



Power BI & YOU

Unlock Your Potential through Data

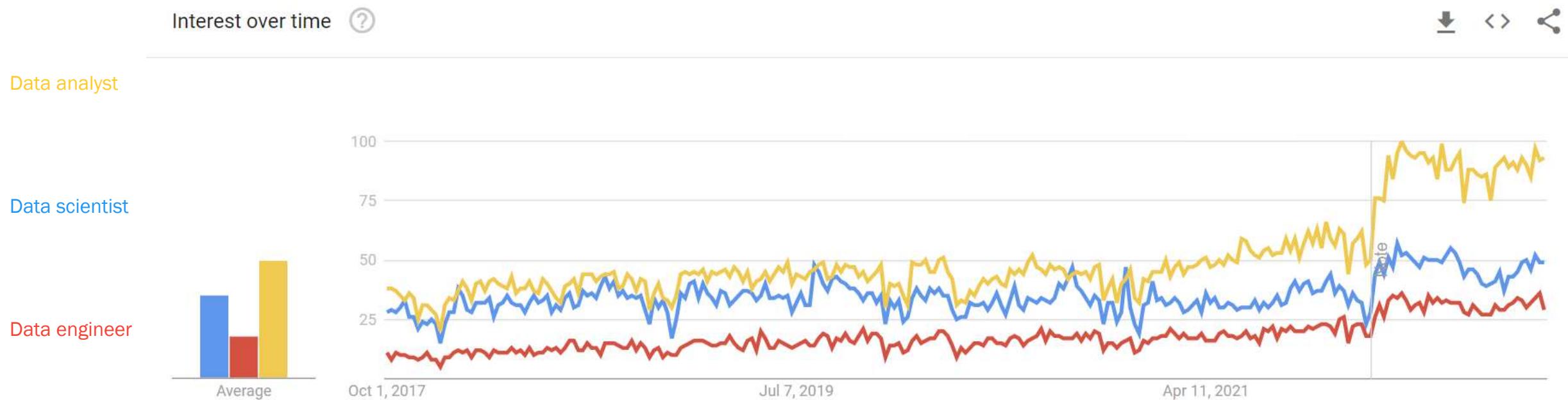
Interest in Data

Data analyst

Data scientist

Data engineer

Interest in Data



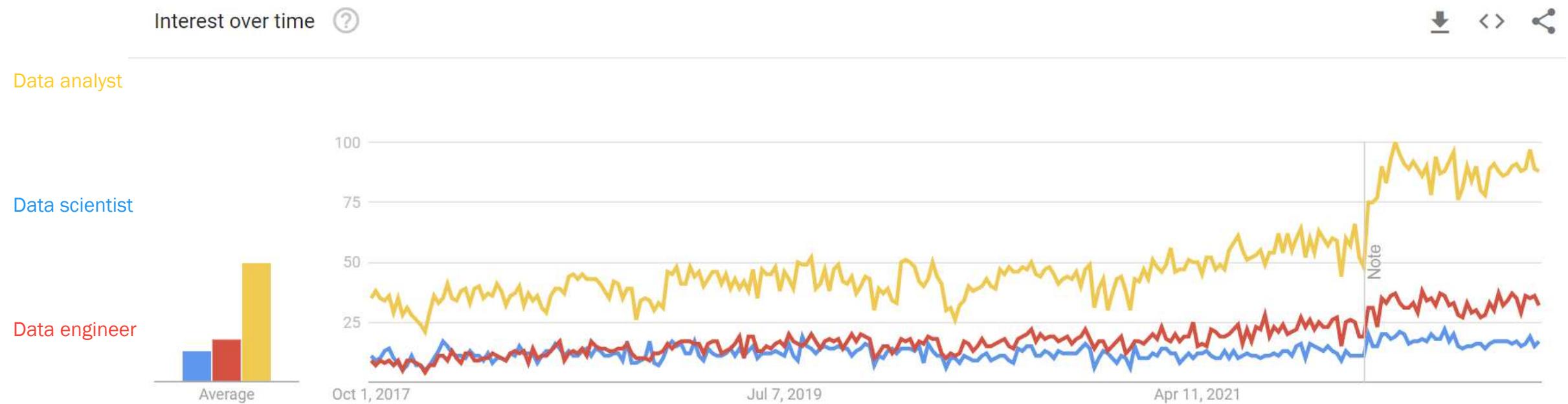
Interest in Data Careers and Education

Data analyst

Data scientist

Data engineer

Interest in Data Careers and Education



Teneika Askew – Social Entrepreneur & Analytics Leader

6 + years - Consulting

4 + years - Non-Profit & Internships

7 + years - Data Science/Analytics Projects

BS in MIS – Fayetteville State University



MS in Business Analytics – Indiana University

Microsoft Certified Trainer

Microsoft Data Analyst



Tableau Desktop Specialist

AWS Solutions Architect

CompTIA Data+



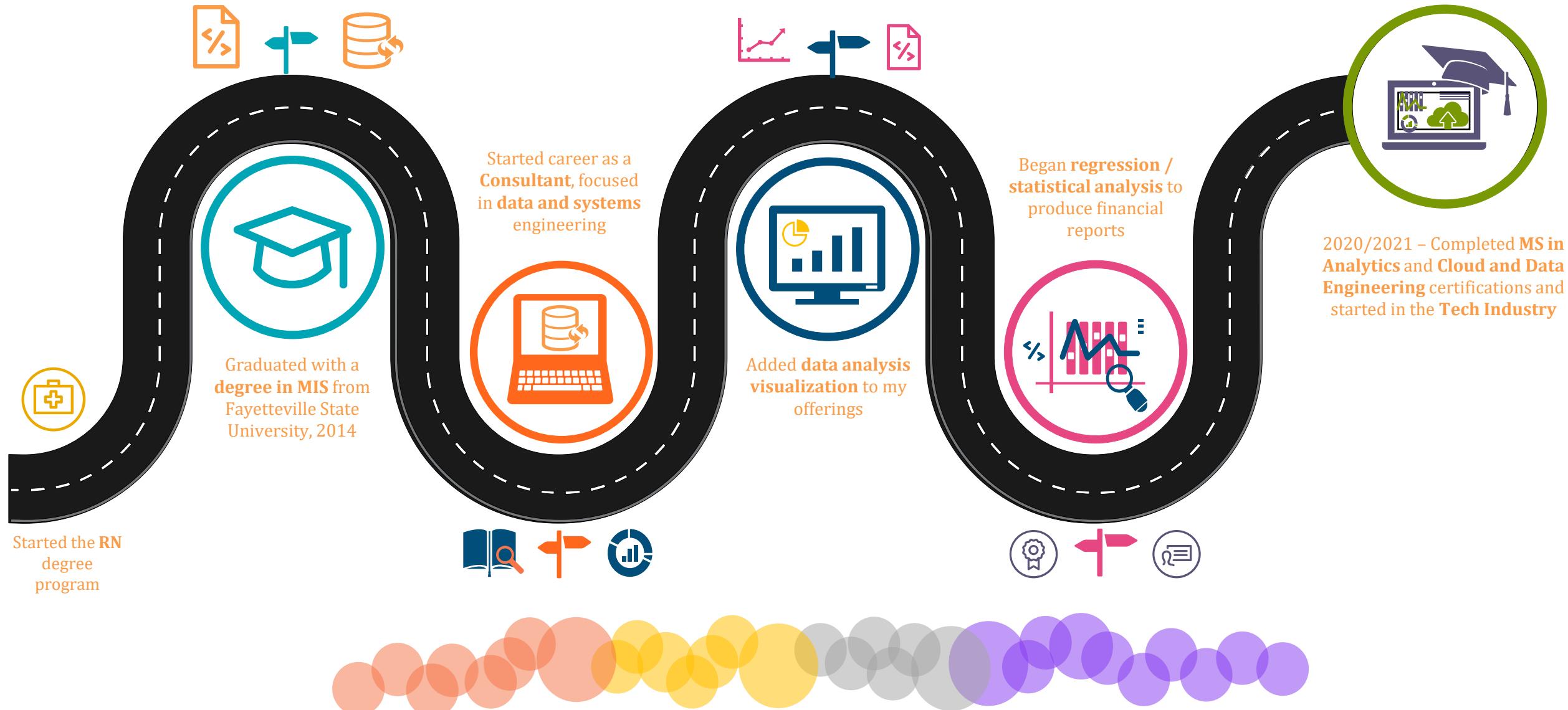
*Professional and Certified Scrum Master,
Agile Certified Practitioner*

ITIL and COBIT Certified

MICROSOFT CERTIFIED TRAINER



Teneika's Career Journey



You'll Learn:

-  Roles in Data Visualization and Power BI
-  How to Frame Questions into Visualizations
-  How to Meet Dashboard Objectives with Charts
-  How to Build a Power BI Dashboard / Report
 - Data Prep
 - Data Modeling
 - Data Visualization
-  Key Tips for Dashboard Development

OPEN POWER BI AND CASE FILES

Entry Level Data Analyst

Responsibilities

- Work with large volumes of data to extract insights
- Prepares reports for the organization, basic visualizations and trends
- Utilizes software to examines data sets to draw conclusions
- Presents findings to business / leadership

Skills

- Programming Languages:
 - SQL
 - Python
 - Basic R
- Knowledge of Software:
 - Power BI
 - Tableau
- Business Acumen
- Communication
- Knowledge of database structures

Education

- Bachelor's
 - Masters is a plus
- Training/coursework in:
- Applied math and statistics a plus!
 - Information Management
 - Storytelling

Salaries

- **\$37,570 - \$128,320**
 - 2021 Average – Bottom & Top 10% Pay
- **\$63,920 (Median Pay)**
- **792,500**
 - Number of Jobs, 2021
- **19% (Much faster than average)**
 - Job Outlook, 2021-2031
- **150,300**
 - Employment Change, 2019-2029

[Bureau of Labor Statistics](#)

Senior Level Data Analyst

Responsibilities

- Work with large volumes of data to extract insights
- Prepares detailed reports and automated dashboards
- Examines data sets and presents potential solutions to the business
- Advises business / leadership on future or current strategy using insights

Skills

- Programming Languages:
 - Advance SQL
 - Some Python
 - Basic R
- Expertise in a Software:
 - Power BI
 - Tableau
- Statistics!
- High Analytical Skills
- Advanced understanding of data infrastructures

Education

- Bachelor's
 - Masters is a plus
- Training/coursework in:
- Applied math and statistics required!
 - Information Management
 - Storytelling

Salaries

- **\$48,690 - \$160,850**
 - 2021 Average – Bottom & Top 10% Pay
- **\$82,360 (Median Pay)**
- **104,200**
 - Number of Jobs, 2021
- **23% (Much faster than average)**
 - Job Outlook, 2021-2031
- **24,200**
 - Employment Change, 2021-2031

[Bureau of Labor Statistics](#)

Data Engineer

Responsibilities

- SME in data collection/storage
- Use code/software to manage databases and write ETL procedures
- Develops data models, cleanses large sets of data and works closely data analysts/scientists
- Works with large volumes of structured or unstructured data to potentially mine and analyze for business gains

Skills

- Programming Languages:
 - SQL, NoSQL, T-SQL
 - Python
 - Hadoop
- Knowledge of Software:
 - Power BI, Tableau
 - Azure, AWS, GCP
- High Business Acumen
- Communication
- Knowledge of database structures and cloud technology and workflows

Education

- Bachelor's
- Masters is a plus
- Training/coursework in:
 - Data Algorithms
 - Data Infrastructure
 - Data Architecture
 - Applied Math/Statistics
 - Information Management
 - Storytelling

Salaries

- **\$63,260 - \$169,500**
 - 2021 Average – Top 10% Pay
- **\$101,000 (Median Pay)**
- **144,500**
 - Number of Jobs, 2021
- **9% (Much faster than average)**
 - Job Outlook, 2021-2031
- **12,800**
 - Employment Change, 2021-2031

[Bureau of Labor Statistics](#)

Data Scientist

Responsibilities

- Specializes in algorithms and modeling
- Understands data science from start to end
- Can help store large amounts of data, create predictive modeling processes and present findings
- Leverages collective processes and theories to analyzes and extract valuable knowledge and information from raw data

Skills

- Programming Languages:
 - Python
 - R
 - SAS
 - Java
 - C/C++
- Knowledge of Software:
 - Power BI, Tableau
- Machine Learning
- Artificial Intelligence
- Solid business acumen
- Strong data visualization competencies

Education

- Bachelor's
- Masters is a plus
- Training/coursework in:
 - Data Algorithms
 - Applied Math/Statistics
 - Deep Learning
 - Neural Networks

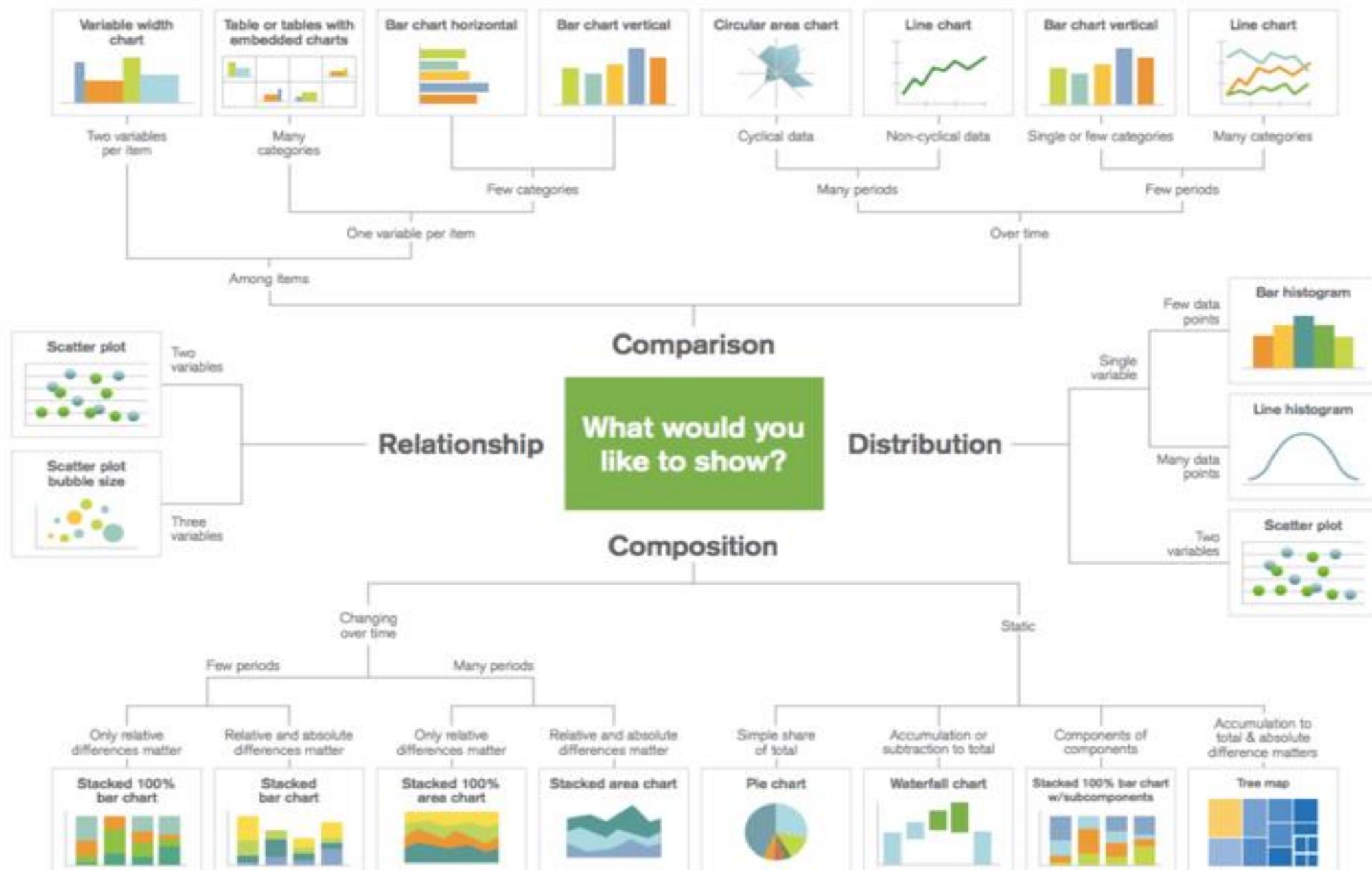
Salaries

- **\$52,720 - \$158,060**
 - 2021 Average – Top 10% Pay
- **\$100,910 (Median Pay)**
- **113,200**
 - Number of Jobs, 2021
- **36% (Much faster than average)**
 - Job Outlook, 2021-2031
- **40,500**
 - Employment Change, 2021-2031

Bureau of Labor Statistics

What question are you trying to answer?





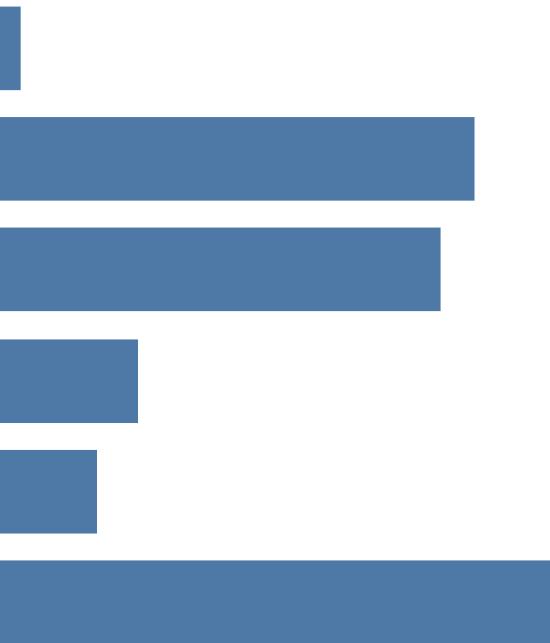
Choosing a Chart Type



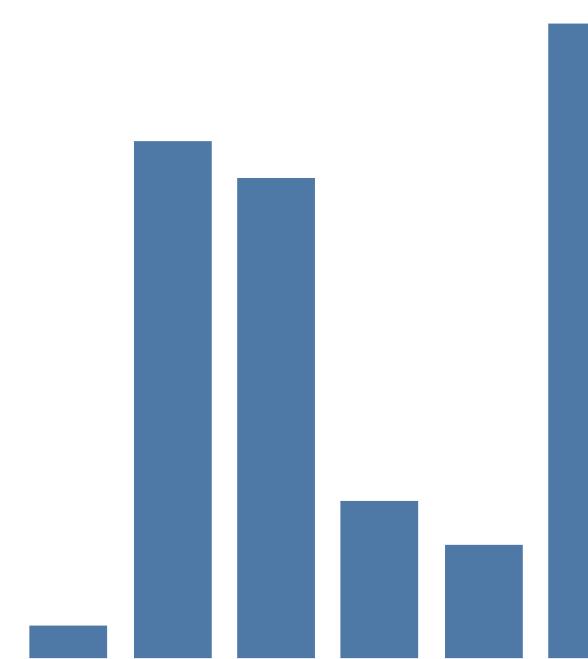
Comparison

Among Items

Bar

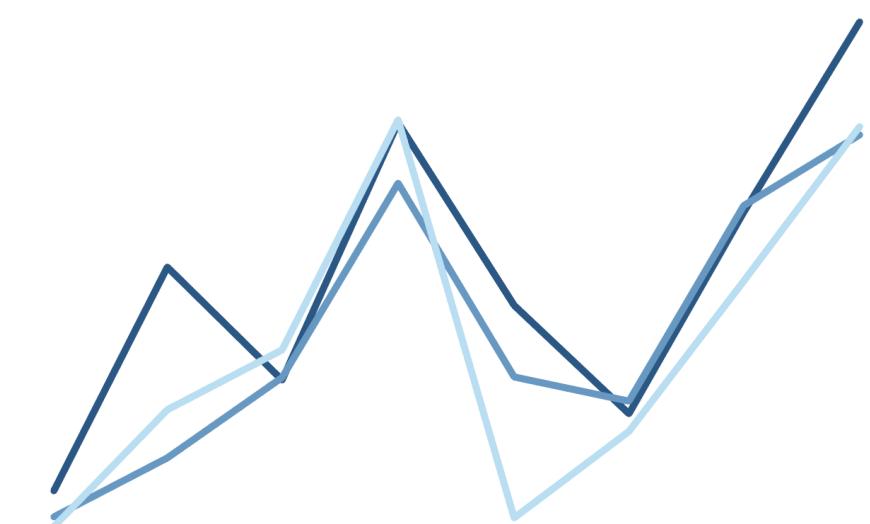


Column



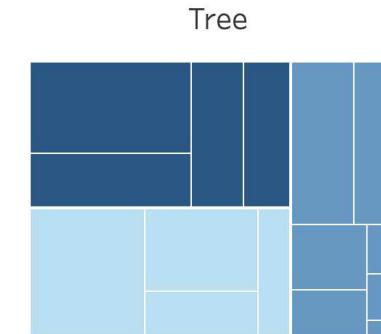
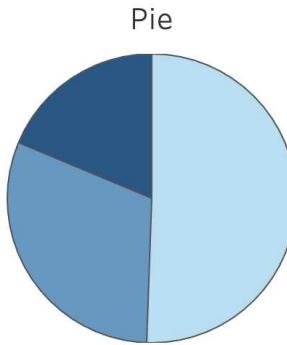
Over Time

