Integrating Data in Teradata Vantage – A Case Study on Delivering Business Insights During COVID-19

Liza Duffy, Teradata

Phil Bangayan, Teradata

Key Takeaways

1

Data silos create **chaos -** success lies in good **data integration, orchestration** and **governance**.

2

Data Science success begins with translating vague requests into **valuable insights**

3

Integrating external data sources are an excellent way to boost analytics and insights.

Teradata At a Glance

Corporate Purpose
We transform how businesses work and people live through the power of data

We Are Connected
Teradata is the connected multi-cloud data platform from start to scale

Culture & Community
Doing Good With Data™

Gartner

Cloud Leader in 2020 Gartner Magic Quadrant[1]*

FORRESTER®

Cloud Leader in 2021 The Forrester Wave™[2]*

19 of top 20 telcos
18 of top 20 global banks
15 of top 20 manufacturers

100+ technology partners

Financially strong and profitable with ~$2.0 billion revenue

CSR Leader: Dow Jones Sustainability Index for 11 years

S&P 400 constituent

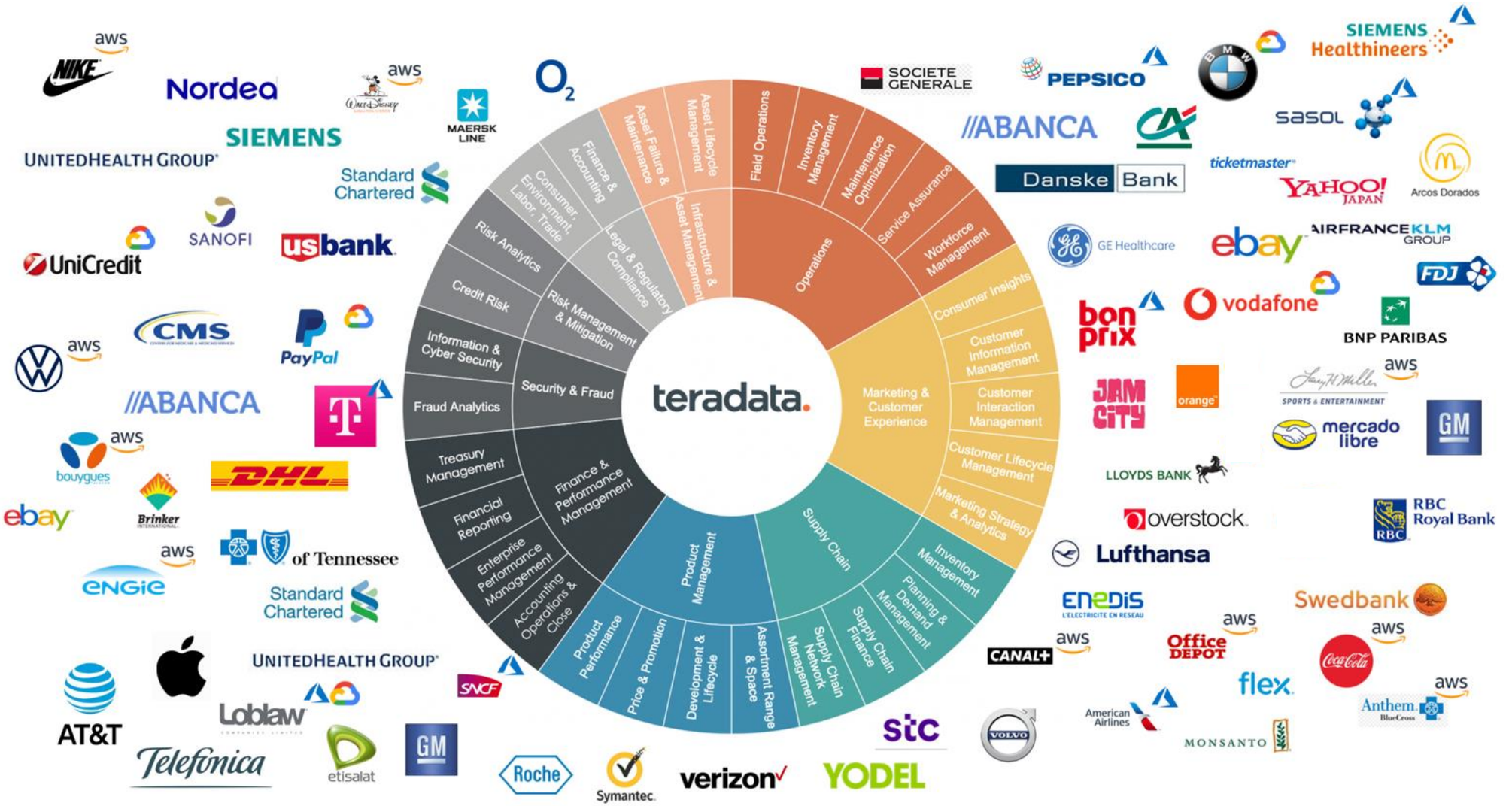
1 The connected multi-cloud data platform for enterprise analytics

