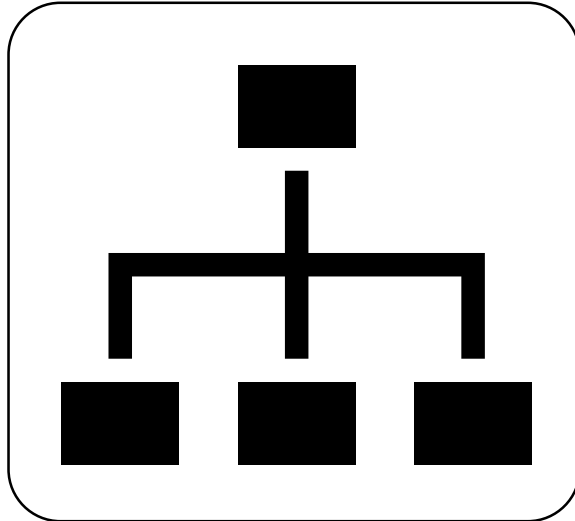
- Consistent, valid, reliable, auditable
- Can always produce the same answer



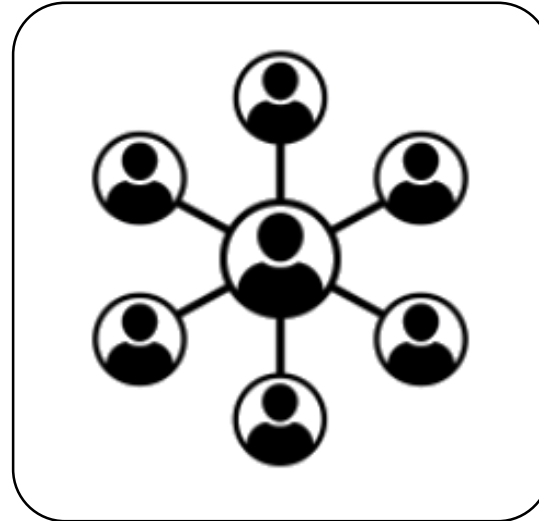
Disadvantages

- Slow, out-of-date, limited access, labor-intensive
- Backward-looking

Approaches to handle live data