Line

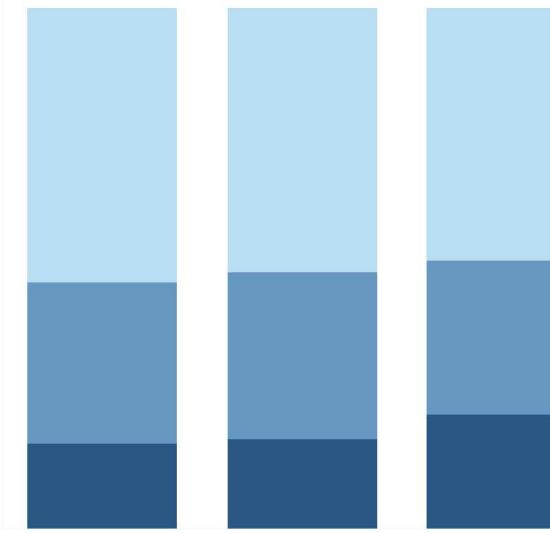


Composition

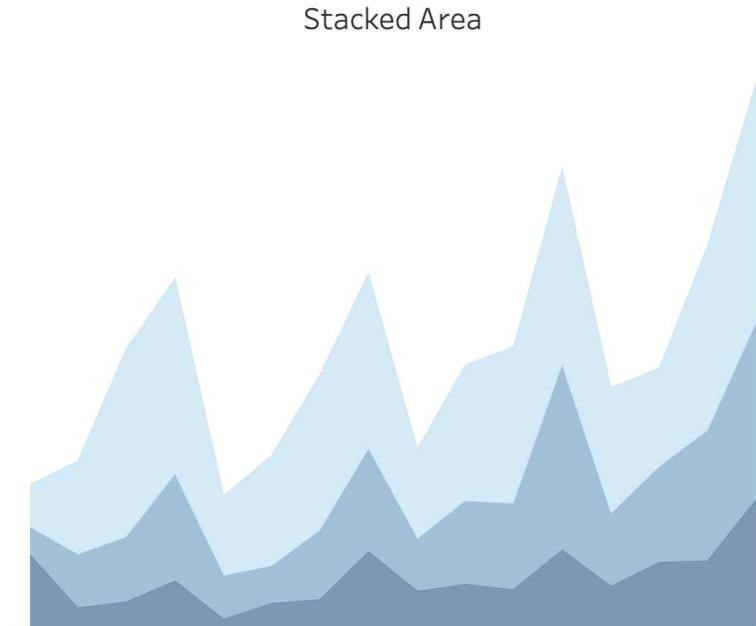
Static



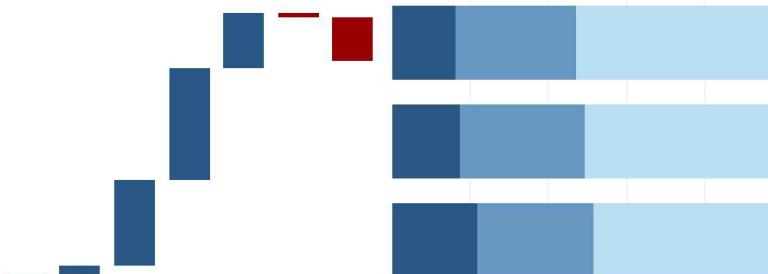
Column Stacked



Over Time



Waterfall



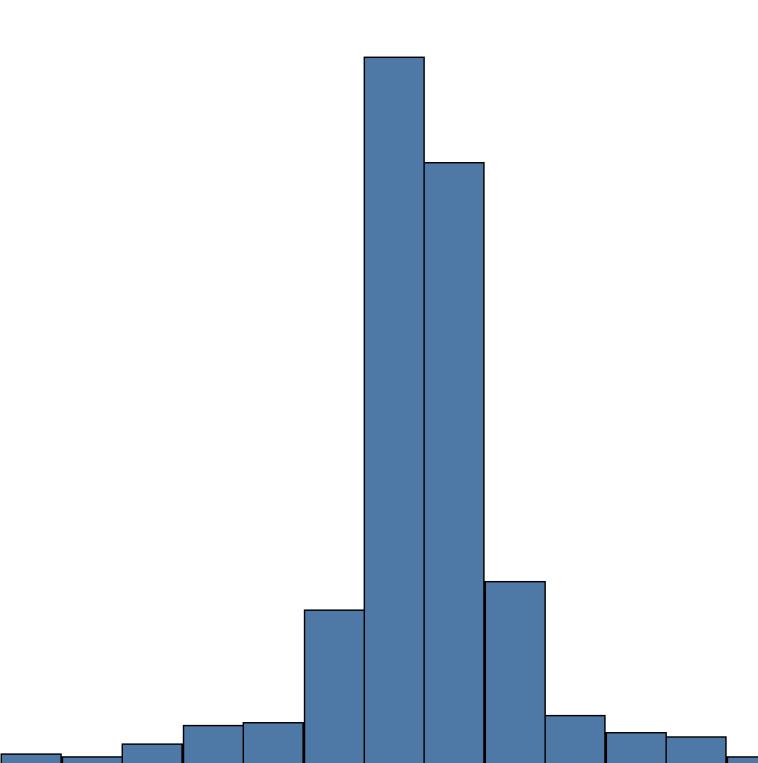
Stacked Bar

Distribution

Single Variable

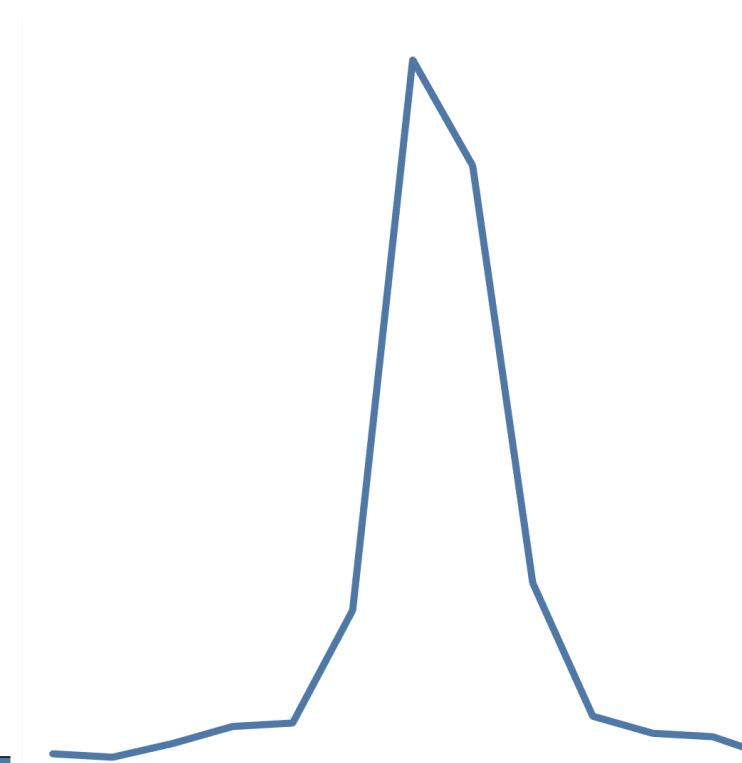
Few Data Points

Column Histogram



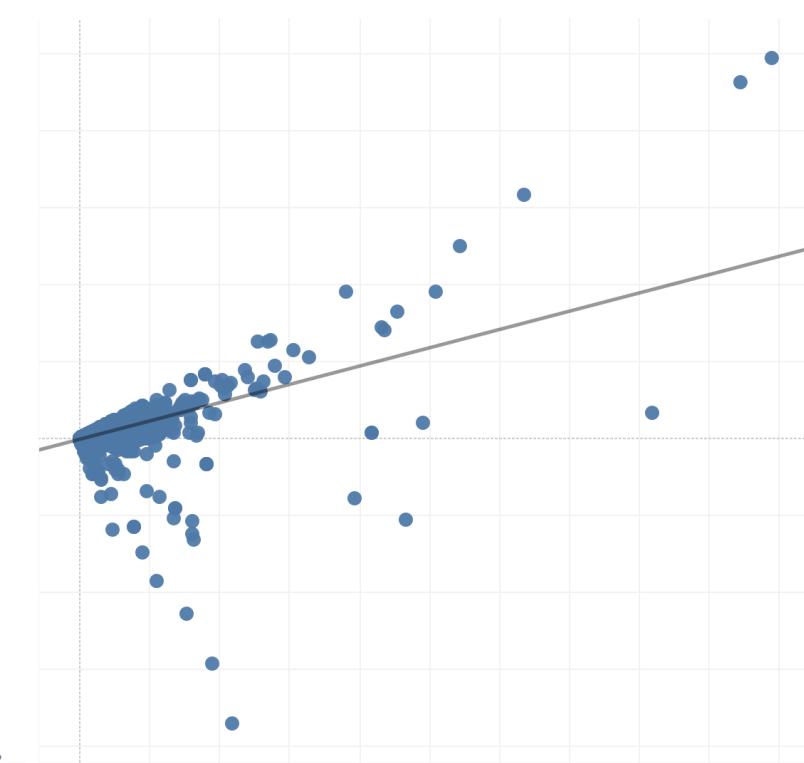
Many Data Points

Line Histogram



Two Variables

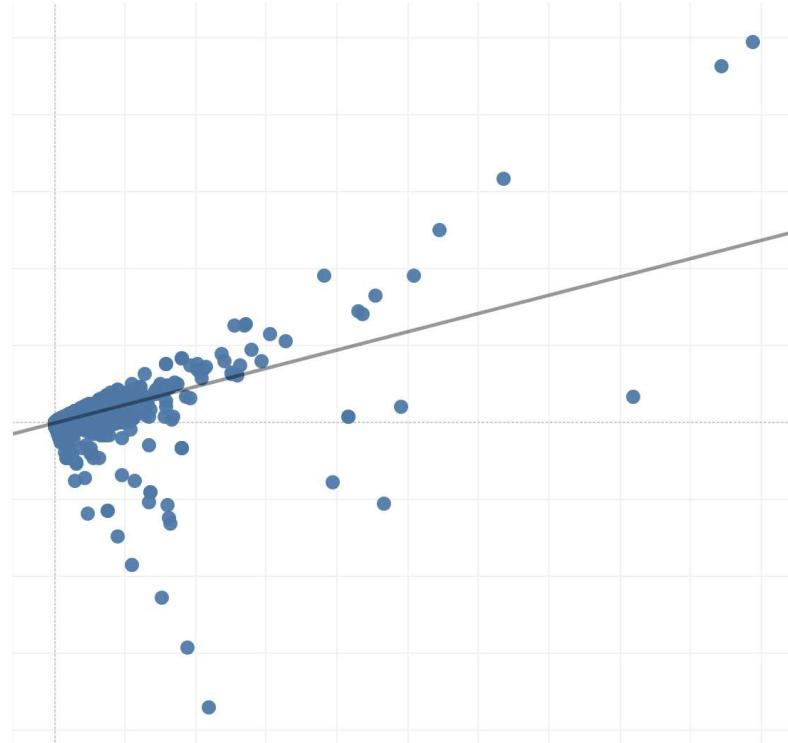
Scatter



Relationship

Two Variables

Scatter

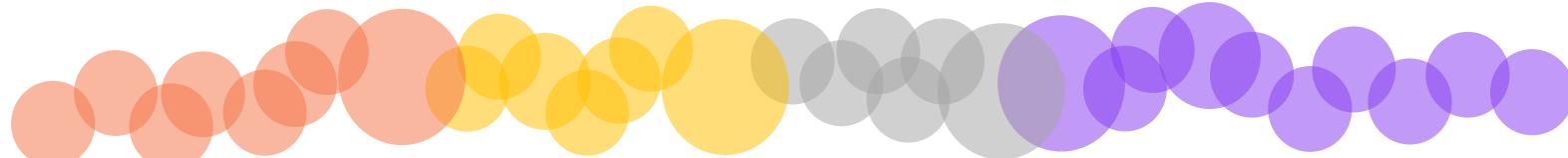


Three+ Variables

Bubble



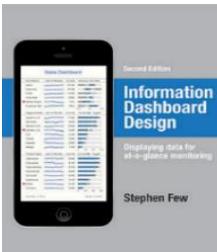
DASHBOARD DEVELOPMENT



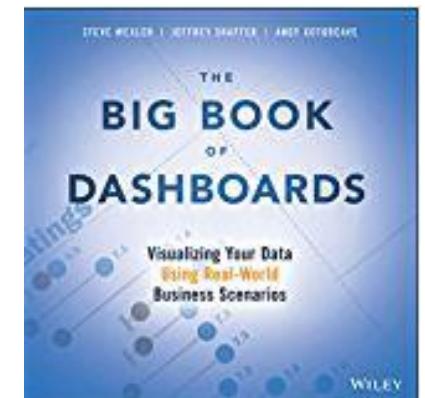
What is a dashboard?

- “A dashboard is a visual display of the most important information needed to achieve one or more objectives; consolidated and arranged on a single screen so the information can be monitored at a glance.”
- “A dashboard is a visual display of data used to monitor conditions and/or facilitate understanding”

Stephen Few (2004)



*Big Book of Dashboards
(2017)*



Sales Dashboard



≡ PHILADELPHIA CRIME SCENE

2006
92,855
incidents

EXPLANATORY

OVERALL CRIME DROP IN
2013 BY 20%
COMPARED TO 2006

In, 2008 there were 90,644 incidents
Dropping crimes down by 2.4% compared to 2006

In, 2011 there were 83,225 incidents

Dropping crimes down by 10.4% compared to 2006

In, 2013 there were 74,592 incidents

Dropping crimes down by 19.7% compared to 2006

HOVER OVER
THE LINE CHART

TO SEE WHICH CRIME TYPES
OCCURED IN PHILADELPHIA OVER
TIME

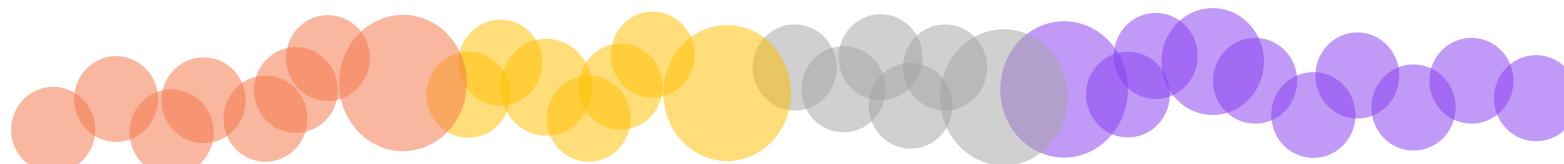
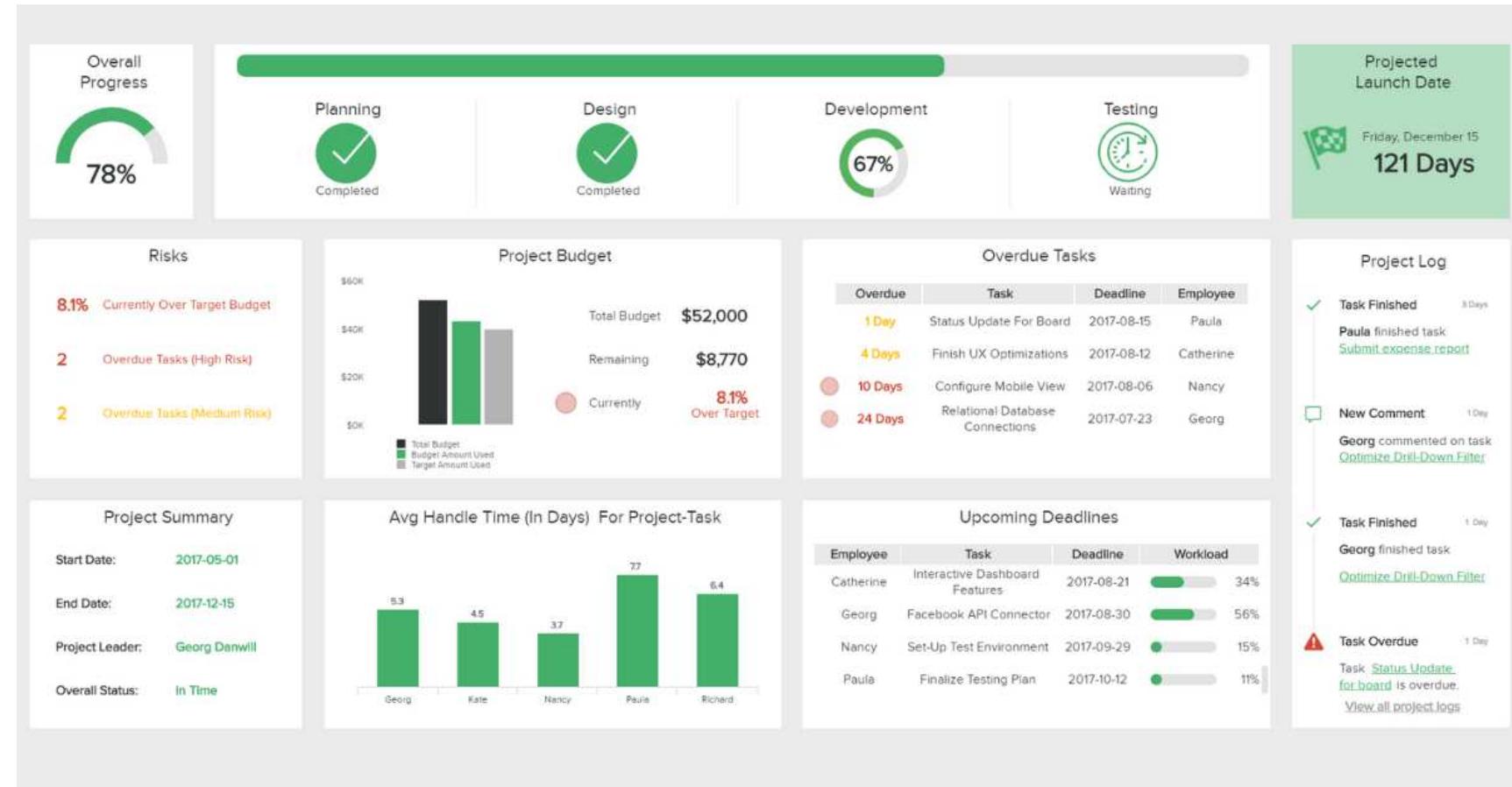
OPINIONATED

Poojah Gandhi

<https://public.tableau.com/profile/poojagandhi#!/vizhome/IronViz-PhiladelphiaCrimeScene/PhiladelphiaCrimeScene>

What makes a good dashboard?