2 The most effective platform for driving business outcomes

3 The most open partnering approach to embrace the modern ecosystem

Gartner Magic Quadrant for Cloud Database Management Systems
The Forrester Wave™: Cloud Data Warehouse, Q1 2021

Our customers (sample)



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Quotes

“We look to see the actual end-consumer”

“Using data and analytics, we looked at those that attended the game in the upper bowl, and we found two personas.
Those that bought season tickets and were loyal fans who come to almost every game or shared the tickets with friends or family. And then there are those that buy a lot of season tickets that go into a secondary, and potentially even a third, market. We look to see the actual end-consumer that came to the game, what they actually paid, and what their overall experience was. We want to cut out a little bit of the middleman and we’ve strategically raised prices for those that were buying to resell while holding true on lower prices for those customers who are true and loyal fans.”

Dustin Spangler, Vice President, Data and Analytics
Larry H. Miller Sports & Entertainment

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Businesses Use Data to Accelerate on Strategy

Data is the fuel

- How to best manage and orchestrate data?
- Who should see/interact with data across the organization?
- What are the considerations in bringing in external data sources?

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How to Best Manage and Orchestrate Data?

Data Orchestration is the **automation of data-driven processes** from end-to-end, including **preparing data**, making **decisions** based on that data, and **taking actions** based on those decisions. It's a process that often spans across many different systems, departments, and types of data.

- Data size and expansion
- Cost – Technical and People
  - Data Lake
  - Cloud
  - Traditional Data Warehouse
- Speed to Value

https://www.openprisetech.com/blog/what-is-data-orchestration/#:~:text=Data%20Orchestration%20is%20the%20automation,departments%2C%20and%20types%20of%20data.

Who should see/interact with data across the organization?

Data governance (DG) is the process of managing the availability, usability, integrity and security of the **data** in enterprise systems, based on internal **data** standards and policies that also control **data** usage. Effective **data governance** ensures that **data** is consistent and trustworthy and doesn't get misused.

- The larger and more complex the company, the greater the need for data governance.
- Decentralization aka “silos”
- Can you access the data you need when you need it?
- Do you need lengthy approvals or is there self service?

https://searchdatamanagement.techtarget.com/definition/data-governance#:~:text=Data%20governance%20(DG)%20is%20the,and%20doesn't%20get%20misused.

A Data Silo Story

A large US Bank wants to analyze consumer complaints during COVID

While they have access to the complaints, they also want to understand the customer experience with credit card late fees.

They search around their database, they ask others for where the data resides, they request permission to access that data.

This all takes time. Too much time.