Organizational
Realignment



Data Governance

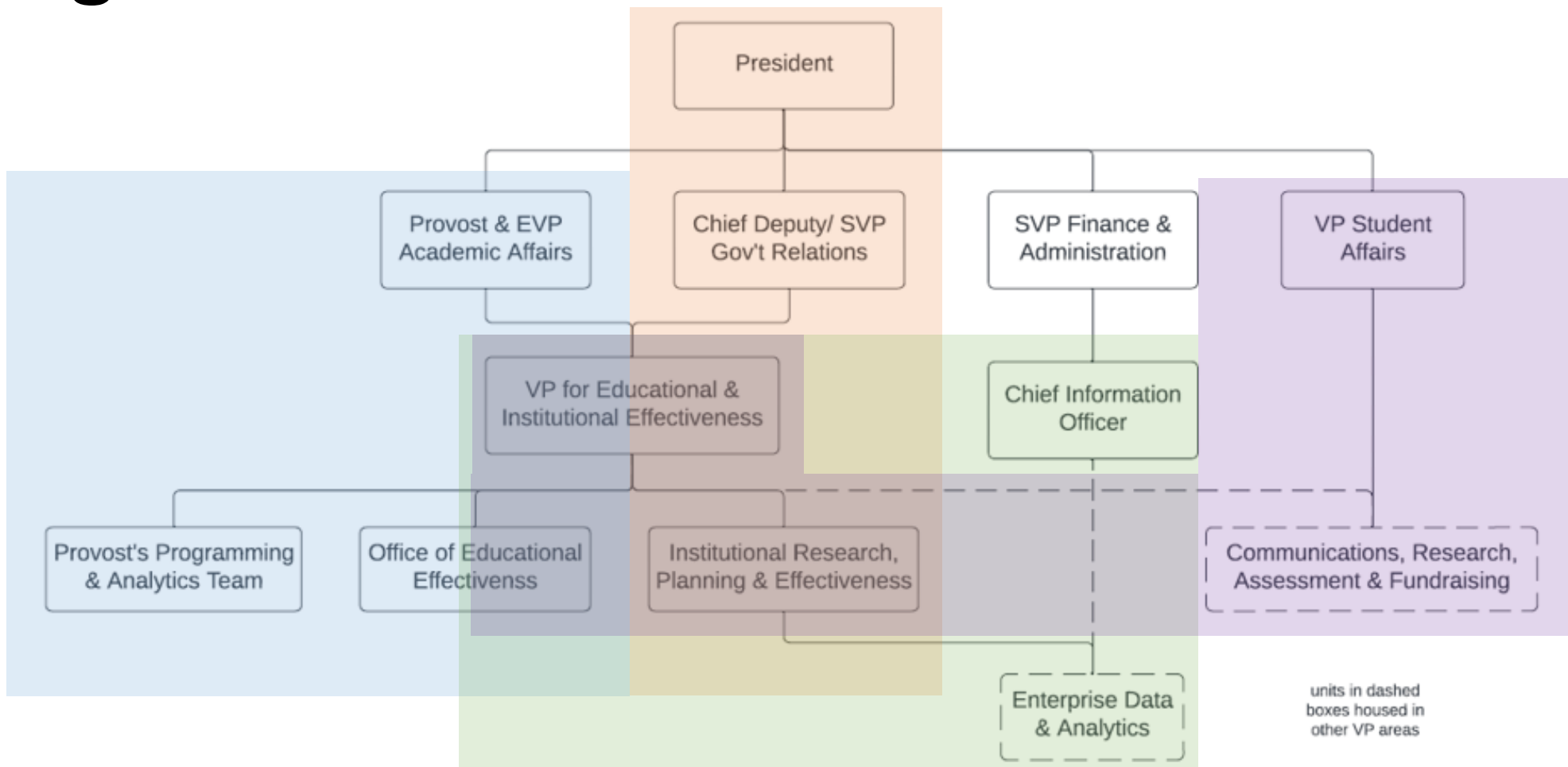


Strategies for data
management &
handling

ORGANIZATIONAL REALIGNMENT

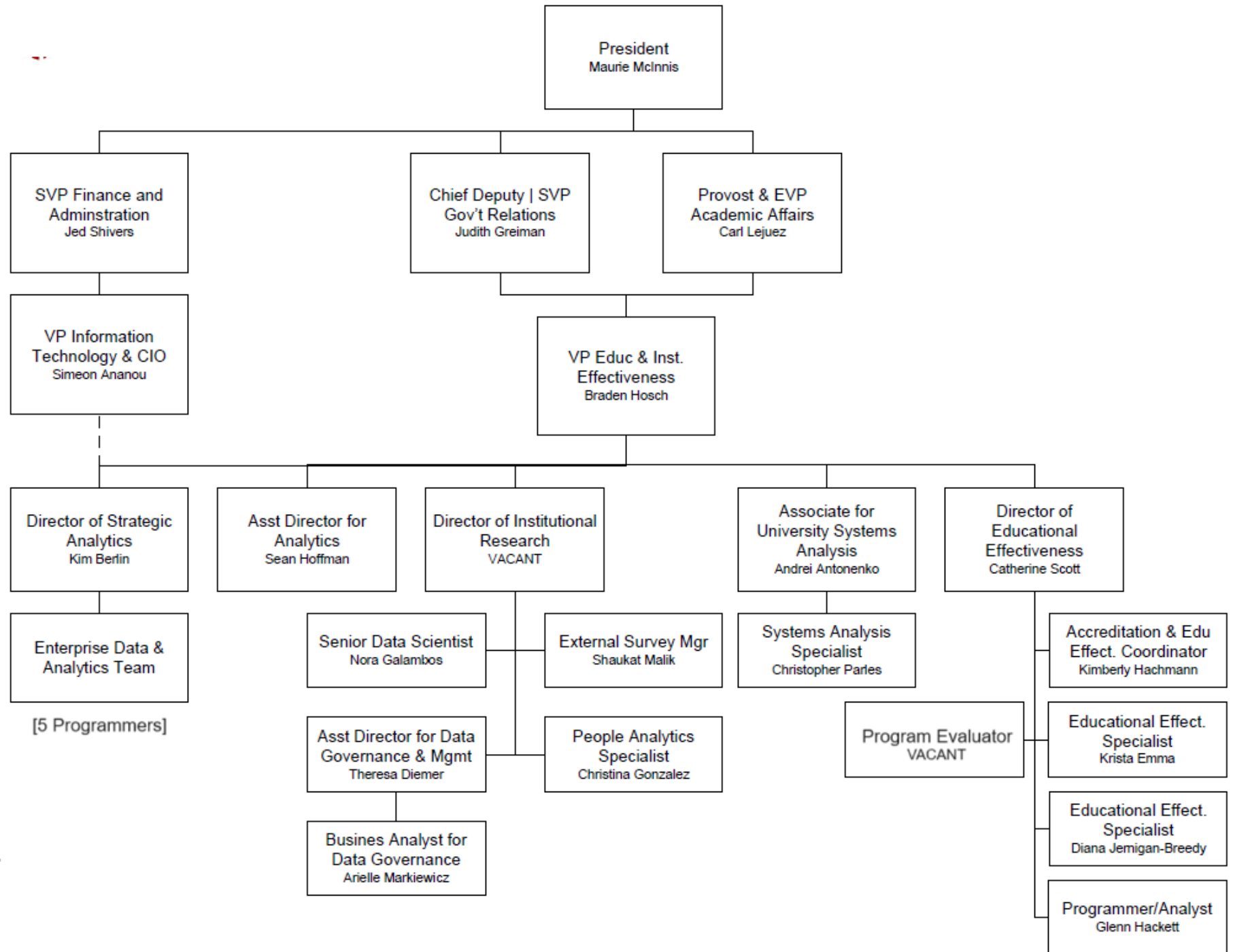
- Restructure
- Get rid of silos ... by getting rid of silos
- Cultural challenges