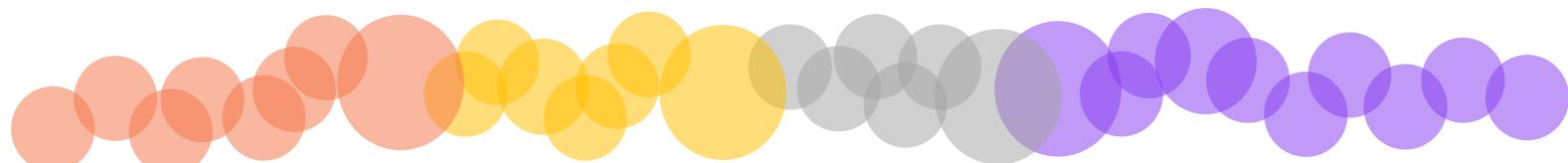
- Answers a set of questions
- Follows a flow and invites interactivity
- Condensed; primarily in the form of summaries and exceptions
- Specific to and customized for the dashboard's audience and objectives
- Provides appropriate text for clarity and direction, if needed
- Makes strategic use of color



Layouts Matter



www.useit.com



Layouts Matter

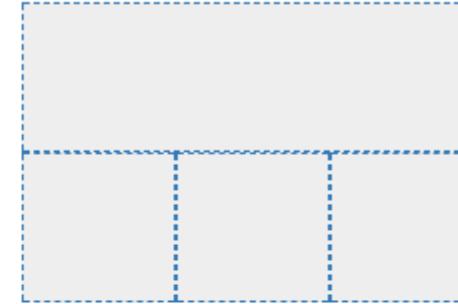
6-6



4-8



12/4-4-4



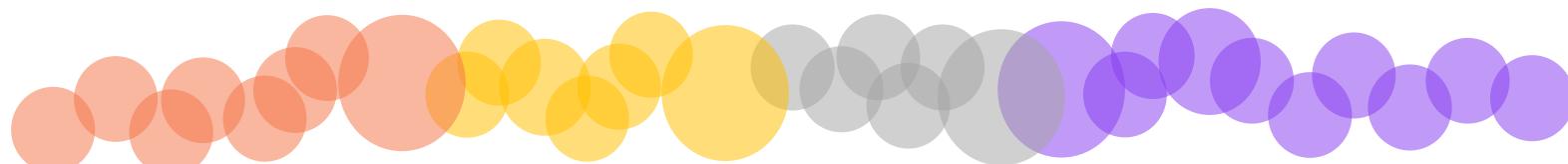
12/6-6



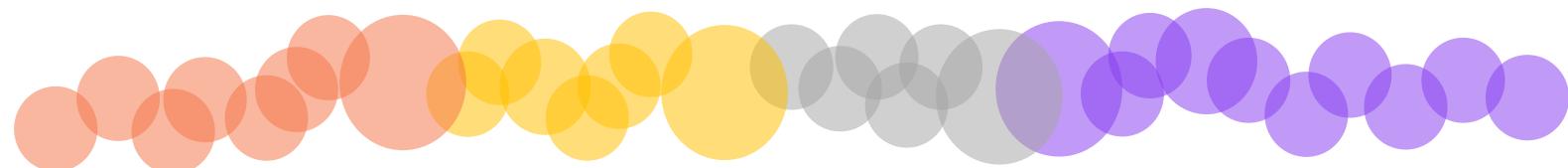
12/6-6/12



3-9 (12/6-6)

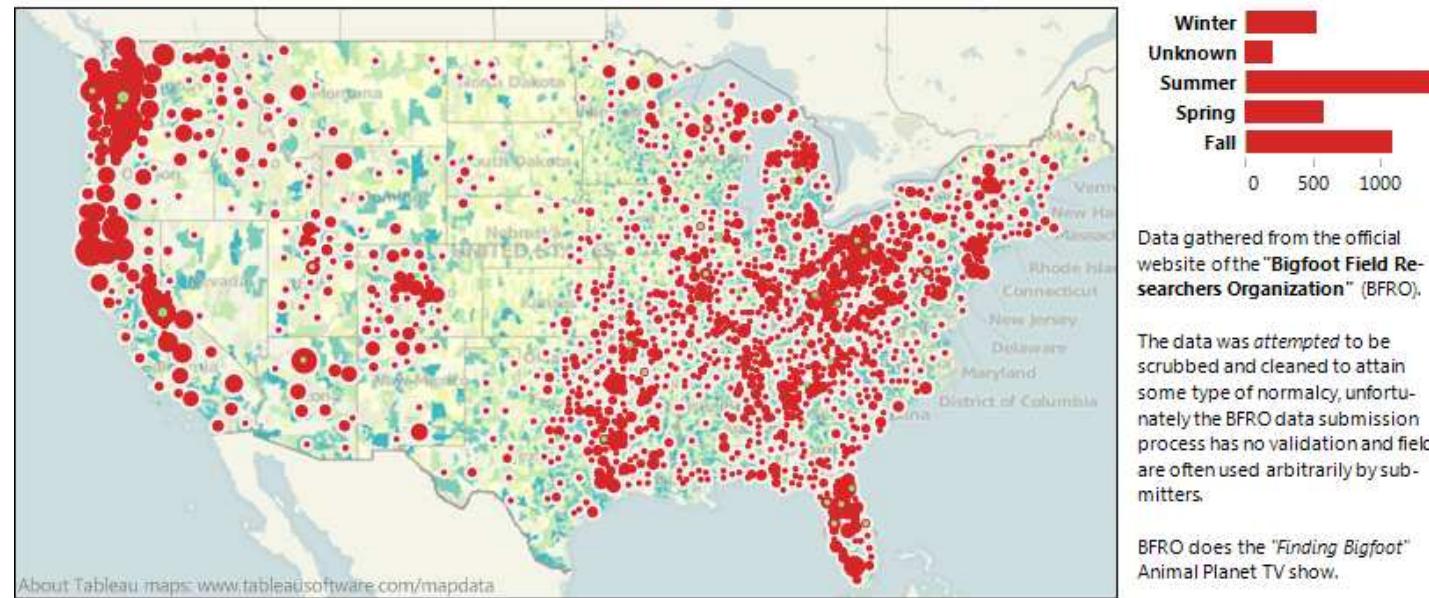


Layouts Matter



Layout Top Left:

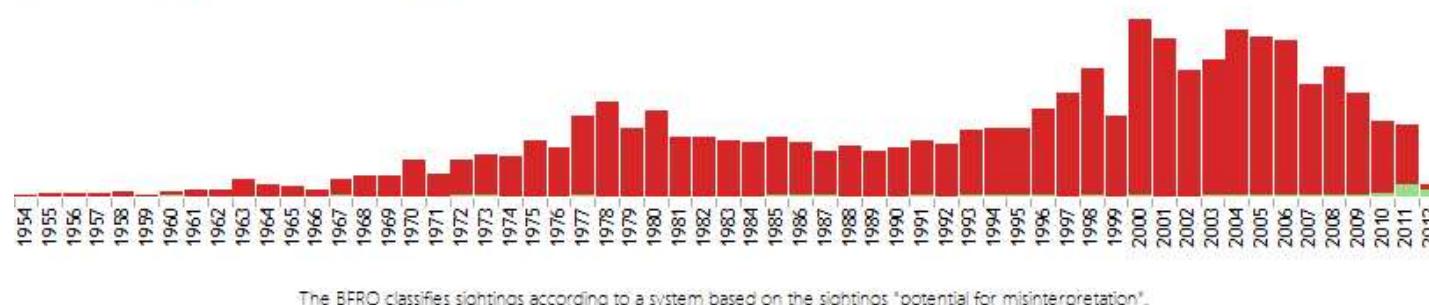
Where is bigfoot seen in the US?



The data was attempted to be scrubbed and cleaned to attain some type of normalcy, unfortunately the BFRO data submission process has no validation and fields are often used arbitrarily by submitters.

BFRO does the "Finding Bigfoot" Animal Planet TV show.

Click on ANY element of the visualization (*location, season, year, detail field*) in order to filter by that item.
 Select the element AGAIN to go back to the full view.

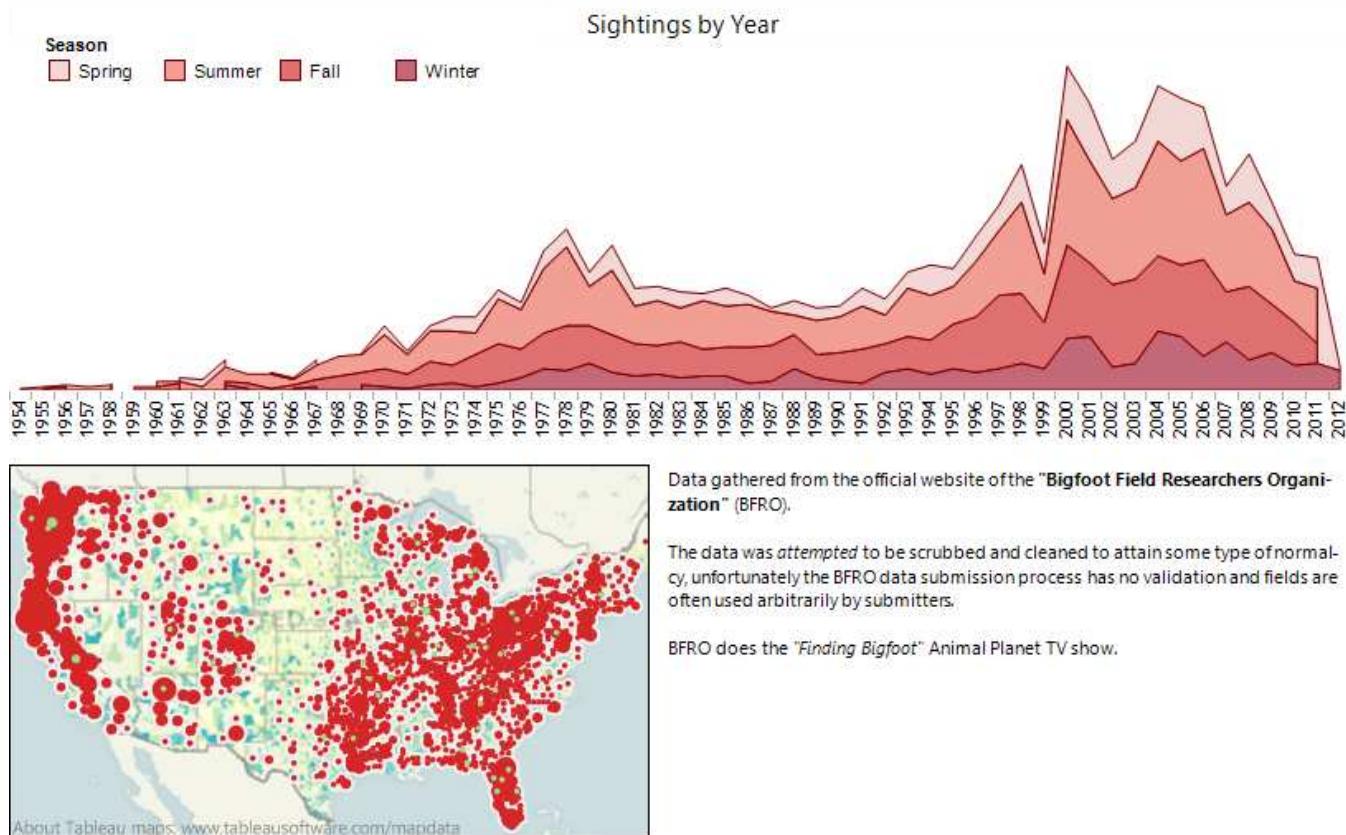


Total Sightings	Class A	Class B	Class C	Unclassified
3,806	1,951	1,696	31	128

Alabama	Baldwin County	1979	September	Class A	Man recalls a sighting after Hurricane Frederic north of Mobile
	Barbour County	1980	January	Class A	Motorists pulled over on a rural highway at night describe standoffs in headlights



Bigfoot sightings are in decline



Click on ANY element of the visualization (location, season, year, detail field) in order to filter by that item.
Select the element AGAIN to go back to the full view.

The BFRO classifies sightings according to a system based on the sightings "potential for misinterpretation".

Total Sightings	Class A	Class B	Class C	Unclassified
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3,806

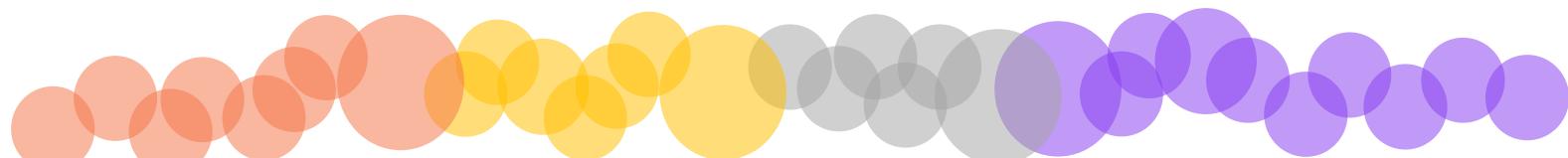
1,951

1,696

31

128

Alabama Baldwin County 1979 September Class A Man recalls a sighting after Hurricane Frederic north of Mobile



Let's define your Key Performance Questions

Start by creating Key Performance Questions to answer a specific issue directly linked to the value drivers of the business

Understand and quantify the actions needed to be successful; A good KPQ will have:

What is the KPI action?

How is the KPI measured?

When the KPI action should be taken

What success of the KPI looks like.

Let's define your Key Performance Questions

Example Objective:

Deliver world-class technology solutions and services

Example of a KPI:

To what extent are we operating at the highest standards?

To what extent are we consistent in service delivery?

To what extent are our core service world-class?

Let's define your Key Performance Questions

Example Objective:

Deliver world-class technology solutions and consulting services

Example of a KPQ:

To what extent are we operating at the highest standards?

To what extent are we consistent in service delivery?

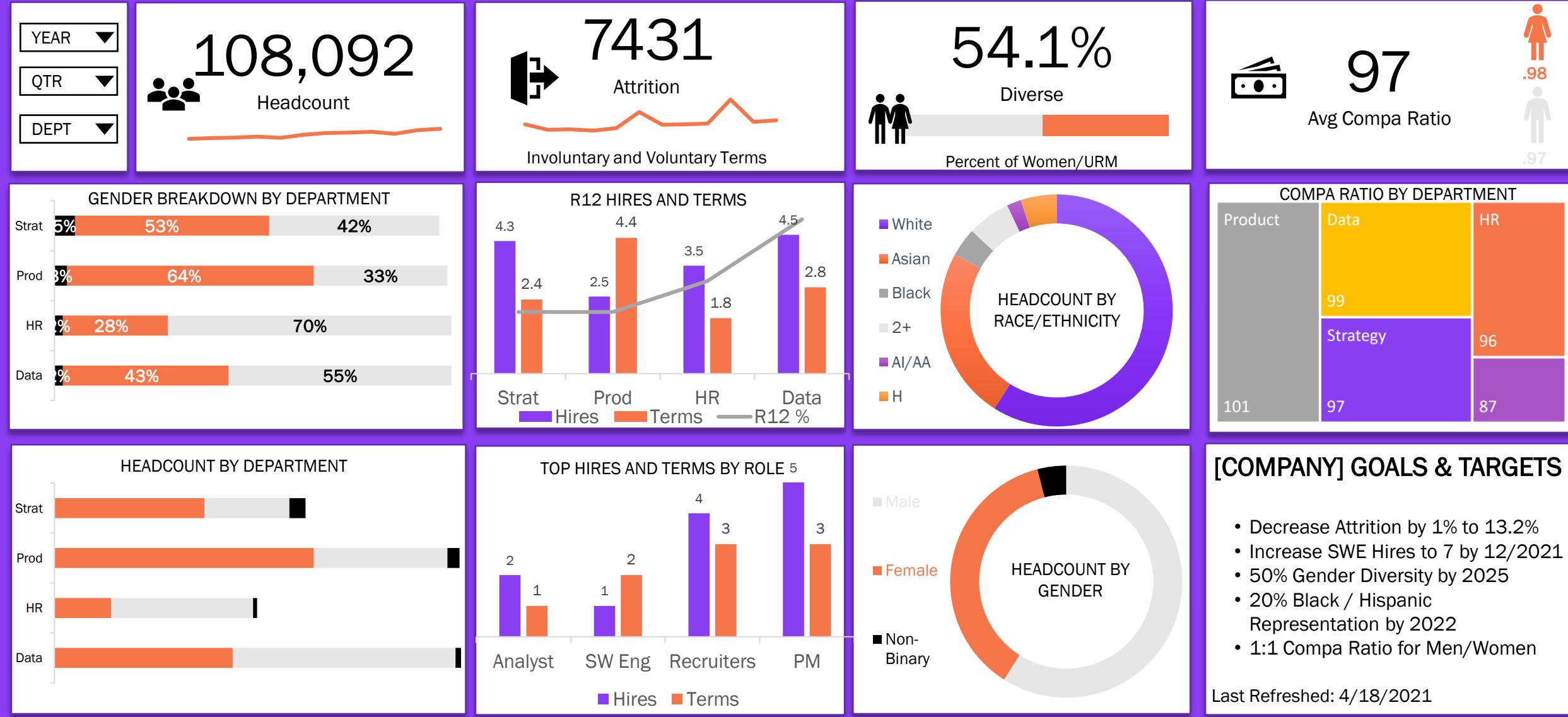
~~To what extent are our consulting services world-class?~~

Become a Forbes 500 consulting firm

What are your Key Performance Questions?