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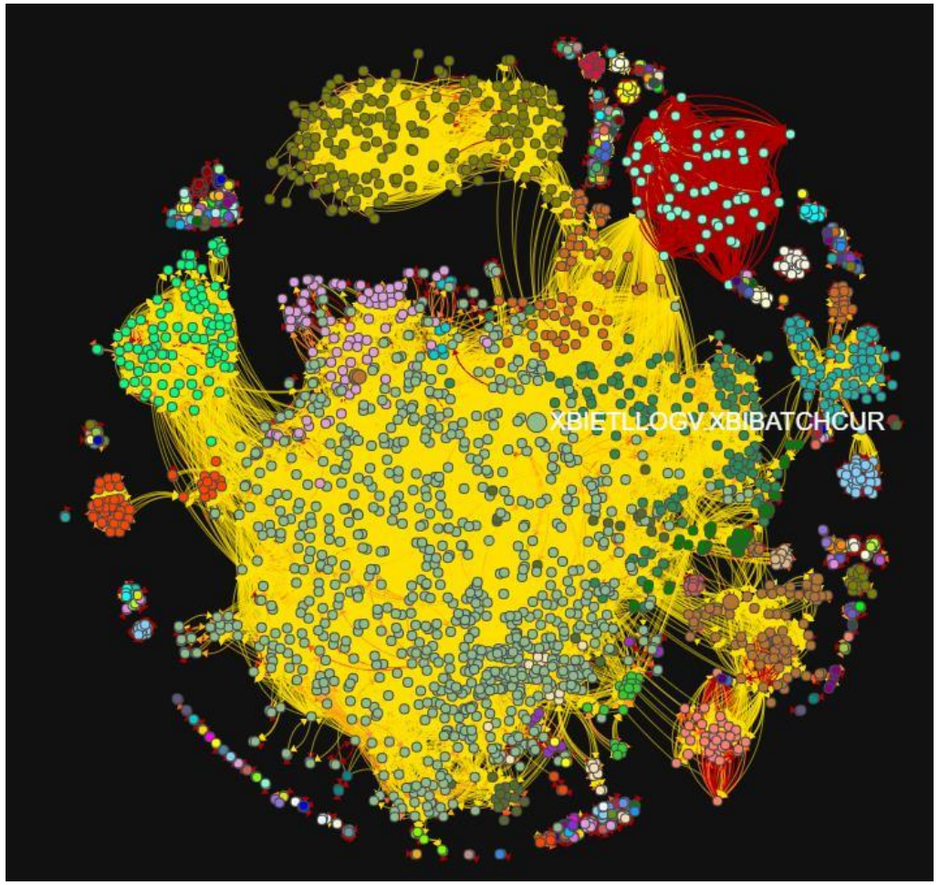
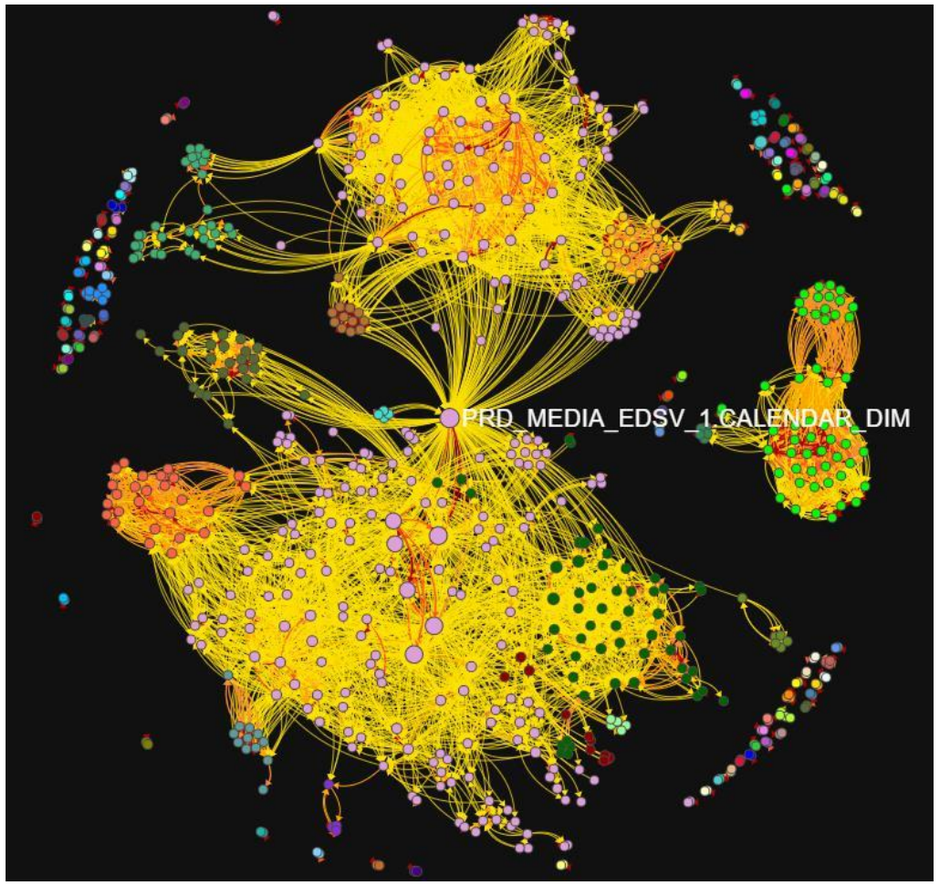
Affinity Analysis of Platforms