Organization Chart



Org Chart Detail

22.0 FTE direct
24.0 FTE w/ indirect



Not shown:
Dotted lines to Executive Director of CRAFT and Survey Research Analyst

Institutional Research “vs” Business Intelligence Structural Differences

	Business Intelligence	Institutional Research
Organizational Reporting	Information Technology	Provost, Other VP area
Data Realms	Enterprise Systems	Data warehouse, curated data sets
Constituencies	Internal	Internal and external
Data usage	Operational decision support	Official reporting & decision support
Age of organization	Newer	Well-established

Institutional Research “vs” Business Intelligence

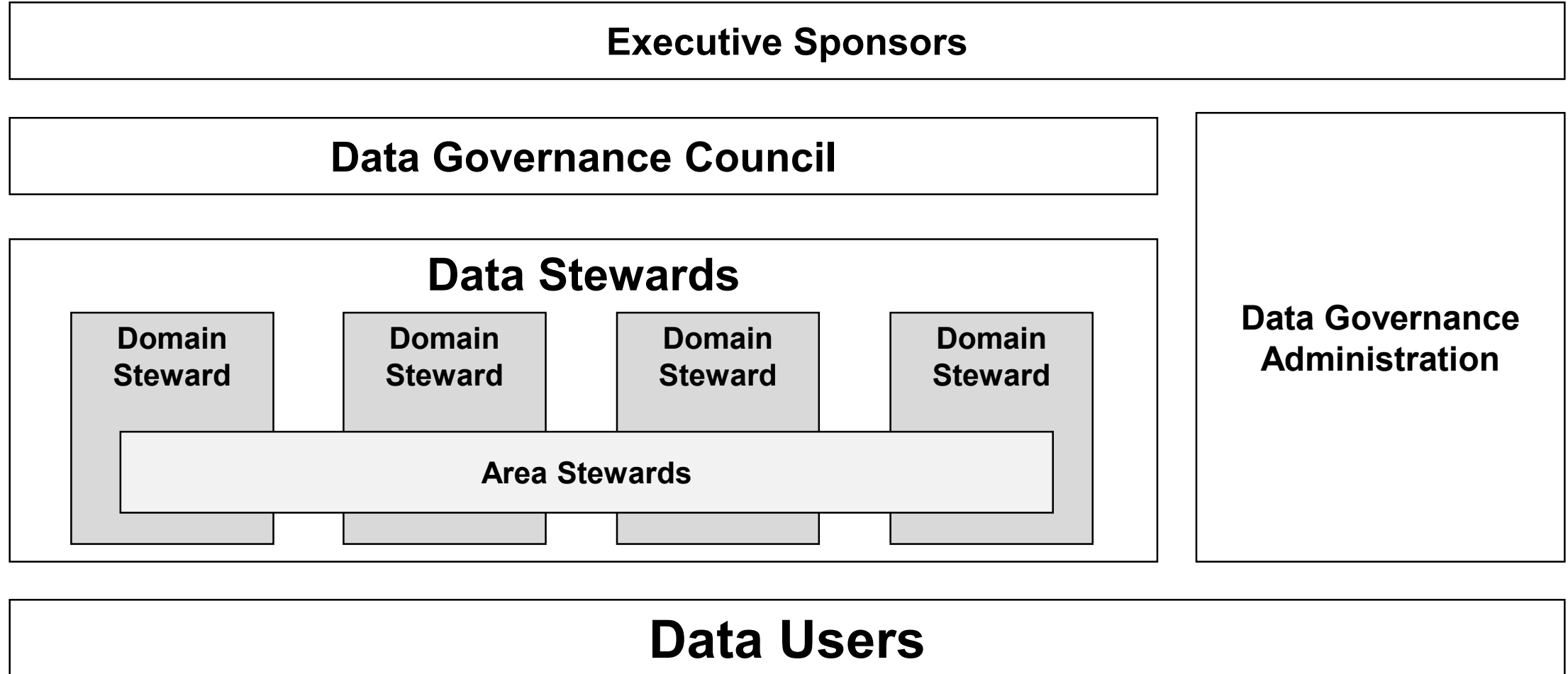
Cultural Differences

	Business Intelligence	Institutional Research
Educational Background	BA/BS, MS, IT related	PhD Common, Social Sci/Statistics
Career Background	Not academic, often not higher ed	Higher ed
Career Opportunities	Outside higher ed	Higher ed
Data tools	Provider perspective	User perspective
Data Manipulation	A crime	A necessity
Data Openness	Democratization of data	Manage carefully
Data Quality	Provenance fidelity to source	Conform to definition; fitness of use; consistency
Data understanding	Operational & managerial context	Institutional & strategic context
Attitude	Optimistic	Skeptical

DATA GOVERNANCE

- Structure
- Important features

Data Governance



Key features of data governance systems

Documents

- Charter / framework
 - Principles & values
 - Purpose & scope
 - Roles & responsibilities
- Written & published policies
- Data dictionaries
- Communication strategies

Groups

- Senior leadership/
Executive sponsors
- Policy council
- Data steward council(s)
- Information security
council/program
- Data Governance Office/
Administrative Personnel