	A	B	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Employee	EmplID	Salary	Termd	PositionID	Position	State	Zip	DOB	Sex	MaritalDe	CitizenDe	HispanicL	RaceDesc	DateofHir	DateofTer	TermReas	Employme	Departme	ManagerN	ManagerID	Recruitme	Performar	Engageme	EmpSatisf
2	Adinolfi, V	10026	62506	0	19	Productio	MA	1960 #####	M	Single	US Citizen	No	White	7/5/2011		N/A-StillE	Active	Productio	Michael A	22	LinkedIn	Exceeds	4.6	5	
3	Ait Sidi, K	10084	104437	1	27	Sr. DBA	MA	2148 5/5/1975	M	Married	US Citizen	No	White	career cha	Voluntaril	IT/IS	Simon Rou	4	Indeed	Fully Mee	4.96	3			
4	Akinkuolide, O	10196	64955	1	20	Productio	MA	1810 #####	F	Married	US Citizen	No	White	7/5/2011	#####	hours	Voluntaril	Productio	Kissy Sulli	20	LinkedIn	Fully Mee	3.02	3	
5	Alagbe, Tri	10088	64991	0	19	Productio	MA	1886 #####	F	Married	US Citizen	No	White	1/7/2008		N/A-StillE	Active	Productio	Elijah Gra	16	Indeed	Fully Mee	4.84	5	
6	Anderson,	10069	50825	1	19	Productio	MA	2169 9/8/1989	F	Divorced	US Citizen	No	White	9/6/2016	return to s	Voluntaril	Productio	Webster E	39	Google Se	Fully Mee	5	4		
7	Anderson,	10002	57568	0	19	Productio	MA	1844 #####	F	Single	US Citizen	No	White	1/9/2012		N/A-StillE	Active	Productio	Amy Dunn	11	LinkedIn	Exceeds	5	5	
8	Andreola,	10194	95660	0	24	Software i	MA	2110 #####	F	Single	US Citizen	No	White		N/A-StillE	Active	Software i	Alex Swee	10	LinkedIn	Fully Mee	3.04	3		
9	Athwal, Sa	10062	59365	0	19	Productio	MA	2199 #####	M	Widowed	US Citizen	No	White		N/A-StillE	Active	Productio	Ketsia Liel	19	Employee	Fully Mee	5	4		
10	Bachiochi,	10114	47837	0	19	Productio	MA	1902 #####	F	Single	US Citizen	No	Black or A	7/6/2009		N/A-StillE	Active	Productio	Brannon N	12	Diversity J	Fully Mee	4.46	3	
11	Bacong, Al	10250	50178	0	14	IT Support	MA	1886 1/7/1988	M	Divorced	US Citizen	No	White	1/5/2015		N/A-StillE	Active	IT/IS	Peter Mor	7	Indeed	Fully Mee	5	5	
12	Baczenski,	10252	54670	1	19	Productio	MA	1902 #####	F	Married	US Citizen	Yes	Black or A	Another p	Voluntaril	Productio	David Star	14	Diversity J	Fully Mee	4.2	4			
13	Barbara, T	10242	47211	1	19	Productio	MA	2062 #####	M	Married	US Citizen	Yes	Black or A	4/2/2012	#####	unhappy	Voluntaril	Productio	Kissy Sulli	20	Diversity J	Fully Mee	4.2	3	
14	Barbossa,	10012	92328	0	9	Data Anal	TX	78230 7/4/1988	M	Divorced	US Citizen	No	Black or A		N/A-StillE	Active	IT/IS	Simon Rou	4	Diversity J	Exceeds	4.28	4		
15	Barone, Fr	10265	58709	0	19	Productio	MA	1810 #####	M	Single	US Citizen	No	Two or m		N/A-StillE	Active	Productio	Kelley Spi	18	Google Se	Fully Mee	4.6	4		
16	Barton, Na	10066	52505	1	19	Productio	MA	2747 #####	M	Divorced	US Citizen	No	White	4/6/2017	Another p	Voluntaril	Productio	Michael A	22	On-line W	Fully Mee	5	5		
17	Bates, Nor	10061	57834	1	19	Productio	MA	2050 #####	M	Single	US Citizen	No	White	8/4/2017	attendanc	Terminate	Productio	Kelley Spi	18	Google Se	Fully Mee	5	4		
18	Beak, Kim	10023	70131	0	20	Productio	MA	2145 #####	F	Married	US Citizen	No	White		N/A-StillE	Active	Productio	Kelley Spi	18	Employee	Exceeds	4.4	3		
19	Beatrice, C	10055	59026	0	19	Productio	MA	1915 #####	F	Single	Eligible N	No	White	4/4/2011		N/A-StillE	Active	Productio	Elijah Gra	16	Google Se	Fully Mee	5	5	
20	Becker, Re	10245	110000	1	8	Database .	MA	2026 4/4/1986	F	Single	US Citizen	Yes	White	7/7/2014	#####	performar	Terminate	IT/IS	Simon Rou	4	Google Se	Fully Mee	4.5	4	
21	Becker, Sc	10277	53250	0	19	Productio	MA	2452 4/6/1979	M	Single	US Citizen	No	Asian	7/8/2013		N/A-StillE	Active	Productio	Webster Butler	LinkedIn	Fully Mee	4.2	4		
22	Bernstein,	10046	51044	0	19	Productio	MA	2072 #####	M	Single	US Citizen	Yes	White	4/2/2012		N/A-StillE	Active	Productio	Amy Dunn	11	Google Se	Fully Mee	5	3	
23	Biden. Lov	10226	64919	0	19	Productio	MA	2027 #####	F	Divorced	US Citizen	No	Asian	#####		N/A-StillE	Active	Productio	Ketsia Liel	19	Indeed	Fully Mee	4.2	3	

[Company Name] People Dashboard



Issue or Goal (KPQ)

Filters

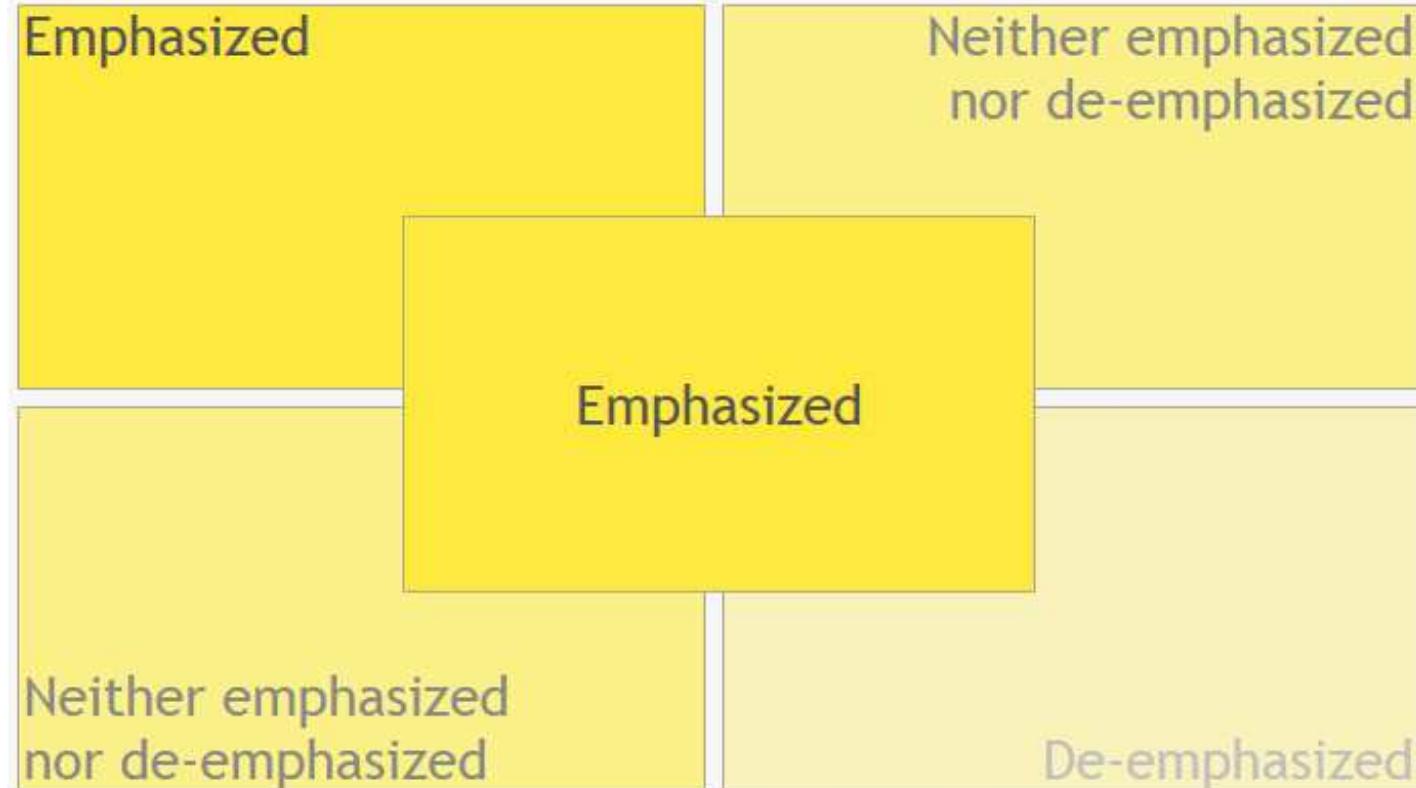
Quicks Insights

Explanatory Visuals

Recommendation Visuals

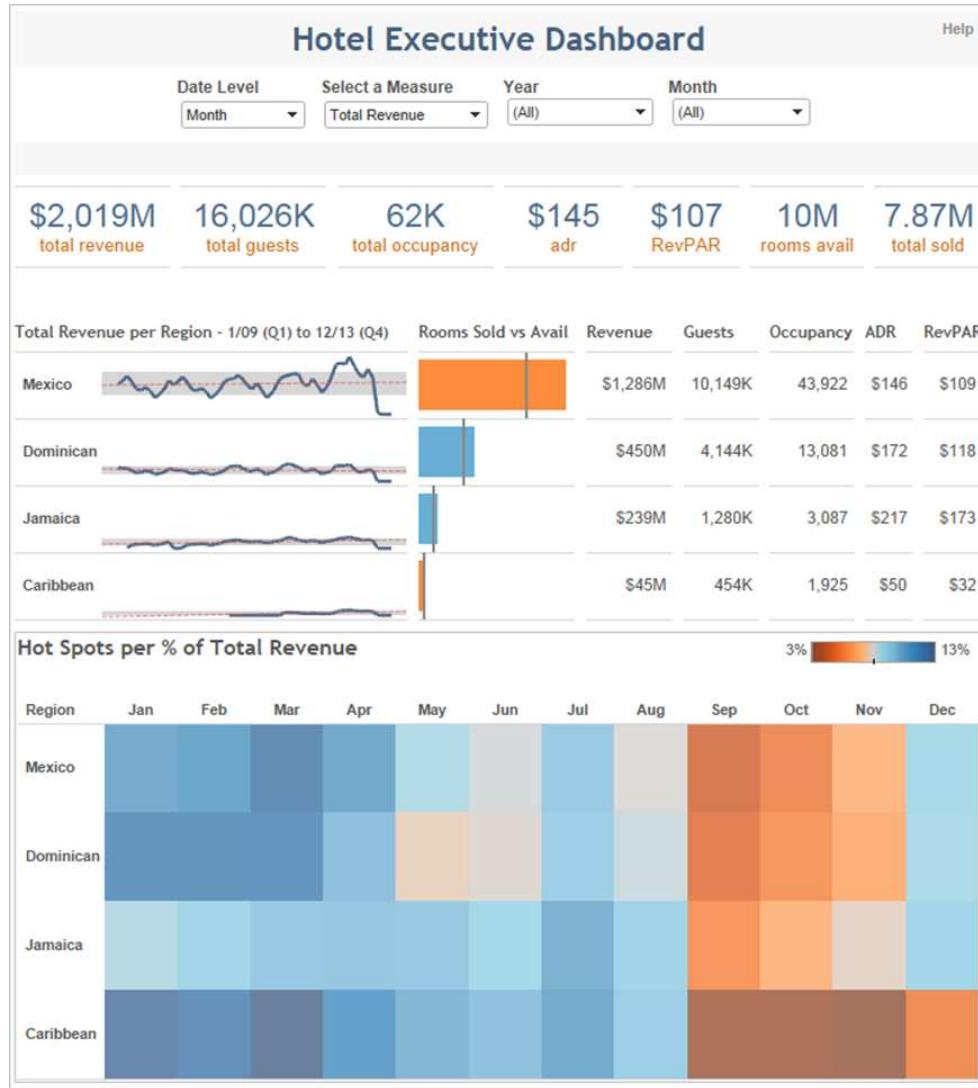
Impacted Audience

What are you emphasizing?



Inverted Pyramid



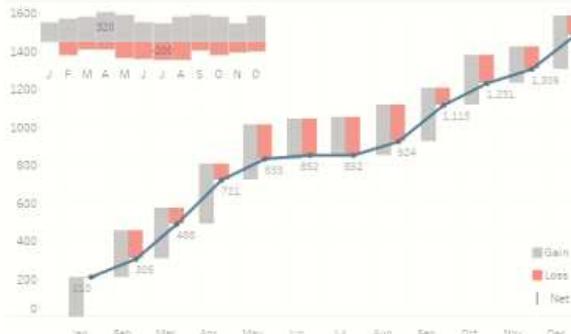


- Filters at the top, so user knows when and how to start interacting
- Most important information at the top and centered
- Starts with the highest level and works down to more precise details
- No more than 4-5 worksheets

Using BANs

Subscriber Churn Analysis

Subscriber activity - All



Details

	Gained	Lost	Net	Running total
West	80	0	80	80
January	80	0	80	80
February	80	15	65	145
March	90	30	60	205
April	120	45	55	300
May	150	60	90	350
June	115	75	40	390
July	75	45	30	422
August	115	77	42	464
September	90	30	60	524
October	80	25	65	589
November	90	20	60	649
December	95	35	60	709
Total	1,123	-414	709	709
Central	60	0	60	60
January	60	0	60	60
February	85	45	40	100
March	80	47	33	153
April	90	47	43	226
May	120	93	27	313
June	45	55	-10	278
July	75	45	30	308
August	45	60	-15	273
September	80	27	53	326
October	95	45	40	368
November	60	35	25	393
December	80	27	53	444
Total	905	-461	444	444
East	70	0	70	70
January	70	0	70	70
February	80	50	-10	60
March	100	30	70	120
April	110	45	65	185
May	70	55	-25	170
June	45	33	12	182
July	50	115	-65	127
August	25	24	69	187
September	125	54	71	265
October	95	68	11	276
November	55	65	-10	266
December	110	45	65	331
Grand Total	1,000	-669	331	331
	3,028	-1,544	1,484	1,484

Subscriber Churn Analysis

Subscriber activity - All



Gains

Losses

Net

Best month

Worst month

Details

	Gained	Lost	Net	Running total
West	80	0	80	80
January	80	0	80	80
February	80	15	65	145
March	90	30	60	205
April	120	45	95	300
May	150	60	90	350
June	115	77	42	392
July	75	45	30	422
August	115	77	42	464
September	90	30	60	524
October	80	25	65	589
November	90	20	60	649
December	95	35	60	709
Total	1,123	-414	709	709
Central	60	0	60	60
January	60	0	60	60
February	85	45	40	100
March	80	47	33	153
April	90	47	43	226
May	120	93	27	313
June	45	55	-10	278
July	75	45	30	308
August	45	60	-15	273
September	80	27	53	326
October	95	45	40	368
November	60	35	25	393
December	80	27	53	444
Total	905	-461	444	444
East	70	0	70	70
January	70	0	70	70
February	80	50	-10	60
March	100	30	70	120
April	110	45	65	185
May	70	55	-25	170
June	45	33	12	182
July	50	115	-65	127
August	25	24	69	187
September	125	54	71	265
October	95	68	11	276
November	55	65	-10	266
December	110	45	65	331
Total	1,000	-669	331	331

Net subscriber activity by division

Losses > Gains



Developed by Scott Walker
Data Visualizations LLC



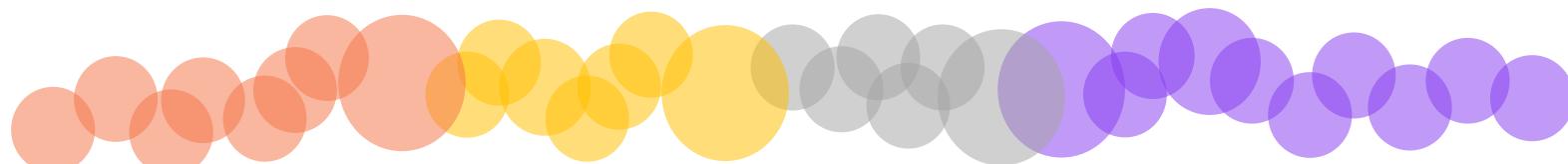
Does your dashboard pass the 5 second test?

- Most important view is on top or top left
- Legends are near their views
- Avoid multiple color schemes
- Uses 5 or fewer views (charts)

HANDS ON!

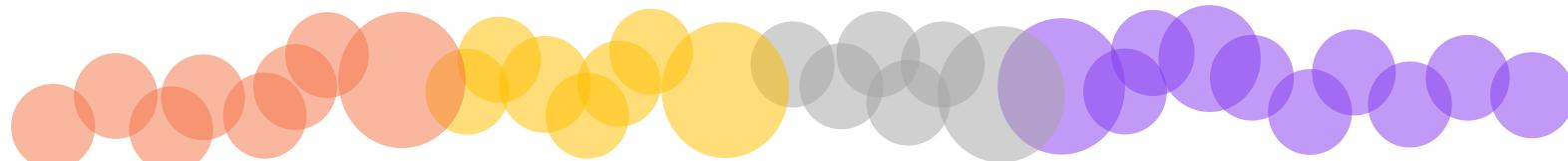
Layouts Matter

- Survey users
 - Types of Users
 - Personal Preferences
 - Individual Needs
- Decide on Content
 - Content for Implementation
 - Content per Page
- Design Activities
 - Hierarchy
 - Style
 - Layout on a Single Page

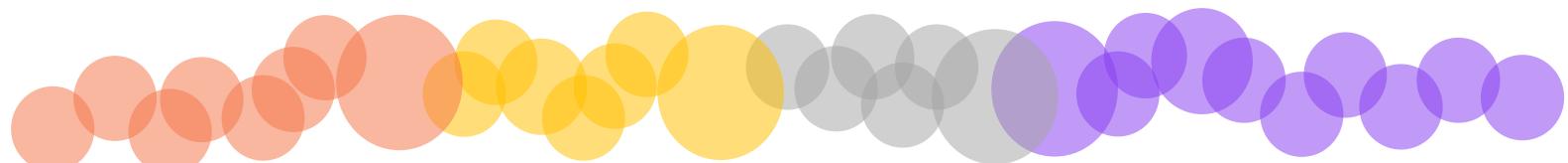


Layouts Matter

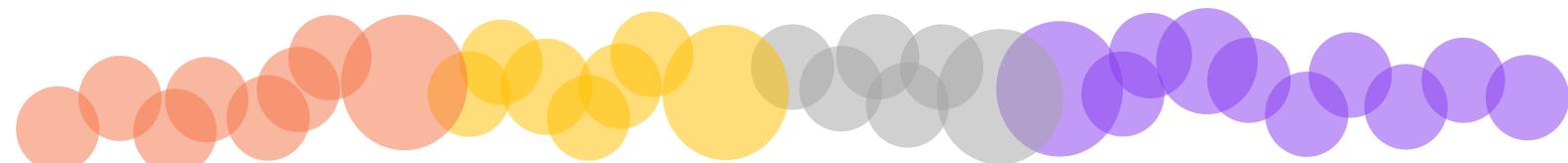
- Sales by Product
- Sales Growth
- Sales by Region
- % Goal
- % Discounted Items
- Cost of Goods Sold
- Total Quantities Sold
- Quantities Sold by Product
- Current Inventory



Layouts Matter



Layouts Matter



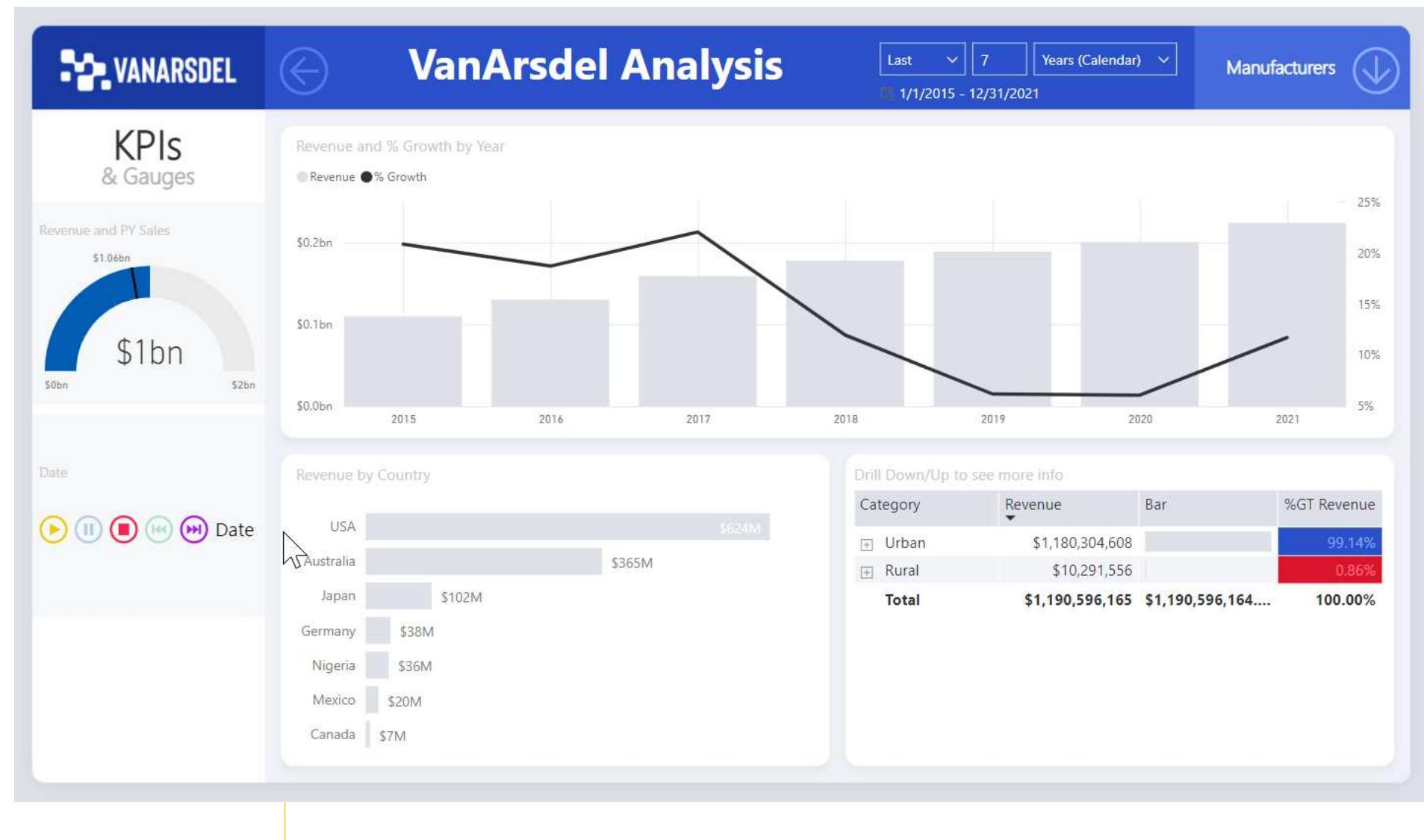
How can you answer your KPQ?