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External Data is Valuable

Considerations

There are many open data sources available today to enhance your analysis or predictive model:

- -weather data
- -event data (severe weather, covid 19)
- -public health data
- -crime
- -GIS

Considerations:

- -data quality and quantity
- -IT department restrictions
- -value to your analysis/model

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So… What About COVID?

Business Impacts in 2020-2021

-travel restrictions

-supply chain interruptions

-work from home, learn from home

-health care alignment

-stimulus checks

-K shaped recovery

What's an Analyst/Data Scientist to do?

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Integrating Data in Teradata Vantage – A Case Study on Delivering Business Insights During COVID-19

Phil Bangayan
Liza Duffy

May 6, 2021

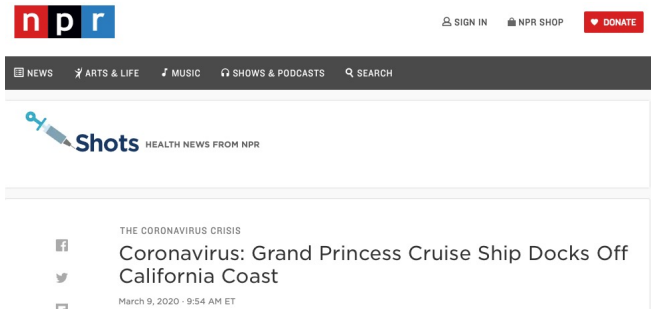
Background

- Teradata services many Fortune 500 companies across many industries
- Many media & entertainment companies' business model relied on in-person gatherings

Sources:
https://variety.com/2020/music/news/coronavirus-movies-films-concerts-return-poll-1234592161/
https://variety.com/2020/tv/news/universal-studios-hollywood-reopening-update-1234623321/

Disruption due to COVID-19

- Conoravirus shut down in-person events, hurting media & entertainment industry



Sources:
https://variety.com/2020/digital/features/coronavirus-hollywood-movies-tech-china-1203521927/
https://www.latimes.com/entertainment-arts/story/2020-03-06/coronavirus-events-canceled-concerts
https://www.npr.org/sections/health-shots/2020/03/09/813616982/coronavirus-u-s-has-564-cases-stricken-cruise-ship-to-dock-in-california

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Pressing Issue

- Studios had already planned release schedule for movies
- Release window only lasts few weeks
- Don’t want to release to theaters if regulators disallow or customers not ready