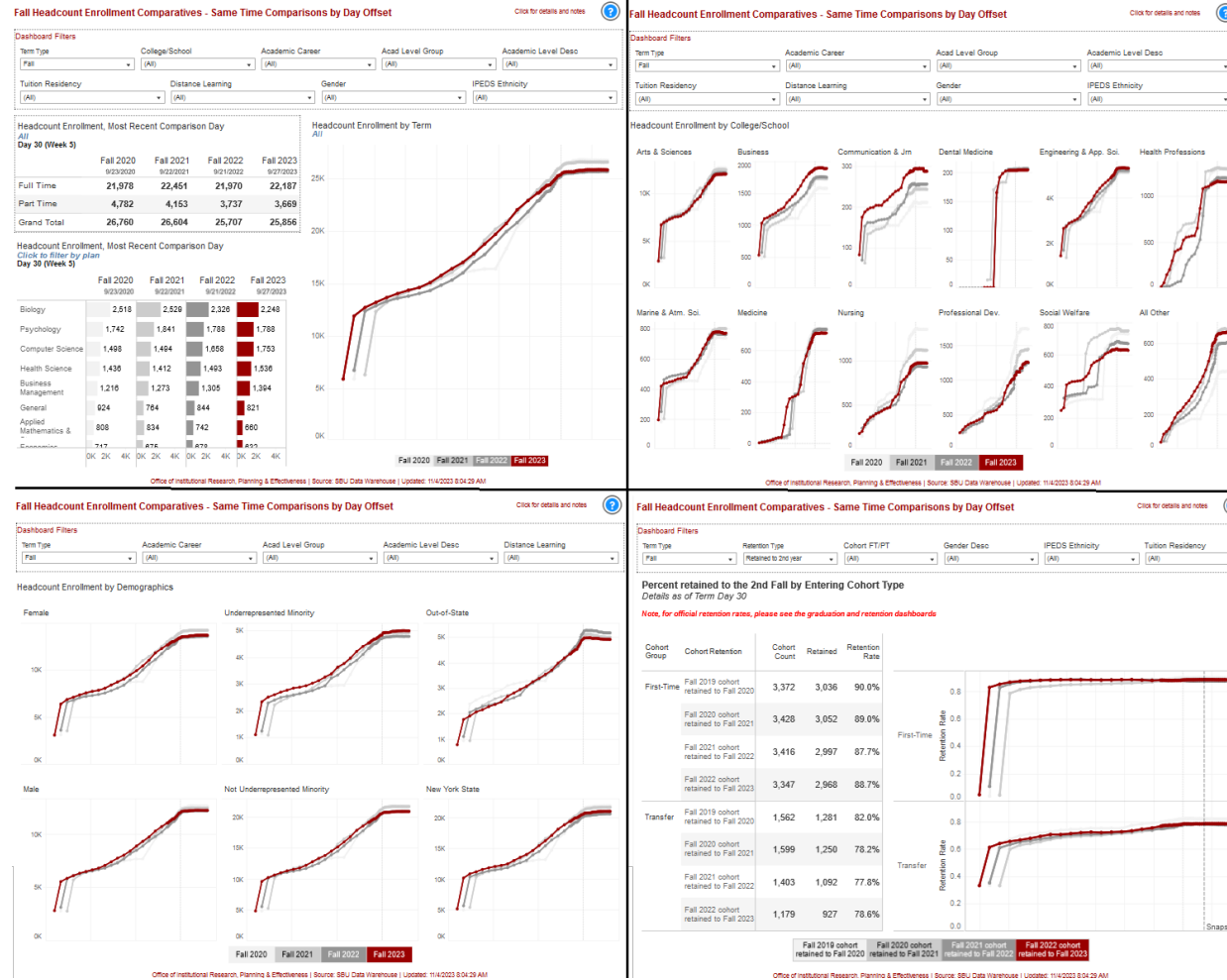
Individual roles

- Data stewards
- Data custodians/
caretakers
- Data users

DATA MANAGEMENT & STRATEGIES

- High frequency ETL
- Data reduction
- Manage/set alerts on values at error tolerance thresholds
- Load validation systems with alerts

Enrollment Comparatives



Frequency: daily

Initial problems:

Transactional system dropped historical records and gave false impression of increase over historical performance.

(We thought we knew this data source, and we didn't)

Solution:

Daily thin snapshots. Took a year to execute.

Work order dashboards

Work Order Details by Trade

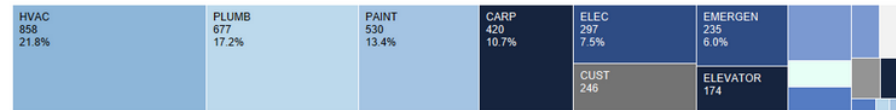
Dashboard Filters

Date Created: Last 6 weeks | Department: Campus Operations & Maintenance | Trade Group: F&S Trades | Status: (All)

Type: (All) | Location: (All) | Work Order Submitter: (All) | Class: (All)

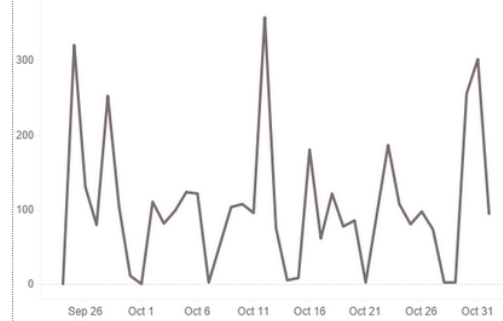
Work Orders by Trade

Click on Trade to Filter Trend



Trade Group: All