	A	B	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	Employee	EmplID	Salary	Termd	PositionID	Position	State	Zip	DOB	Sex	MaritalDe	CitizenDe	HispanicLa	RaceDesc	DateofHir	DateofTer	TermReas	Employme	Departme	ManagerN	ManagerID	Recruitme	Performar	Engageme	EmpSatisf
2	Adinolfi, V	10026	62506	0	19	Productio	MA	1960 #####	M	Single	US Citizen	No	White	7/5/2011		N/A-StillE	Active	Productio	Michael A	22	LinkedIn	Exceeds	4.6	5	
3	Ait Sidi, K	10084	104437	1	27	Sr. DBA	MA	2148 5/1975	M	Married	US Citizen	No	White	career cha	Voluntaril	IT/IS	Simon Rou	4	Indeed	Fully Mee	4.96	3			
4	Akinkuolide, O	10196	64955	1	20	Productio	MA	1810 #####	F	Married	US Citizen	No	White	7/5/2011	#####	hours	Voluntaril	Productio	Kissy Sulli	20	LinkedIn	Fully Mee	3.02	3	
5	Alagbe, Tri	10088	64991	0	19	Productio	MA	1886 #####	F	Married	US Citizen	No	White	1/7/2008		N/A-StillE	Active	Productio	Elijah Gra	16	Indeed	Fully Mee	4.84	5	
6	Anderson,	10069	50825	1	19	Productio	MA	2169 9/8/1989	F	Divorced	US Citizen	No	White	9/6/2016	return to s	Voluntaril	Productio	Webster E	39	Google Se	Fully Mee	5	4		
7	Anderson,	10002	57568	0	19	Productio	MA	1844 #####	F	Single	US Citizen	No	White	1/9/2012		N/A-StillE	Active	Productio	Amy Dunn	11	LinkedIn	Exceeds	5	5	
8	Andreola,	10194	95660	0	24	Software i	MA	2110 #####	F	Single	US Citizen	No	White		N/A-StillE	Active	Software i	Alex Swee	10	LinkedIn	Fully Mee	3.04	3		
9	Athwal, Sa	10062	59365	0	19	Productio	MA	2199 #####	M	Widowed	US Citizen	No	White		N/A-StillE	Active	Productio	Ketsia Liel	19	Employee	Fully Mee	5	4		
10	Bachiochi,	10114	47837	0	19	Productio	MA	1902 #####	F	Single	US Citizen	No	Black or A	7/6/2009		N/A-StillE	Active	Productio	Brannon N	12	Diversity J	Fully Mee	4.46	3	
11	Bacong, Al	10250	50178	0	14	IT Support	MA	1886 1/7/1988	M	Divorced	US Citizen	No	White	1/5/2015		N/A-StillE	Active	IT/IS	Peter Mor	7	Indeed	Fully Mee	5	5	
12	Baczenski,	10252	54670	1	19	Productio	MA	1902 #####	F	Married	US Citizen	Yes	Black or A	Another p	Voluntaril	Productio	David Star	14	Diversity J	Fully Mee	4.2	4			
13	Barbara, T	10242	47211	1	19	Productio	MA	2062 #####	M	Married	US Citizen	Yes	Black or A	4/2/2012	#####	unhappy	Voluntaril	Productio	Kissy Sulli	20	Diversity J	Fully Mee	4.2	3	
14	Barbossa,	10012	92328	0	9	Data Anal	TX	78230 7/4/1988	M	Divorced	US Citizen	No	Black or A		N/A-StillE	Active	IT/IS	Simon Rou	4	Diversity J	Exceeds	4.28	4		
15	Barone, Fr	10265	58709	0	19	Productio	MA	1810 #####	M	Single	US Citizen	No	Two or m		N/A-StillE	Active	Productio	Kelley Spi	18	Google Se	Fully Mee	4.6	4		
16	Barton, Na	10066	52505	1	19	Productio	MA	2747 #####	M	Divorced	US Citizen	No	White	4/6/2017	Another p	Voluntaril	Productio	Michael A	22	On-line W	Fully Mee	5	5		
17	Bates, Nor	10061	57834	1	19	Productio	MA	2050 #####	M	Single	US Citizen	No	White	8/4/2017	attendanc	Terminat	Productio	Kelley Spi	18	Google Se	Fully Mee	5	4		
18	Beak, Kim	10023	70131	0	20	Productio	MA	2145 #####	F	Married	US Citizen	No	White		N/A-StillE	Active	Productio	Kelley Spi	18	Employee	Exceeds	4.4	3		
19	Beatrice, C	10055	59026	0	19	Productio	MA	1915 #####	F	Single	Eligible N	No	White	4/4/2011		N/A-StillE	Active	Productio	Elijah Gra	16	Google Se	Fully Mee	5	5	
20	Becker, Re	10245	110000	1	8	Database .	MA	2026 4/4/1986	F	Single	US Citizen	Yes	White	7/7/2014	#####	performar	Terminat	IT/IS	Simon Rou	4	Google Se	Fully Mee	4.5	4	
21	Becker, Sc	10277	53250	0	19	Productio	MA	2452 4/6/1979	M	Single	US Citizen	No	Asian	7/8/2013		N/A-StillE	Active	Productio	Webster Butler	LinkedIn	Fully Mee	4.2	4		
22	Bernstein,	10046	51044	0	19	Productio	MA	2072 #####	M	Single	US Citizen	Yes	White	4/2/2012		N/A-StillE	Active	Productio	Amy Dunn	11	Google Se	Fully Mee	5	3	
23	Biden. Lov	10226	64919	0	19	Productio	MA	2027 #####	F	Divorced	US Citizen	No	Asian	#####		N/A-StillE	Active	Productio	Ketsia Liel	19	Indeed	Fully Mee	4.2	3	

Prerequisites and setup steps

- At minimum, a computer with 2-cores and 4GB RAM running Windows 8 / Windows Server 2008 R2, or later
- **Display:** At least 1440x900 or 1600x900 (16:9) recommended.
- **Internet connectivity:** You must have the ability to connect to the Internet outside your organization
- **Microsoft Power BI Desktop installed:** you should have downloaded and installed Power BI Desktop from the Microsoft Store <https://go.microsoft.com/fwlink/?linkid=2135345> or from the download center <https://go.microsoft.com/fwlink/?linkid=2135519>
- Microsoft Power BI Desktop requires Internet Explorer 10 or later.
- **Signup for Power BI:** Go to <http://aka.ms/pbidiadtraining> and sign up for Power BI with a business email address.
If you cannot sign up for Power BI, let the instructor know.
- If you have an existing account, please go to <http://aka.ms/pbidiadtraining> and Sign in using your Power BI account
- **Attending Online session** – you must get the meeting invite and synchronize with the presenter prior to the event start for online attendance computability

Dashboard in a Day



Microsoft Power Platform

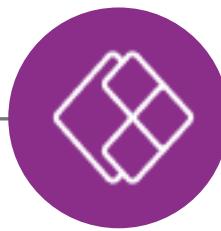
The low-code platform that spans Office 365, Azure, Dynamics 365, and standalone applications

Innovation anywhere. Unlocks value everywhere.



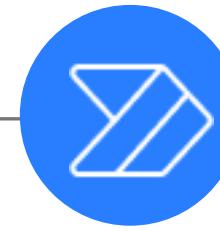
Power BI

Business analytics



Power Apps

Application development



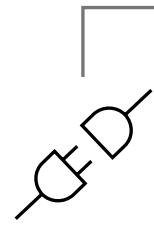
Power Automate

Process automation



Power Virtual Agents

Intelligent chatbots



Data connectors



Portals

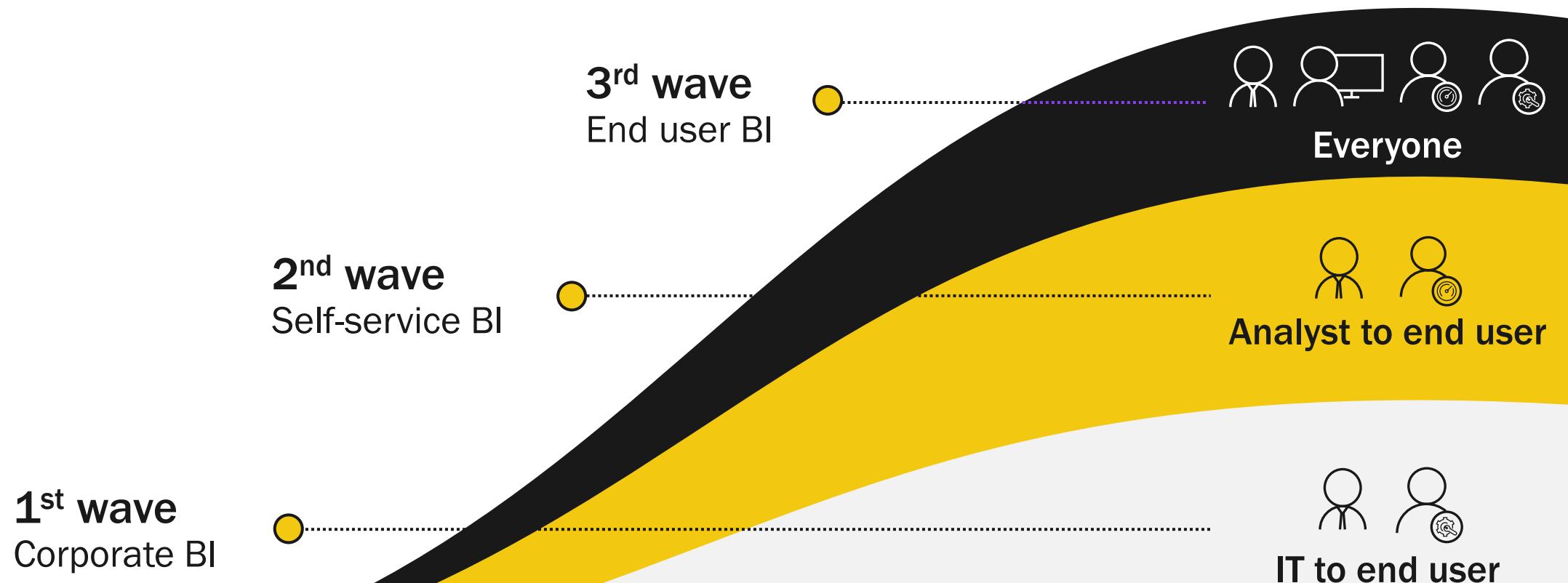


AI Builder



Dataverse

The Evolution of BI



Sample Questions to Define Target User's Technology

What type of BI user do you consider yourself to be:

- Executive
- Analyst
- Power User
- Casual User

When it comes to colors, I prefer:

- Company Colors
- Muted Colors
- Bright Colors
- Dark Colors

Please adjust colors for me:

- Deutanope
- Protanope
- Tritanope

Which of these fonts is available on your system:

- Arial
- Courier New
- Georgia
- Times New Roman
- Trebuchet MS
- Verdana
- Don't know

Please indicate your computer platform:

- PC
- Mac
- Workstation

Please indicate your operating system:

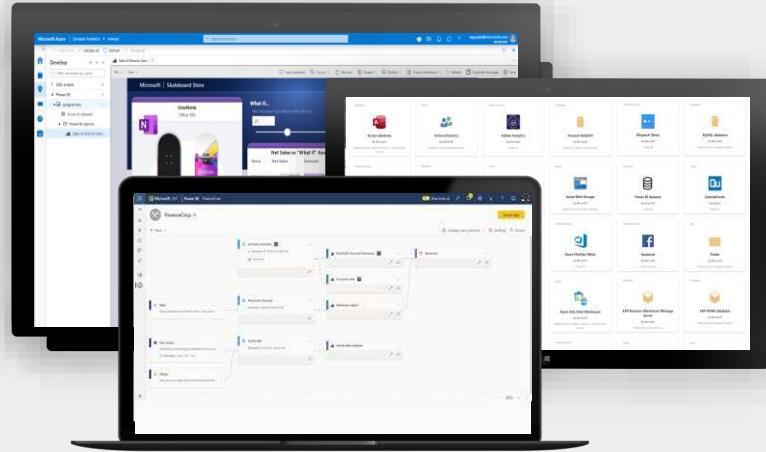
- Windows
- Mac
- Linux

Monitor Resolution:

- 1024 x 768
- 1280 x 800
- 1344 x 1008
- 1600 x 1200
- 1920 x 1200
- Other:

What metrics would you like displayed?

Power BI



All Data

Break down data silos and enrich your data with intelligence



For Everyone

Create rich-interactive data experiences with AI infused insights



For Every Decision

Integrate trusted and secure BI into the fabric of your organization and apps

Power BI drives a data culture for everyone and every decision

Why Power BI?



Power BI Desktop is free



Real time dashboards and interactive reports



Natural Language query & AI insights

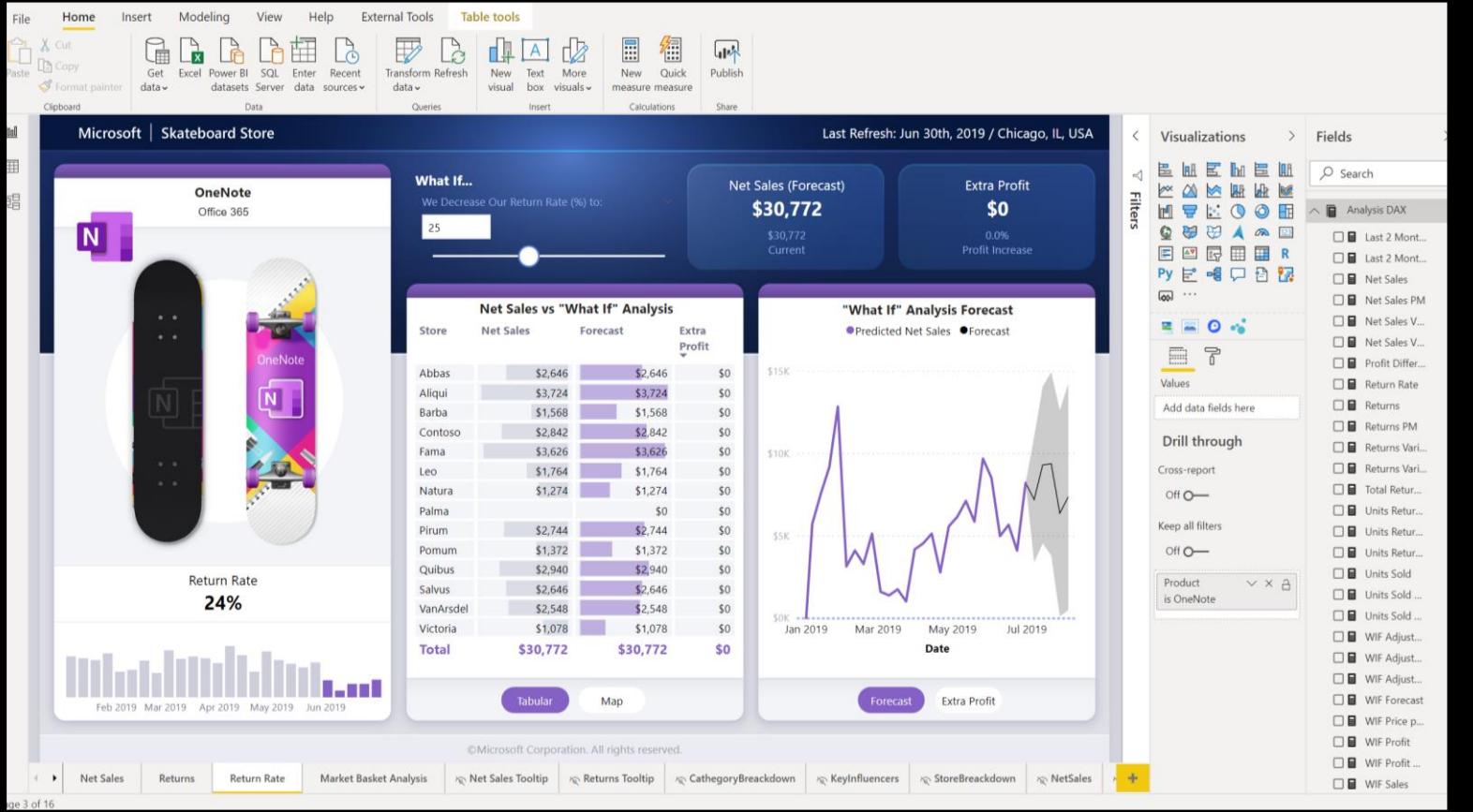


Custom visualizations and custom connectors



Integration with Excel, Power Point, SharePoint and Teams





Microsoft | Skateboard Store

Last Refresh: Jun 30th, 2019 / Chicago, IL, USA

What If...

We Decrease Our Return Rate (%) to: 25

Net Sales (Forecast) \$30,772

Extra Profit \$0

0.0% Profit Increase

Net Sales vs "What If" Analysis

Store	Net Sales	Forecast	Extra Profit
Abbas	\$2,646	\$2,646	\$0
Aliqui	\$3,724	\$3,724	\$0
Barba	\$1,568	\$1,568	\$0
Contoso	\$2,842	\$2,842	\$0
Fama	\$3,626	\$3,626	\$0
Leo	\$1,764	\$1,764	\$0
Natura	\$1,274	\$1,274	\$0
Palma	\$0	\$0	\$0
Pirum	\$2,744	\$2,744	\$0
Pomum	\$1,372	\$1,372	\$0
Quibus	\$2,940	\$2,940	\$0
Salvus	\$2,646	\$2,646	\$0
VanArsdel	\$2,548	\$2,548	\$0
Victoria	\$1,078	\$1,078	\$0
Total	\$30,772	\$30,772	\$0

"What If" Analysis Forecast

• Predicted Net Sales • Forecast

Jan 2019 Mar 2019 May 2019 Jul 2019

Date

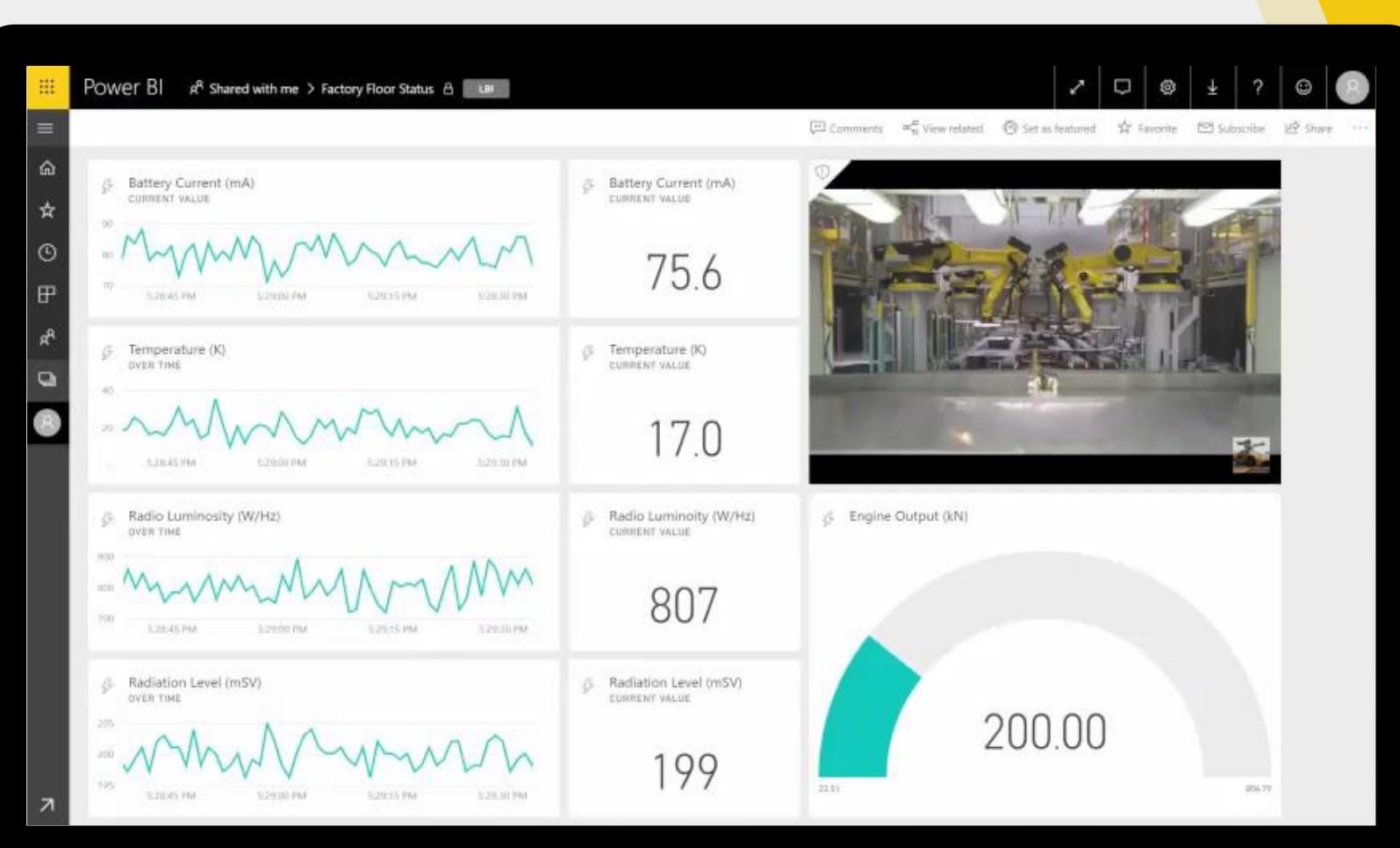
Tabular Map Forecast Extra Profit

© Microsoft Corporation. All rights reserved.