April

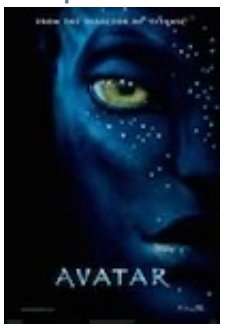
May

June

July

August

September



Sources:
https://www.the-numbers.com/movie/Skyfall#tab=summary, https://www.the-numbers.com/movie/Harry-Potter-and-the-Deathly-Hallows-Part-II#tab=summary, https://www.the-numbers.com/movie/Avengers-Endgame-(2019)#tab=summary, , https://www.the-numbers.com/movie/Jurassic-World#tab=summary, https://www.the-numbers.com/movie/Titanic-(1997)#tab=summary, https://www.the-numbers.com/movie/Avatar#tab=summary

Big Question

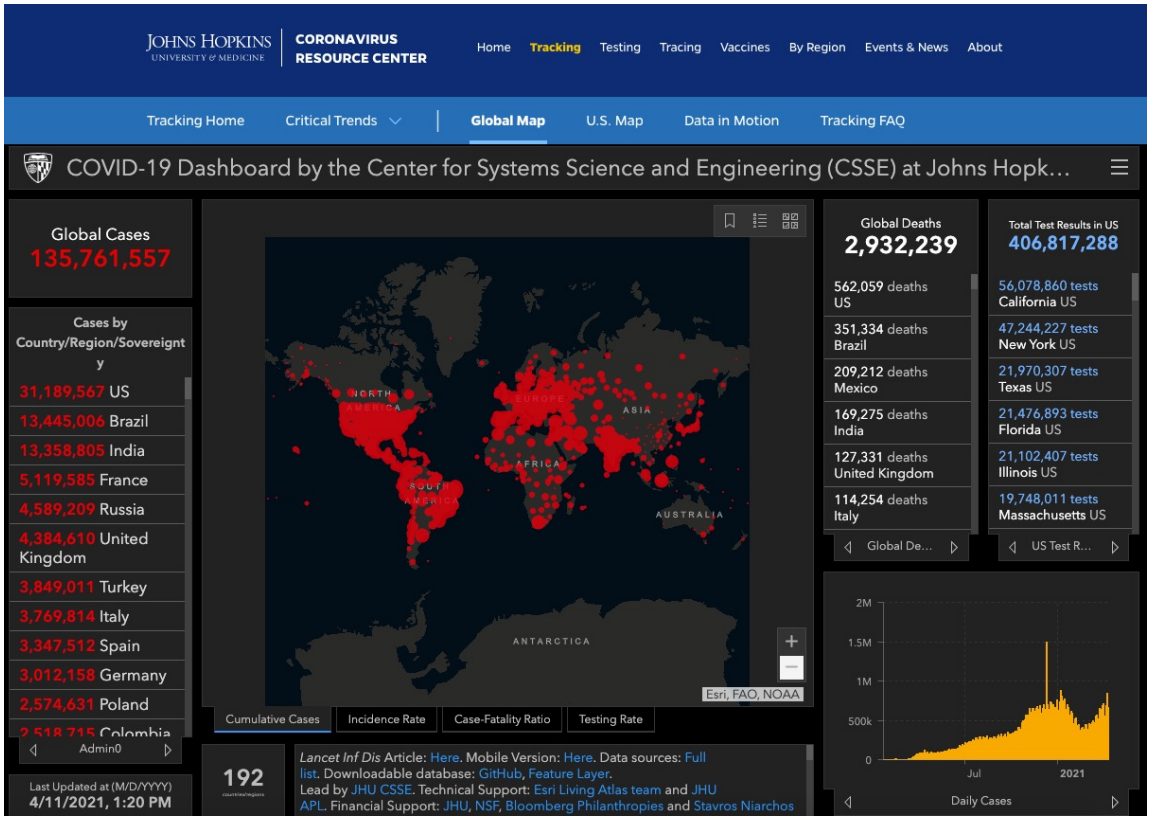
"How do we adjust our release schedule?"