Click on Date to Filter Work Order List



Work Orders

WorkOrderCo	deDept	Building	Trade	Status
933695FS	SUNWOOD -	PLUMB	Closed	
910189FS	LIFESC-04G-DCW-P-01	PLUMB	Closed	
910190FS	LIFESC-04G-DCW-P-02	PLUMB	Closed	
931633FS	UNION-037-147-8682-ELE-1	ELEVATOR	Ready	
931634FS	UNION-037-147-7025-ELE-2	ELEVATOR	Ready	
933726FS	OUTDOORS-WEST	GROUNDS	Closed	
933728FS	AERTC-504-CT-1	HVAC	Closed	
933729FS	CEWIT-503-CT	HVAC	Closed	
933730FS	CMM-044-CT-1	HVAC	Closed	
933731FS	CMM-044-CT-2	HVAC	Closed	

Office of Institutional Research, Planning & Effectiveness and Office of Administration & Finance | Data Updated: 11/2/2023 2:01:33 PM

Employee Metrics

Dashboard Filters

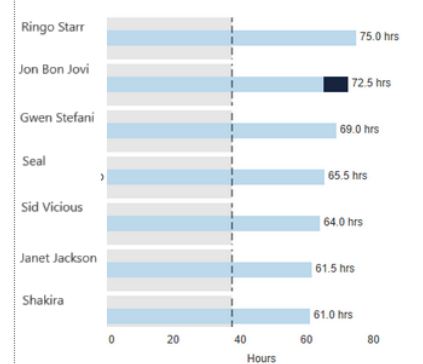
Date Range: 2 weeks prior | Choose Sort: Hours Booked | Department Parameter: Campus Operations & Maintenance

Employee Trade: (All) | Employee Type: (All) | Hour Type: (All) | Class: (All)



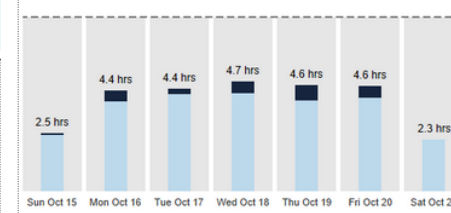
Weekly Employee Hours Booked and Exception Hours