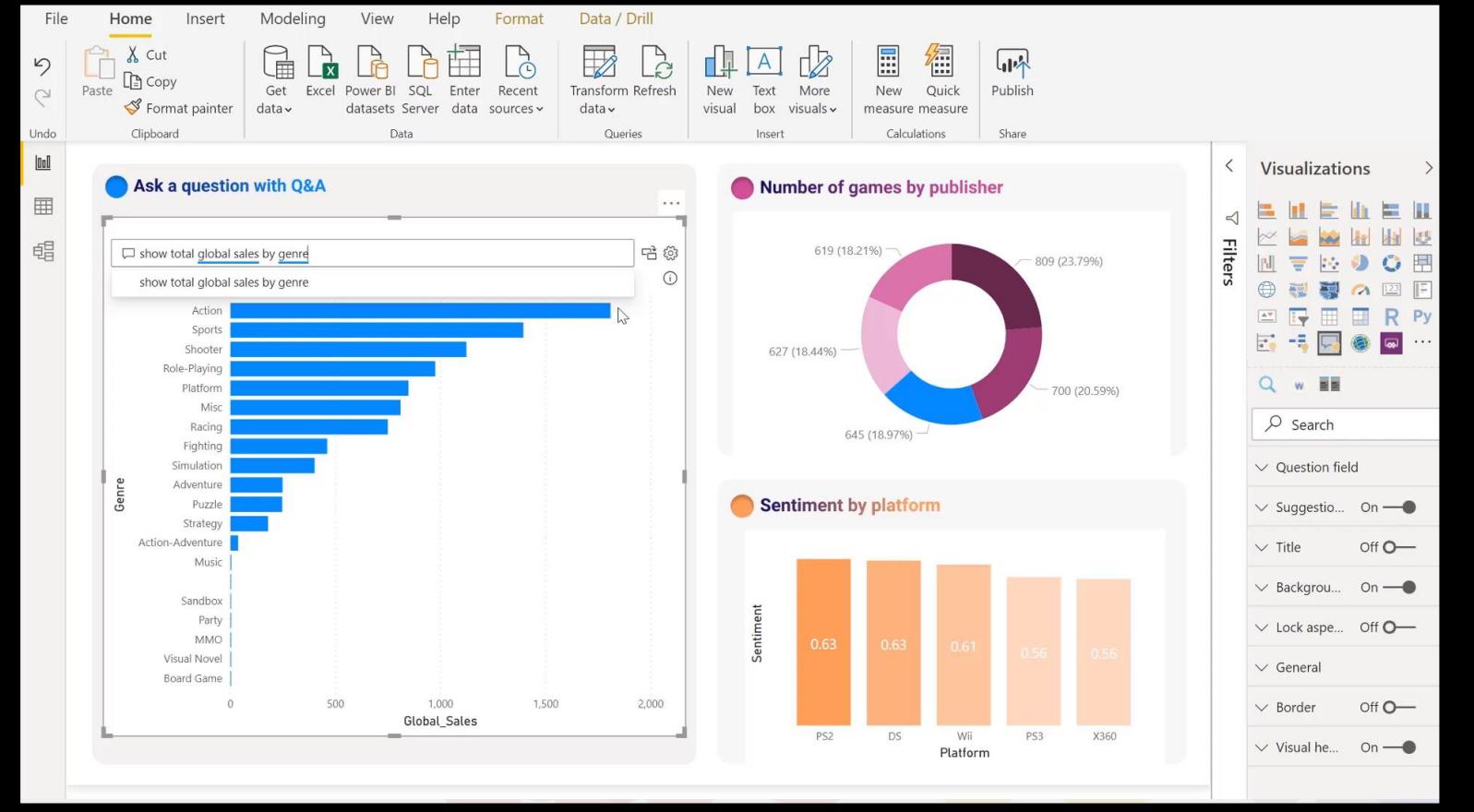
Net Sales Returns Return Rate Market Basket Analysis Net Sales Tooltip Returns Tooltip CathegoryBreakdown KeyInfluencers StoreBreakdown NetSales

Page 3 of 16

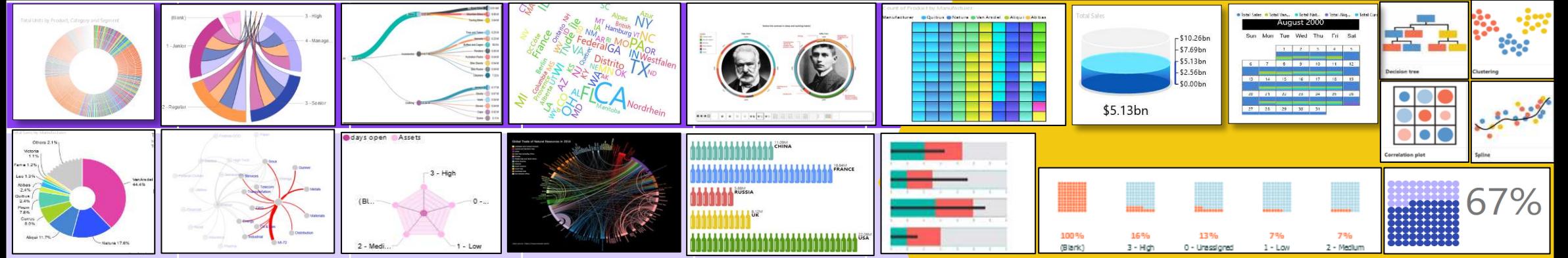
Power BI Desktop is free



Real time dashboards and interactive reports



Natural Language query & AI insights

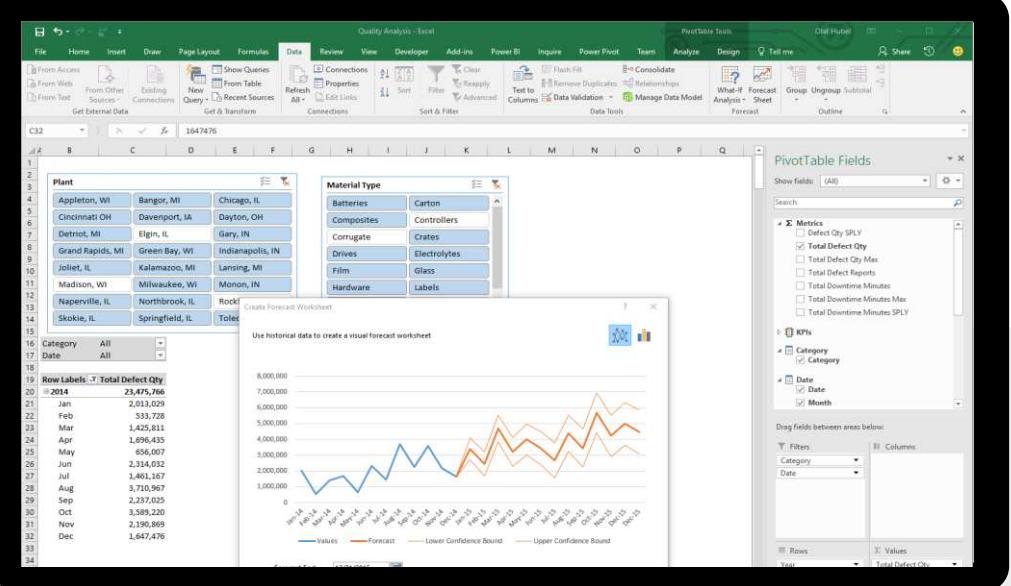


The screenshot shows the Microsoft Power BI interface with the following components:

- Top Navigation Bar:** Includes Undo, Redo, Cut, Copy, Paste, Format painter, Clipboard, Get data (with dropdown for Excel, Power BI datasets, SQL Server, Enter recent sources), Transform Refresh data, New visual, Text box, More visuals, Calculations, and Share.
- Dashboard Header:** Microsoft | Skateboard Store, Last Refresh: Jun 30th, 2019 / Chicago, IL, USA.
- Key Metrics:**
 - Net Sales: \$387.1K (+72.7% m/m)
 - Units Sold: 7,868 (+71.4% m/m)
- Key Influencers:** Analyzes your data, ranks the factors that matter, and displays them as key influencers.
- Decomposition Tree:** Enables users to drill into any dimension to understand what is driving a key metric.
- Category Breakdown:** Bar chart showing sales by product category.
- Store Breakdown:** Bar chart showing sales by store location.
- Visualizations Panel:** A sidebar listing various visualization types (e.g., Bar chart, Line chart, Map, Treemap) with a "Values" section for adding data fields and a "Drillthrough" section with options for Off (radio button) and On (radio button).

250+ Custom visuals

Integration with Excel, Power Point, SharePoint and TEAMS



This screenshot shows a Microsoft SharePoint site named "Sales and Returns". The dashboard displays net sales (\$387.1K) and units sold (7,868). It includes sections for "Key Influencers", "Decomposition Tree", "Category Breakdown", "Net Sales by Location", and "Net Sales vs Net Sales P/M". Below the dashboard is a "Documents" library containing files like "App Documentation.docx" and "Q3 Review.pptx". The left sidebar shows navigation links for Home, Conversations, Documents, Notebook, Pages, Site contents, Recycle bin, and Edit.

This screenshot shows a Microsoft Power BI dashboard titled "Microsoft | Skateboard Store". It displays net sales (\$387.1K), units sold (7,868), and key influencers. Below the dashboard is a presentation slide titled "Sales & Returns Analytics - Jun 2019". The slide contains a bar chart for "Category Breakdown" and a bar chart for "Store Breakdown". The slide footer indicates it was created for "Power BI - Jun 2019".

This screenshot shows a Microsoft Teams channel for "Contoso". The dashboard displays various metrics: "Revenue by Status" (Donut chart), "Revenue by Closed Date" (Line chart), "Open Opportunity by Sales Stage" (Bar chart), "Revenue by Product - Rank" (Bar chart), and "Revenue by Location" (Map). The map highlights regions like North America, Europe, Asia, and Australia. The right side of the screen shows a "Customer 360 Report" with a bar chart for "Total Case Count" and "Case Resolved %".

The **LARGEST GLOBAL FOOTPRINT**

4

Languages

34

Primary and backup
datacenters worldwide

0

National
Clouds

US Government,
China & Germany





March 2022

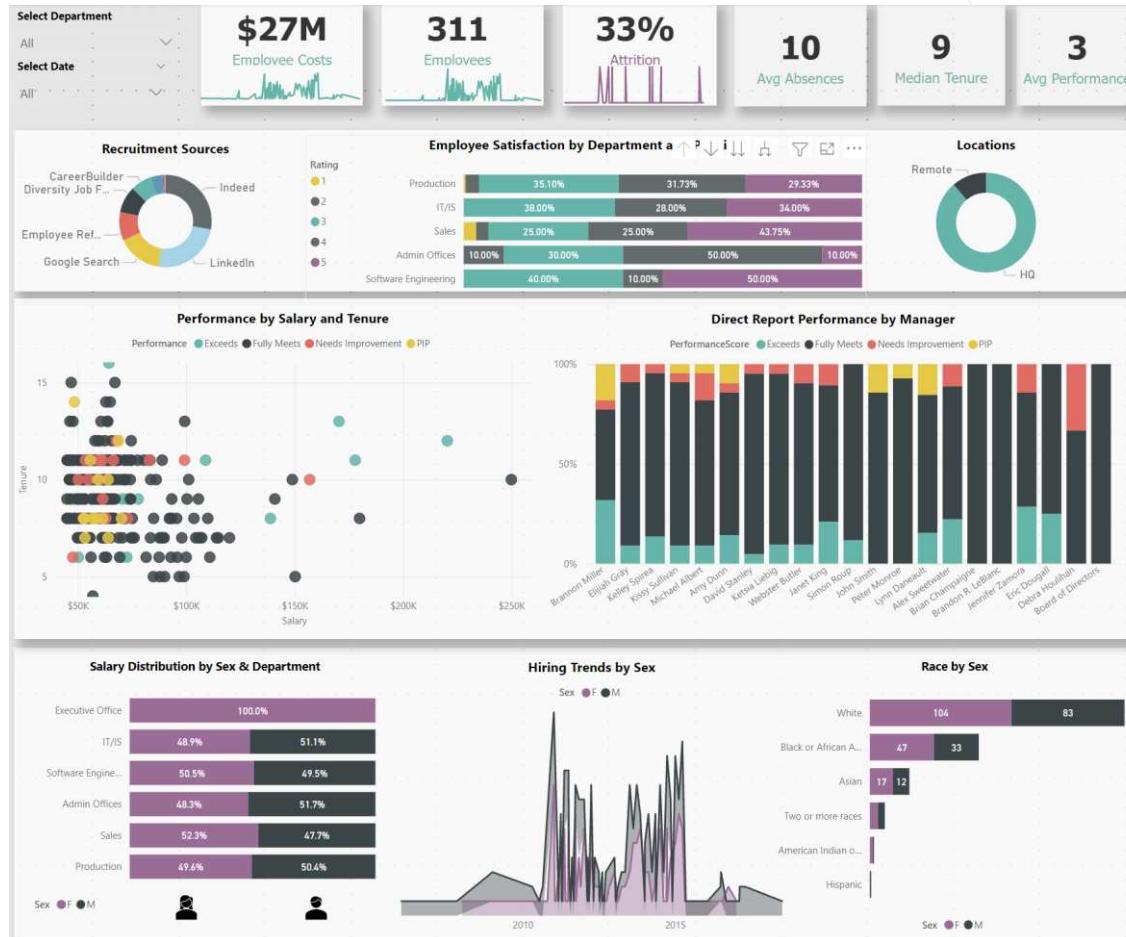
Gartner Magic Quadrant for Analytics and Business Intelligence Platforms*



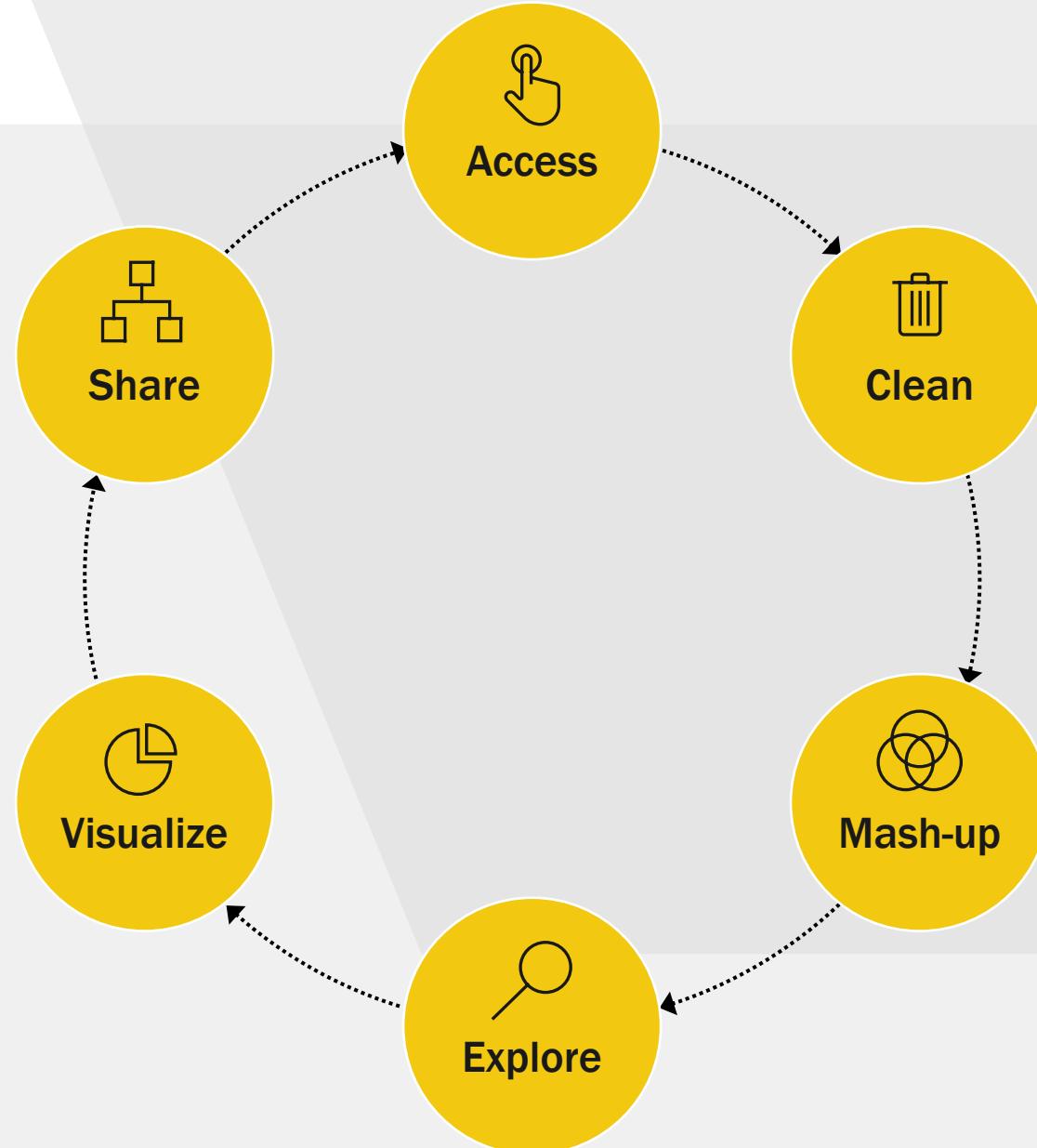
* Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request from [Microsoft](#).