- Note: very ambiguous and broad question

Source: https://proofthatblog.com/2013/07/01/the-question-is-what-happened-to-the-question-mark/l

Existing Data

- Most data (at the time) focused exclusively on health information
- Not necessarily focused on business questions



Source:
https://coronavirus.jhu.edu/map.html

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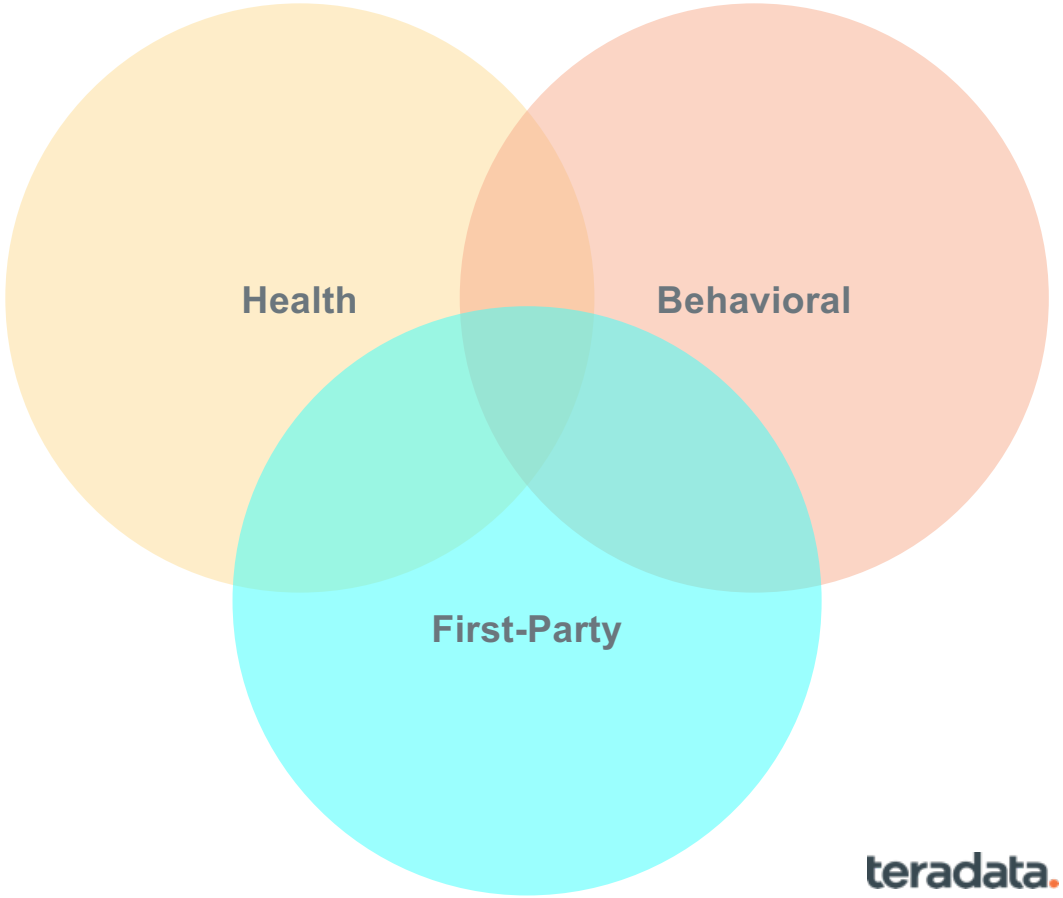
Data to Make Informed Decision

- Determined need for three sets of data to answer business question
- Behavioral measures demand based on actions taken
- Power comes when combined with first-party data
- **Predictions** on these data