Select Employee to get Week Schedule



Average Hours Booked Plus Exceptions per Day

Employee: All



Project List, Employee: All

Work Order Date	WorkOrderC.	Work Order Trade	Employee Trade	Record Type	No Meas ure.
10/15/2023	939331FS	EPP0	EPP0	Booked Hours	20.0
10/17/2023	938417FS	EPP0	EPP0	Booked Hours	8.0
	938420FS	EPP0	EPP0	Booked Hours	4.0
10/18/2023	938417FS	EPP0	EPP0	Booked Hours	8.0
	938420FS	EPP0	EPP0	Booked Hours	4.0
10/19/2023	938417FS	EPP0	EPP0	Booked Hours	8.0
	942218FS	EPP0	EPP0	Booked Hours	1.0
10/20/2023	938417FS	EPP0	EPP0	Booked Hours	8.0
10/21/2023	938417FS	EPP0	EPP0	Booked Hours	8.0

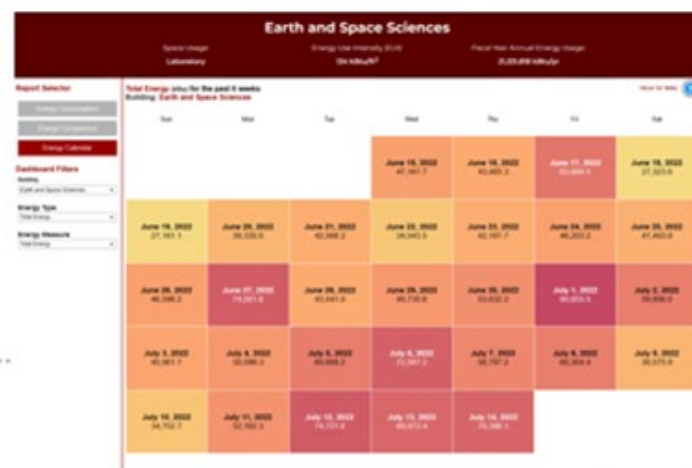
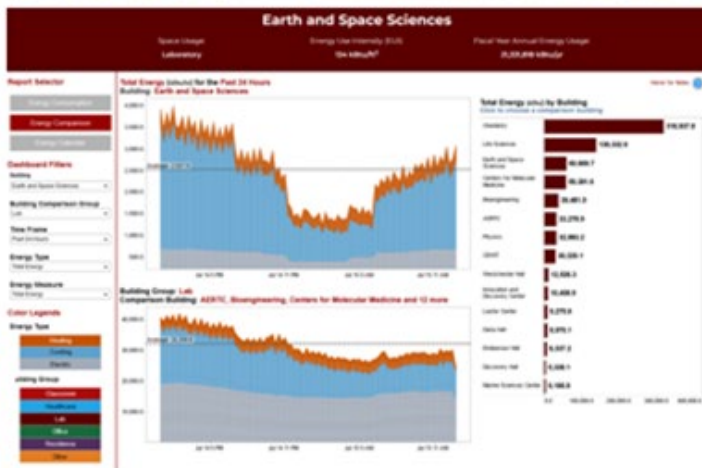
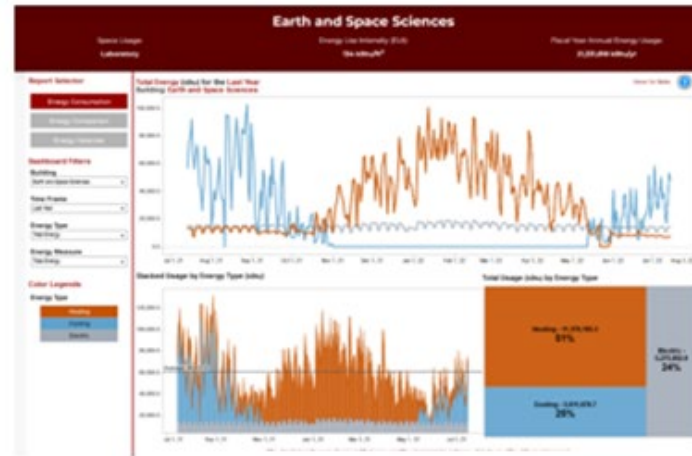
Office of Institutional Research, Planning & Effectiveness and Office of Administration & Finance | Data Source: INFOR