Power BI

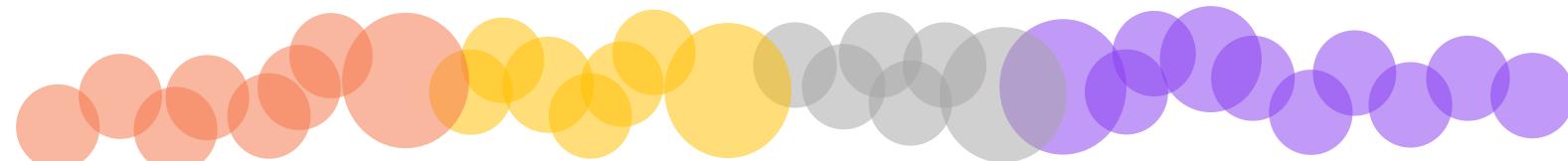
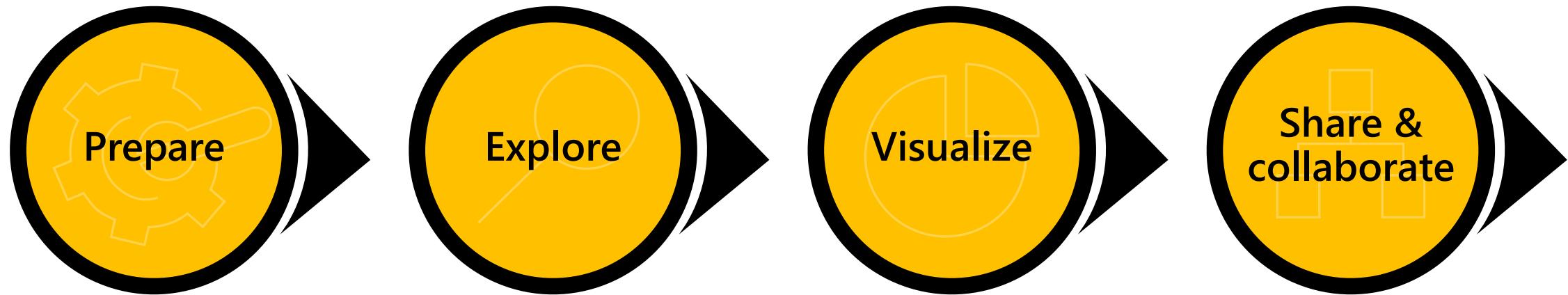
Demo



End User Needs



Lab overview



Access all your DATA



Data sources



SaaS solutions

e.g. Marketo, Salesforce, GitHub, Google Analytics



Organizational

Corporate data sources or external data services



On-premises Data



Azure services

Azure SQL, Stream Analytics...



Excel files



Power BI Desktop files

Data from files, databases, Azure, and other sources

**Connect to 135 + data sources,
both on-premises and cloud**

Data from Applications

- SaaS services that you already use

Data from your organization

- Content published by others in your org (Datasets and Dataflows)

Big data and more

- Azure data services, e.g. SQL DW, ADLS.
- On-premises data sources, e.g. Oracle & SSAS

Data from files

- Import data from Text, CSV, Excel and Power BI Desktop files

The screenshot shows the 'Get Data' interface in Power BI. It has two main sections: 'Discover content' and 'Create new content'. Under 'Discover content', there are four cards: 'My organization' (Discover apps published by other people in your organization), 'Services' (Choose apps from online services that you use), 'Files' (Bring in your reports, workbooks, or data from Excel, Power BI Desktop or CSV files), and 'Databases' (Use Power BI Desktop to connect to data in Azure SQL Database and more). Each card has a 'Get' button. Below these cards, there are links for 'Samples', 'Organizational Content Packs', 'Partner Showcase', and 'Service Content Packs'. The 'Create new content' section is partially visible. To the right, there is a list of 'Power BI apps' categorized under 'All apps', 'Organizational apps', and 'Template apps'. The 'Template apps' tab is selected, showing various pre-built dashboards and connectors like 'Microsoft Sample ...', 'COVID-19 Track...', 'Analyze COVID-19 ...', 'Microsoft 365 Usage...', 'Microsoft Project ...', 'NFL Analytics by P3 ...', 'Dynamics 365 Business ...', 'Azure DevOps Data ...', 'QuickBooks Online ...', 'Microsoft Sustainabilit...', 'Sales Analytics for ...', 'LinkedIn Sales Navi...', 'Microsoft Forms Pre...', 'Google Analytics R...', and 'Covid-19 Daily Update ...'. Each app card includes a thumbnail, name, and rating.

Clean and mash-up your DATA



Consolidate data from a broad range of sources

- Merge or append queries to combine data from multiple queries into a single query

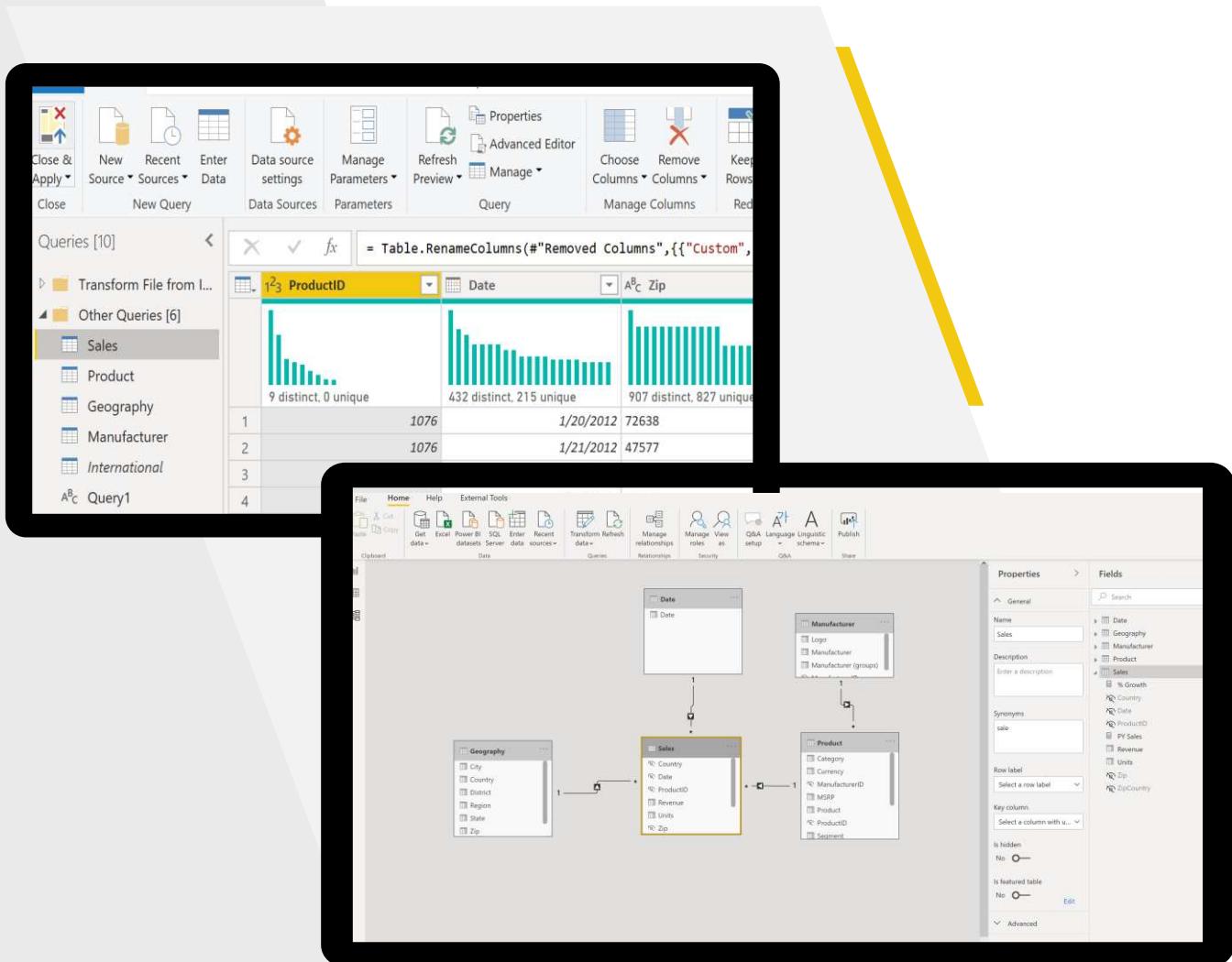
Transform data to fit your needs using intuitive UI

- Select data for inclusion
- Cleanse data and remove errors

Define calculations to generate new fields for use in reports

Develop advanced analytics using a combination of measures and relationships

- Uncover correlations, highlight exceptions and understand business outcomes



Lab 01 -

Accessing & Preparing the data

Explore your DATA

Explore data in a variety of ways and across multiple visualizations using drag and drop canvas

Dig deeper into your reports

- Drill-down in your hierarchical data
- Filter, sort, hover over and highlight data

Leverage Quick Insights to find insights in your data

Ask questions of your data in natural language with Q&A

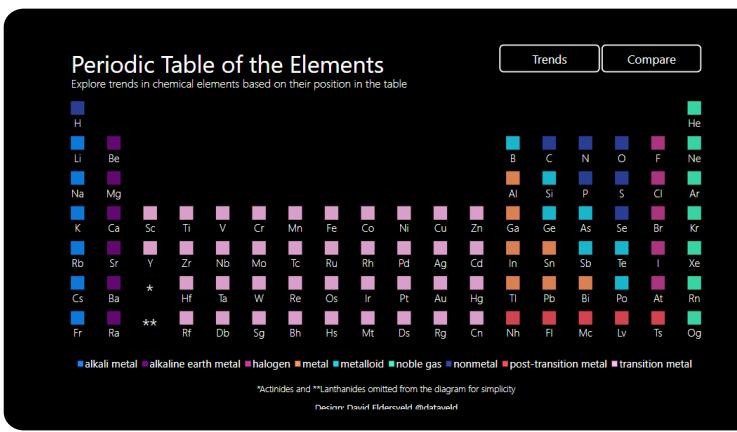
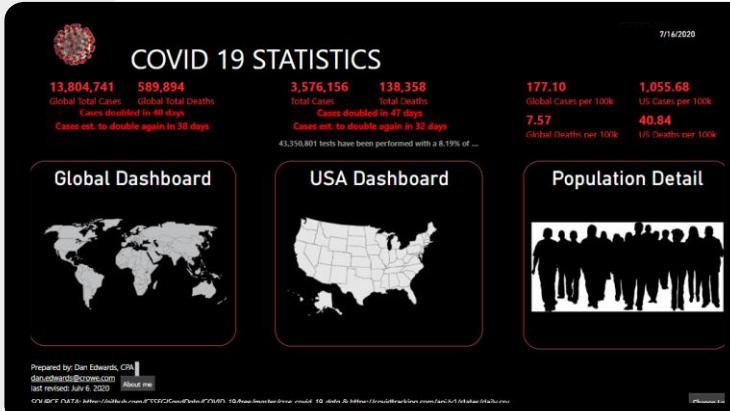
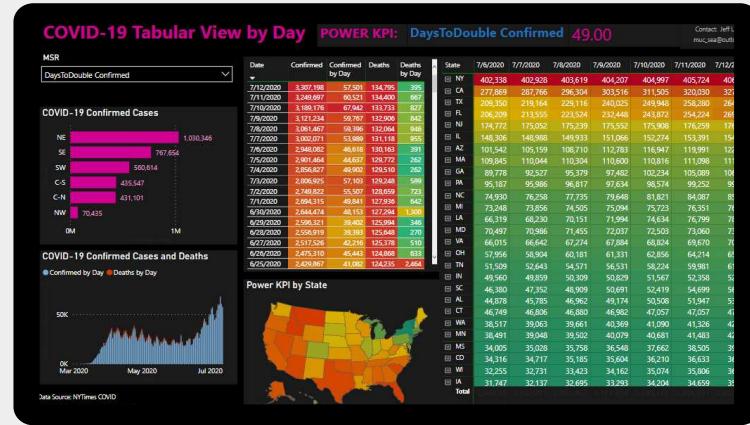
- Type questions in plain language
- Q&A intelligently filters, sorts, aggregates, groups and displays data based on the question



Lab 02 -

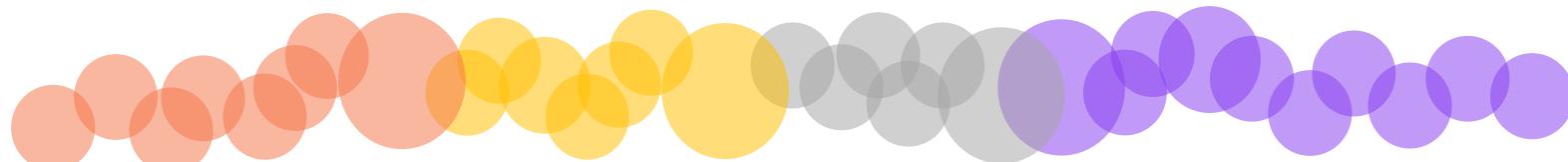
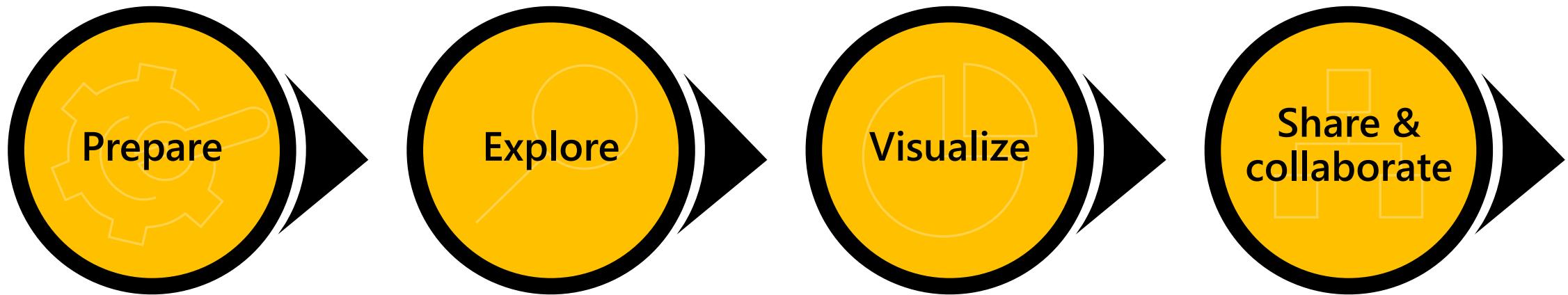
Data Modelling and Exploration

Explore and share your data stories

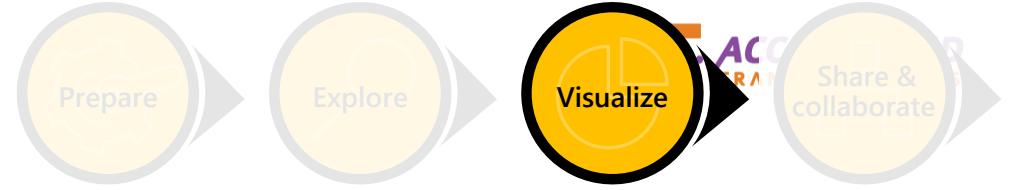


In the Data Stories Gallery
And
COVID-19 Data Stories Gallery

Lab overview



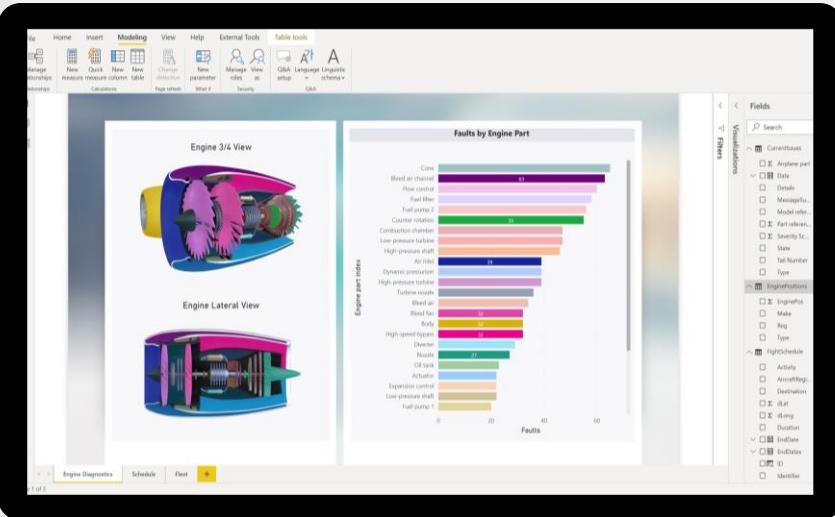
Visualize your DATA



Visualize data in a variety of ways

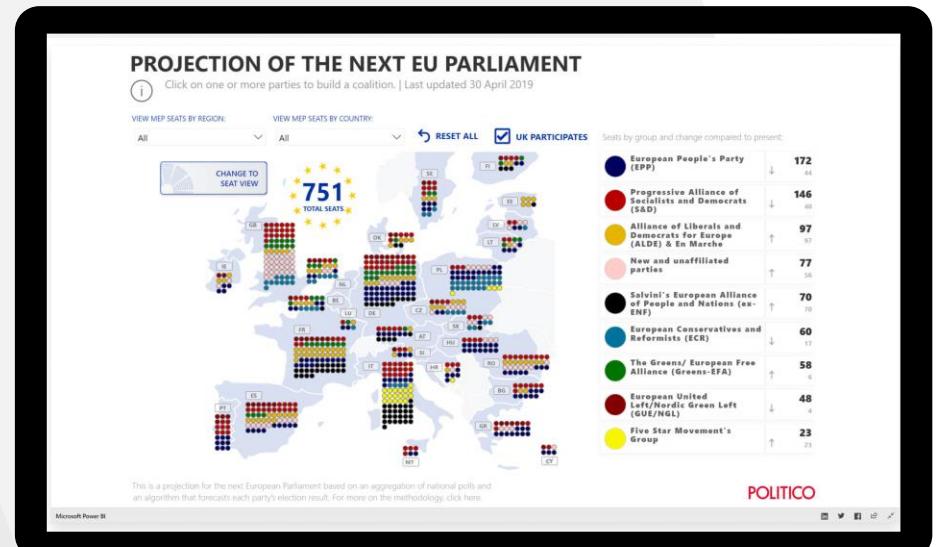
Growing number of visualization types

- Donuts, basic area, waterfall, filled maps, tree maps, funnel, gauges combo charts and more
- Custom visuals available from Power BI Visuals Marketplace
- Tools to develop, test, package new custom visuals



Visualizations on report page are connected
– select value in one visualization to change other visualizations

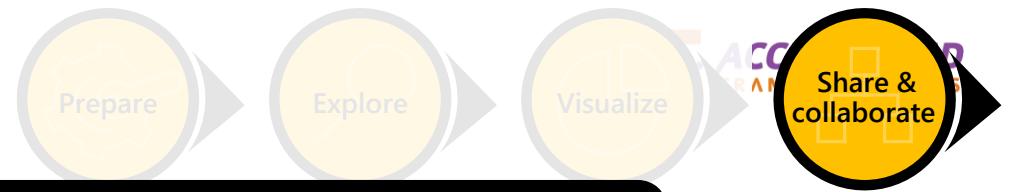
Full screen pop out mode for report visuals to show additional details