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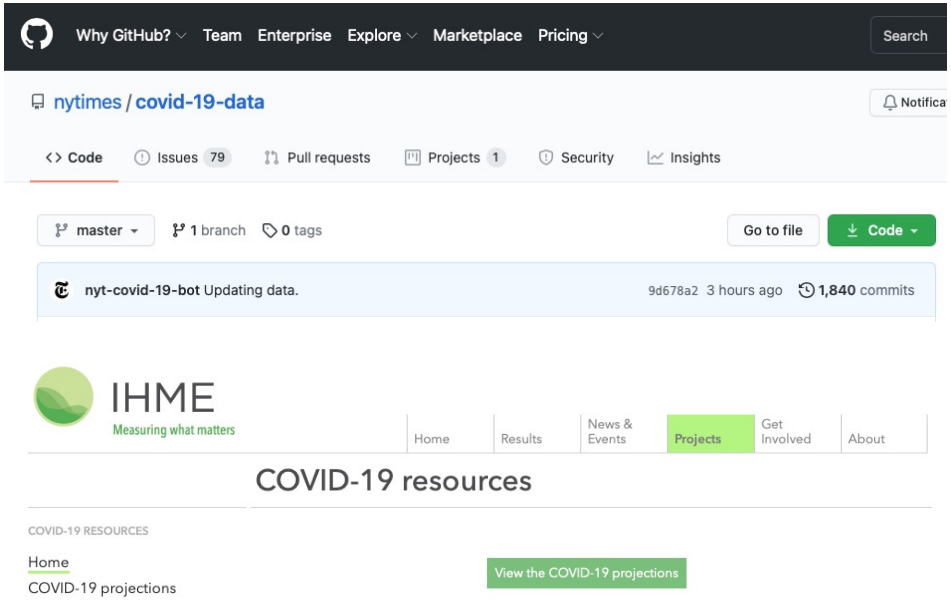
Health Data

- Incorporate data on cases, deaths, and vaccinations



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https://apnews.com/article/coronavirus-vaccine-2nd-shot-us-af9bc295fa685aaa04e204e4db62e336
https://github.com/nytimes/covid-19-data
http://www.healthdata.org/covid

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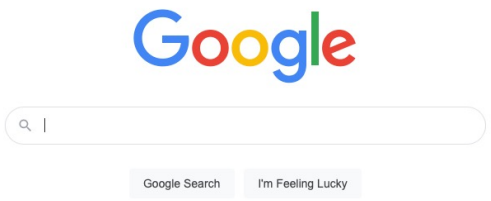
Behavioral Data

- What people searching for (Google Trends)
- Where people are moving (Google Mobility)
- On which items people are spending money (Bureau of Economic Analysis)



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https://www.bea.gov/data/consumer-spending/main

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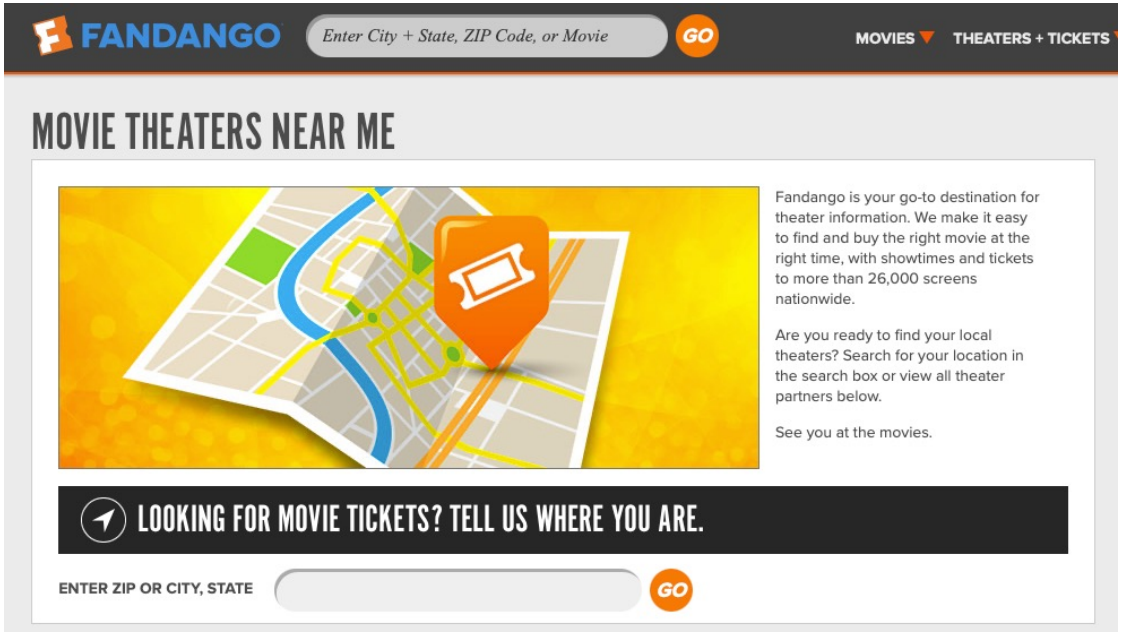
First Party