Frequency:
Daily; weekly & monthly KPIs

Initial problems:
3rd party data source, import Input accuracy

Solution:
Complex ETL Employee training

Publicly available energy dashboards



Frequency: 15 min

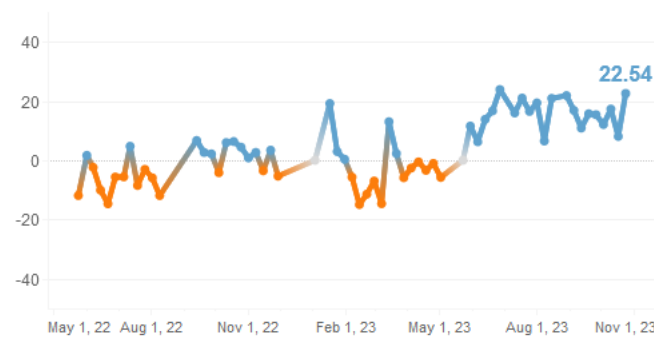
Initial problems:
30 billion rows
Whipsaws

Solution:
Data reduction
Limited metrics
Tolerance ranges

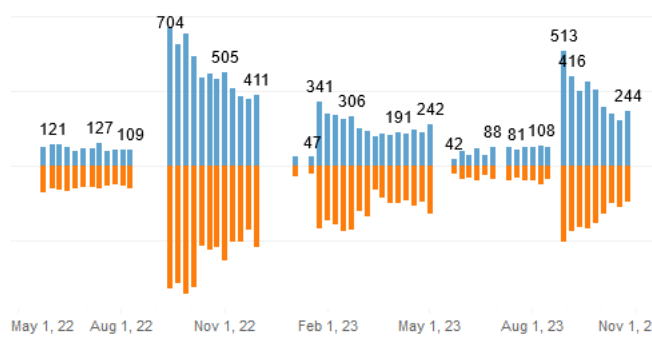
Pulse survey dashboards

Net Promoter Score (NPS) Monitoring Data
Group of 7 days of responses. [Click any group to see comments](#)

Trend of Net Promoter Score



Response Counts by NPS Group



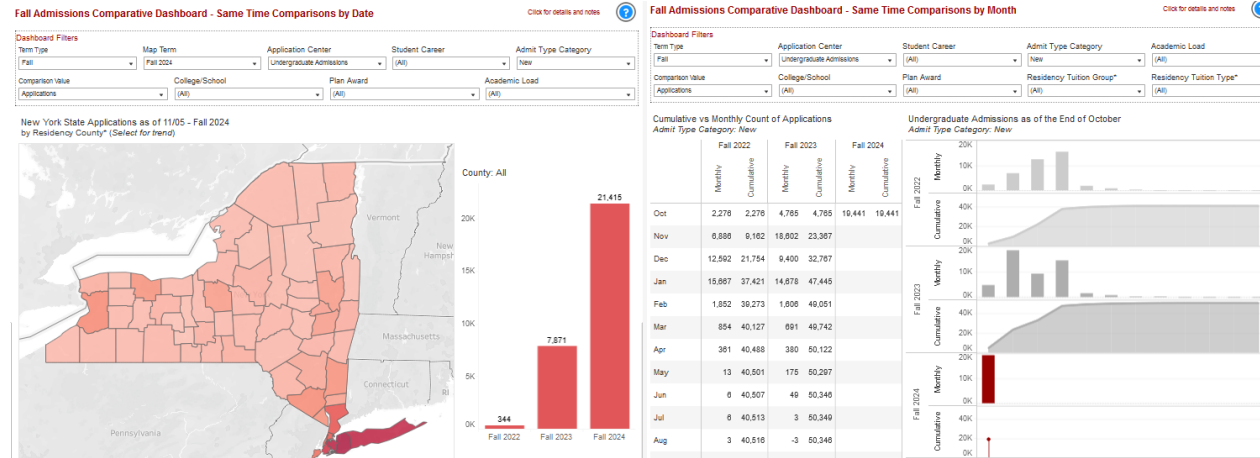
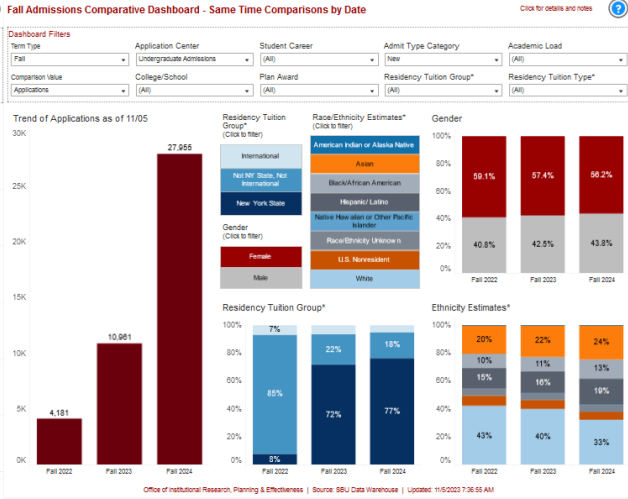
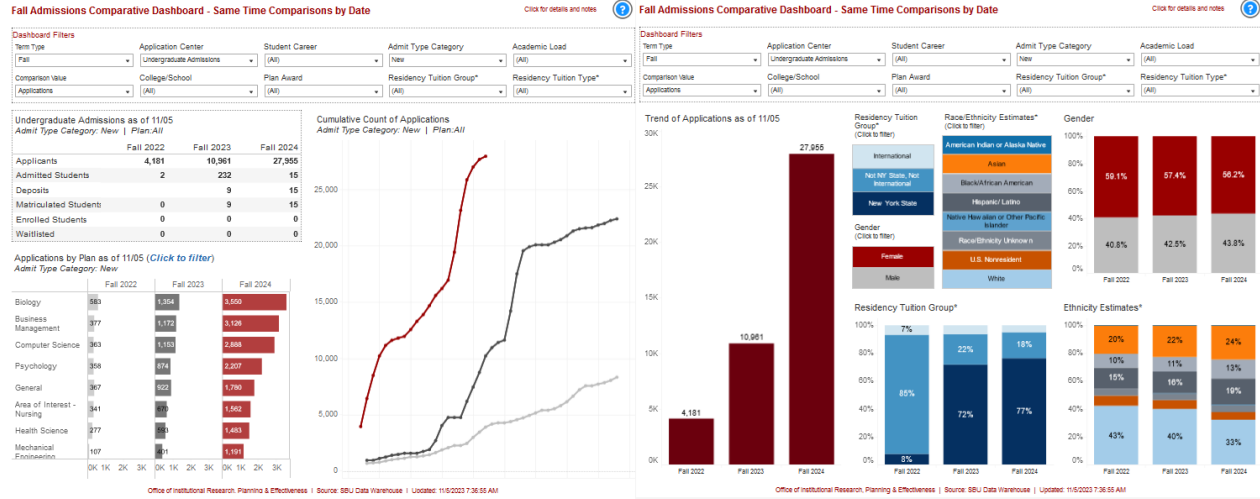
NPS	Academics	Support	Professors	Program	Activities	Total	Cost UGRD	GRAD	Dining	Parking
Promoters	34.2%	37.8%	38.3%	29.7%	35.9%	16.8%	17.4%	14.8%	14.4%	5.6%
Passives	34.9%	29.3%	31.2%	29.7%	44.7%	28.3%	34.8%	19.8%	39.9%	24.5%
Detractors	31.0%	32.9%	30.5%	40.7%	19.4%	24.9%	47.9%	65.4%	45.7%	69.9%
NP Mean:	4.57	3.78	4.05	4.40	4.97	3.21	4.46	2.78	3.65	2.34