Lab 03 -

Visualizations

Bring your story to life with DATA



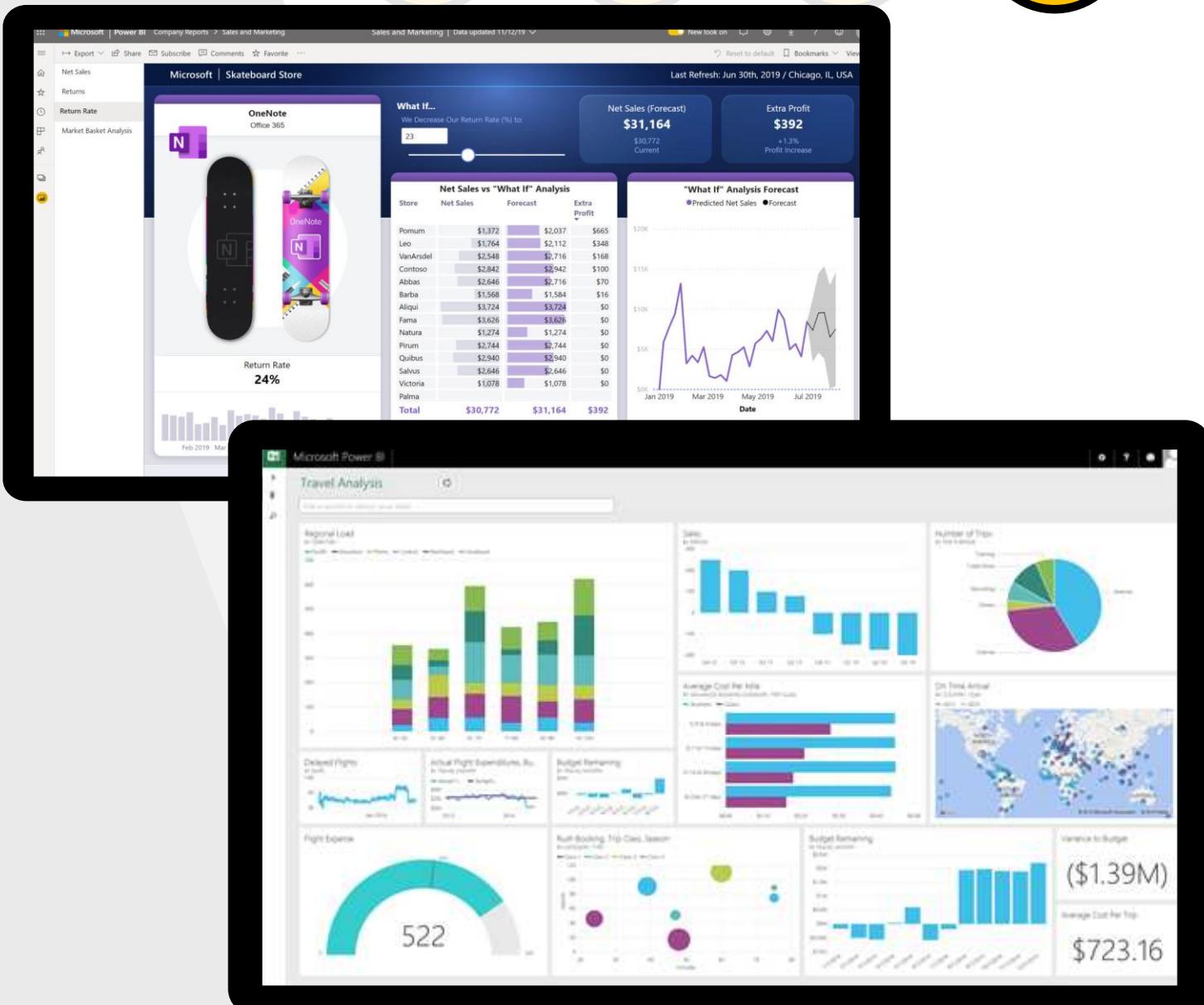
Save Power BI Desktop report files and easily publish them to powerbi.com

Access dashboards using native mobile apps for Windows, iOS and Android

Share as appropriate with other Power BI users in your organization

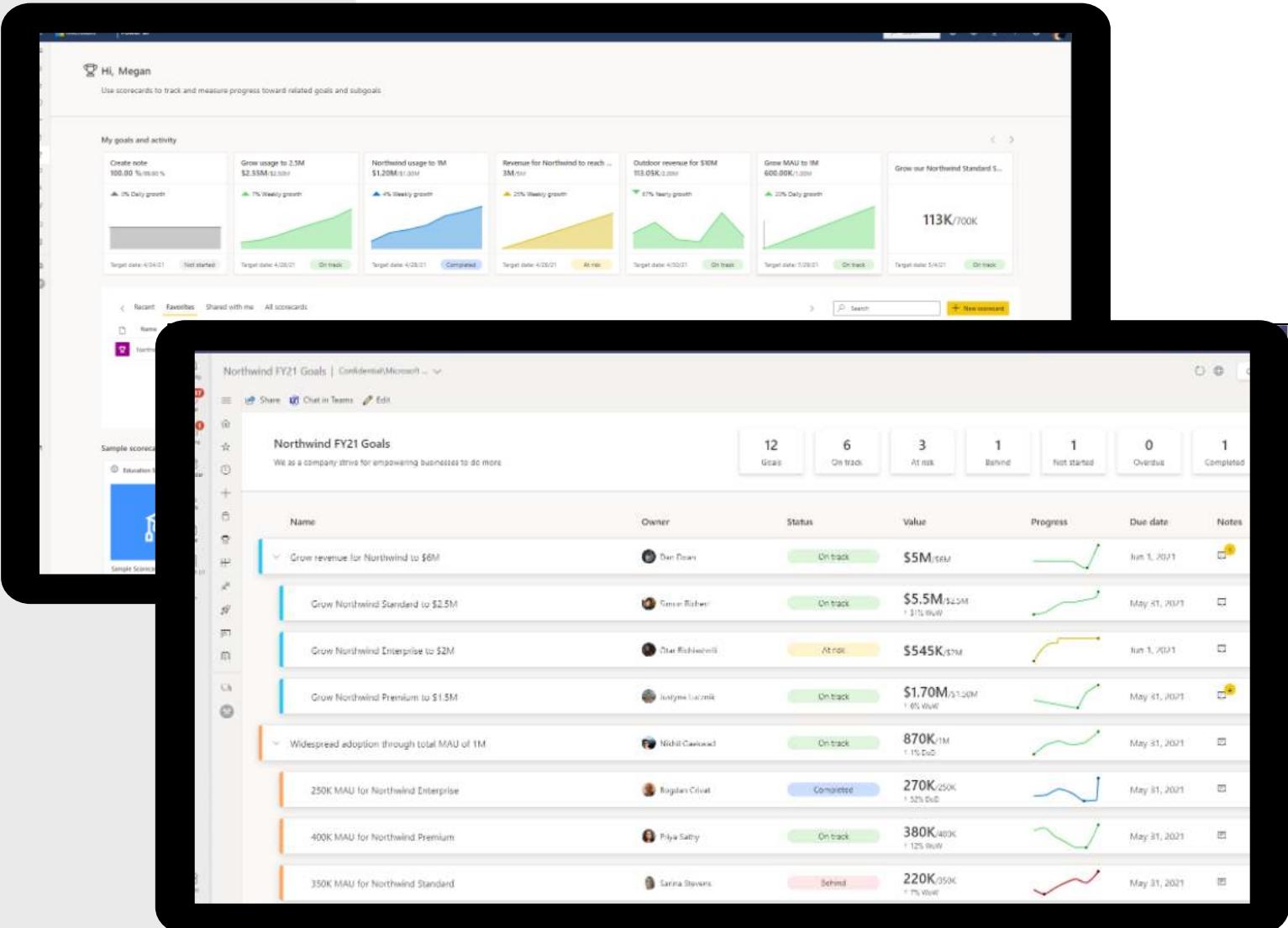
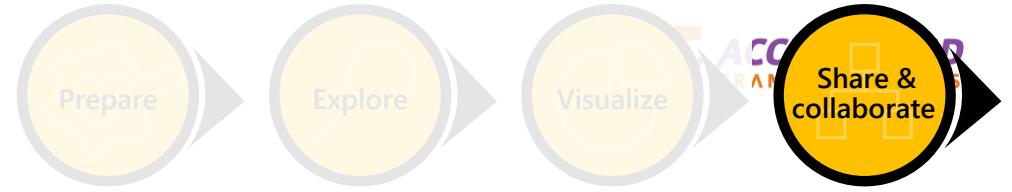
Package your reports in apps for easy consumption and control

Easily embed interactive Power BI visualizations in blog posts, websites, through emails or social media With Power BI Publish to web



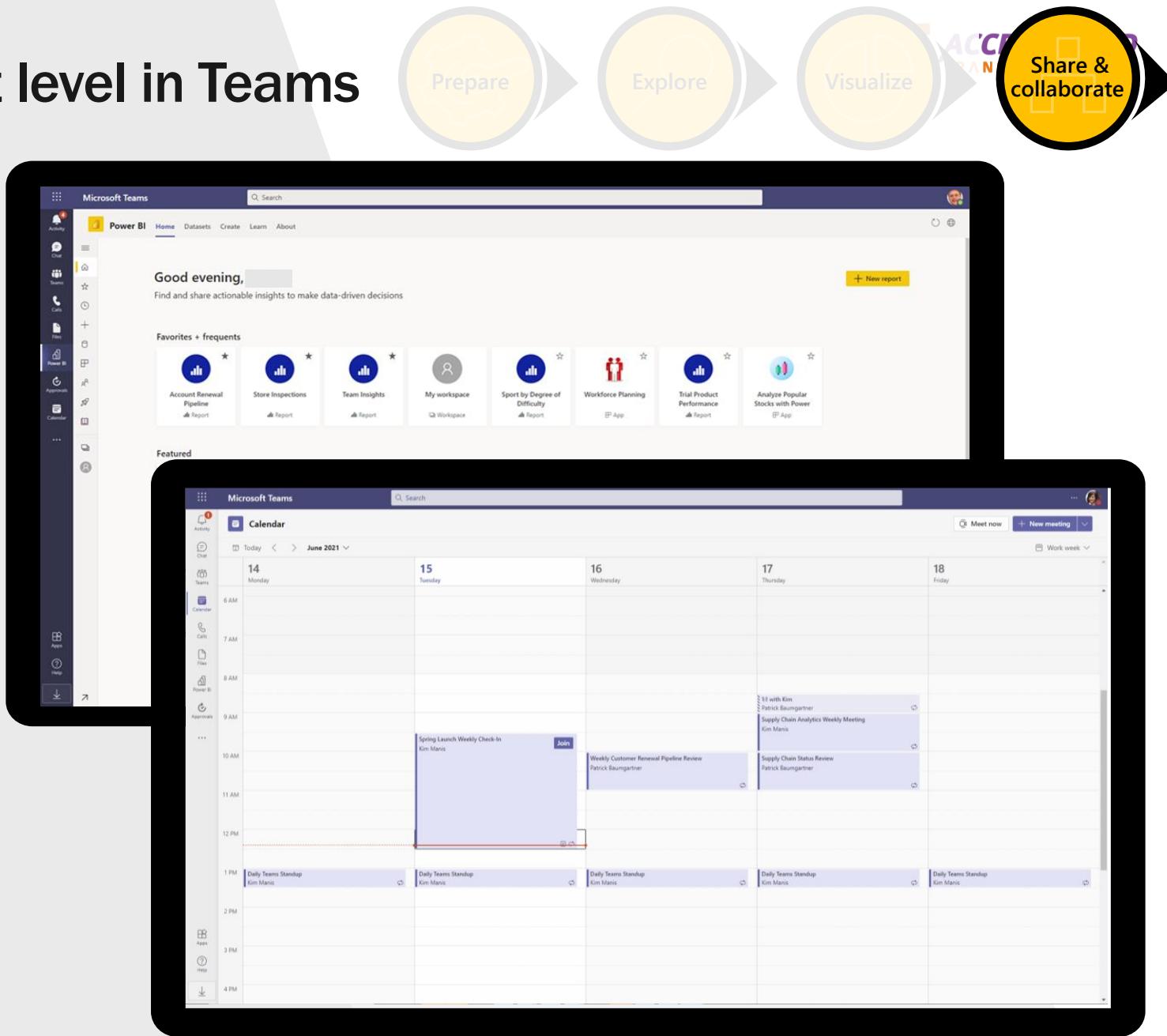
Track business metrics with Goals

- Create scorecards
- Measure key business metrics
- Track goals in a single source
- Measure progress
- Share updates with the team
- Monitor the health of the business
- View on mobile



Take collaboration to the next level in Teams

- Meet users where they are with the Power BI app in Teams.
- Keep everyone aligned with data-driven meetings.
- Use data to inform discussions in teams, chats, and meetings.
- Find data and insights to drive better decision-making with the Power BI search extension
- Learn more here:
<https://aka.ms/LearnPBInTeams>



Access your story everywhere with Mobile

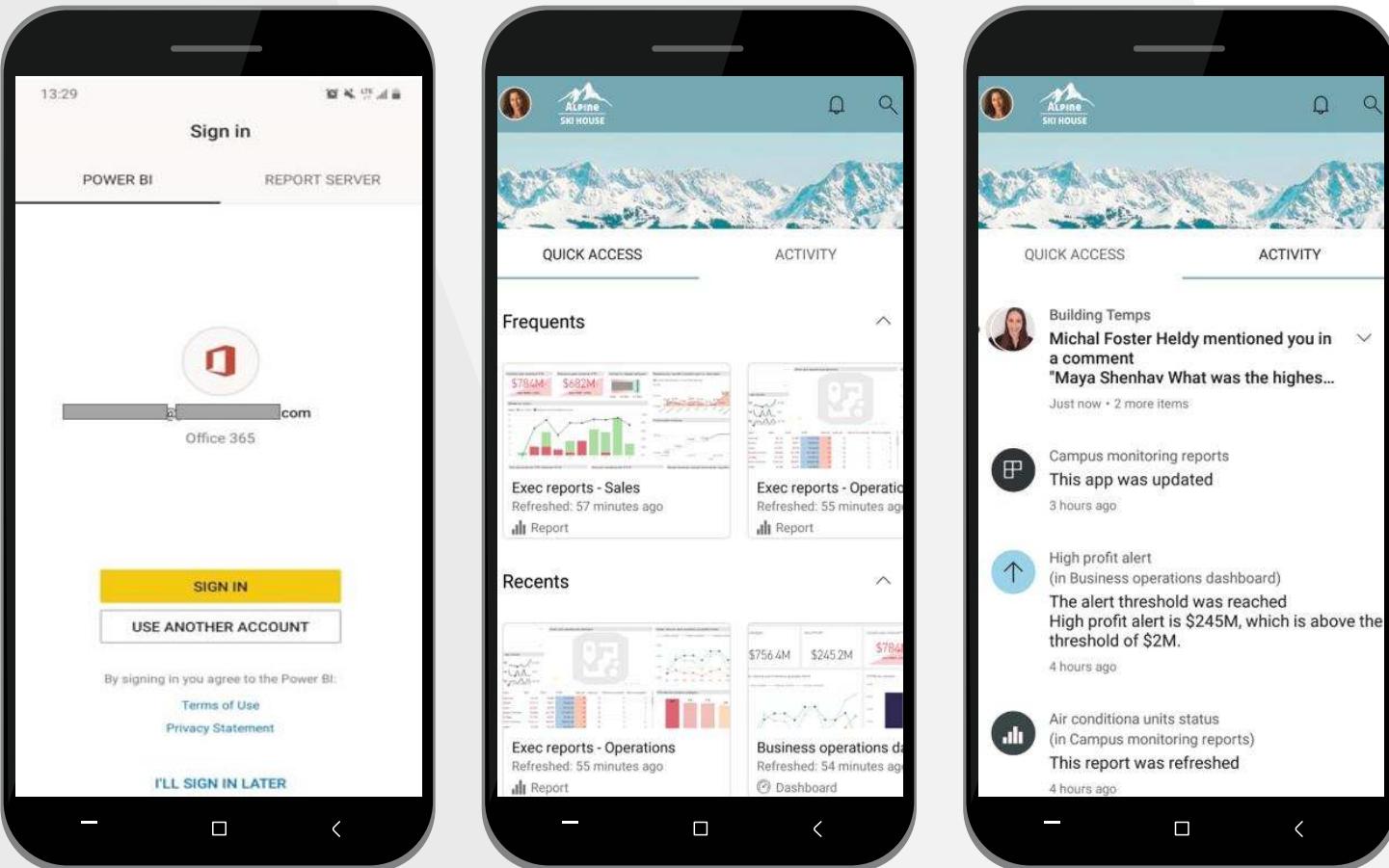


Access dashboards using native mobile apps for Windows, iOS and Android

Easy sign in page

Quick Access reports

Your personal Recent Activity feed

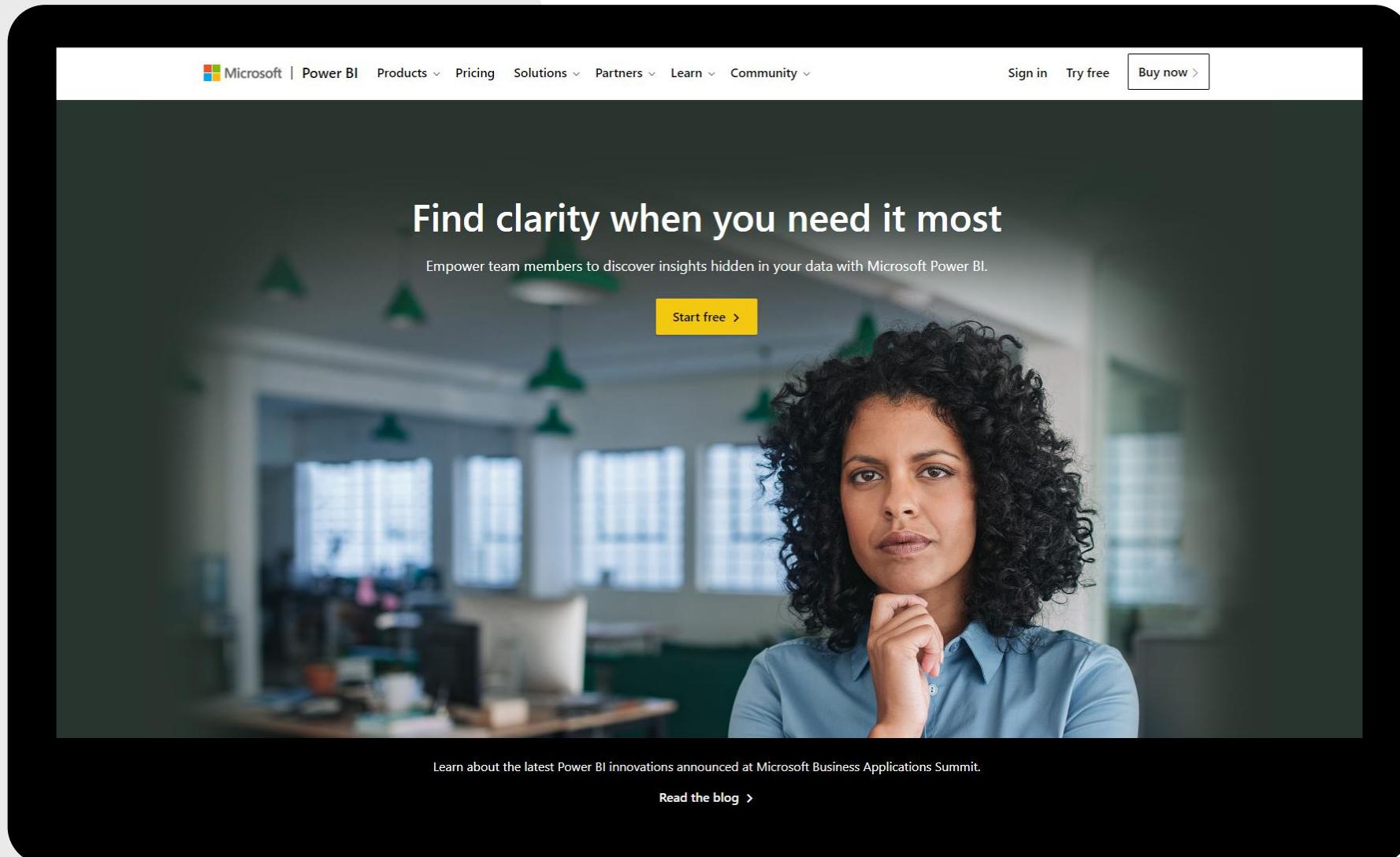


Lab 04 -

Publishing and accessing Reports

Lab 05 -

Building a Dashboard and Sharing



The screenshot shows the Microsoft Power BI homepage. At the top, there's a navigation bar with the Microsoft logo, "Power BI", and links for "Products", "Pricing", "Solutions", "Partners", "Learn", and "Community". To the right are "Sign in", "Try free", and a "Buy now >" button. The main headline is "Find clarity when you need it most" with the subtext "Empower team members to discover insights hidden in your data with Microsoft Power BI." Below this is a large image of a woman with curly hair, resting her chin on her hand and looking thoughtfully at the camera. A yellow "Start free >" button is positioned above her. At the bottom of the screenshot, there's a link to "Read the blog >".

Get Started Now at
PowerBI.com

Q&A