Frequency: Daily data feed, daily comments, weekly statistical update

Initial problems:
Time period for statistical stability
Coding comments

Solution:
Detailed analysis over first six months
Comment coding (pending-exploring AI)

Admissions Comparatives

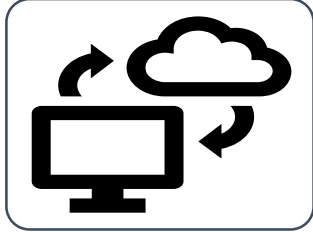


Frequency: Daily

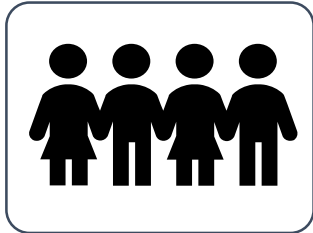
Initial problems:
Disagreement among users about refresh frequency, system of record

Solution:
ETL from source system instead of warehouse (remains unresolved)

What else do we need to make this work?



Technology platform(s)



Personnel



Data source expertise

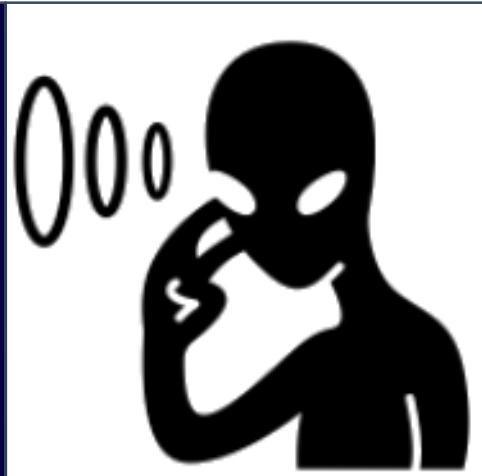
Final Thoughts



Live data is not a “set it and forget it” operation



Expect the unexpected



Understand your users



Using live data (or not) affects your brand