- Combining with first-party data makes the information relevant to solving business problem



Source:
https://www.fandango.com/movie-theaters

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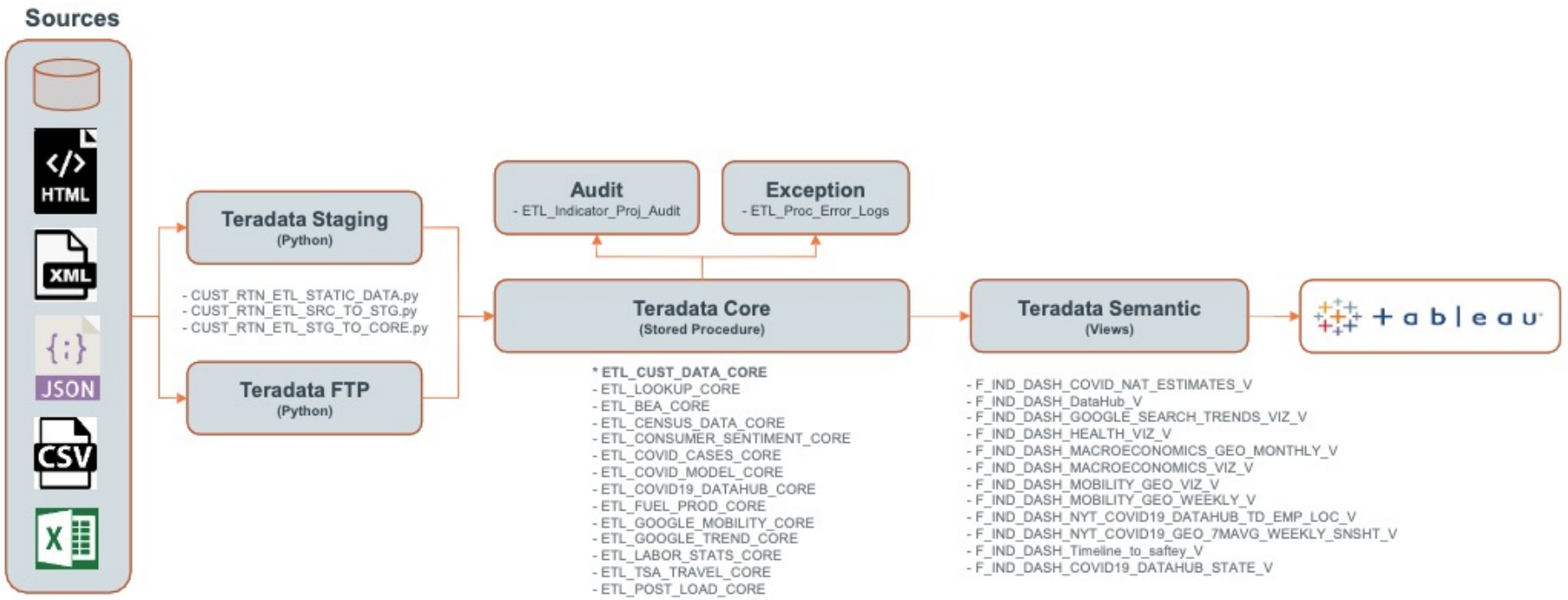
Ingesting Data



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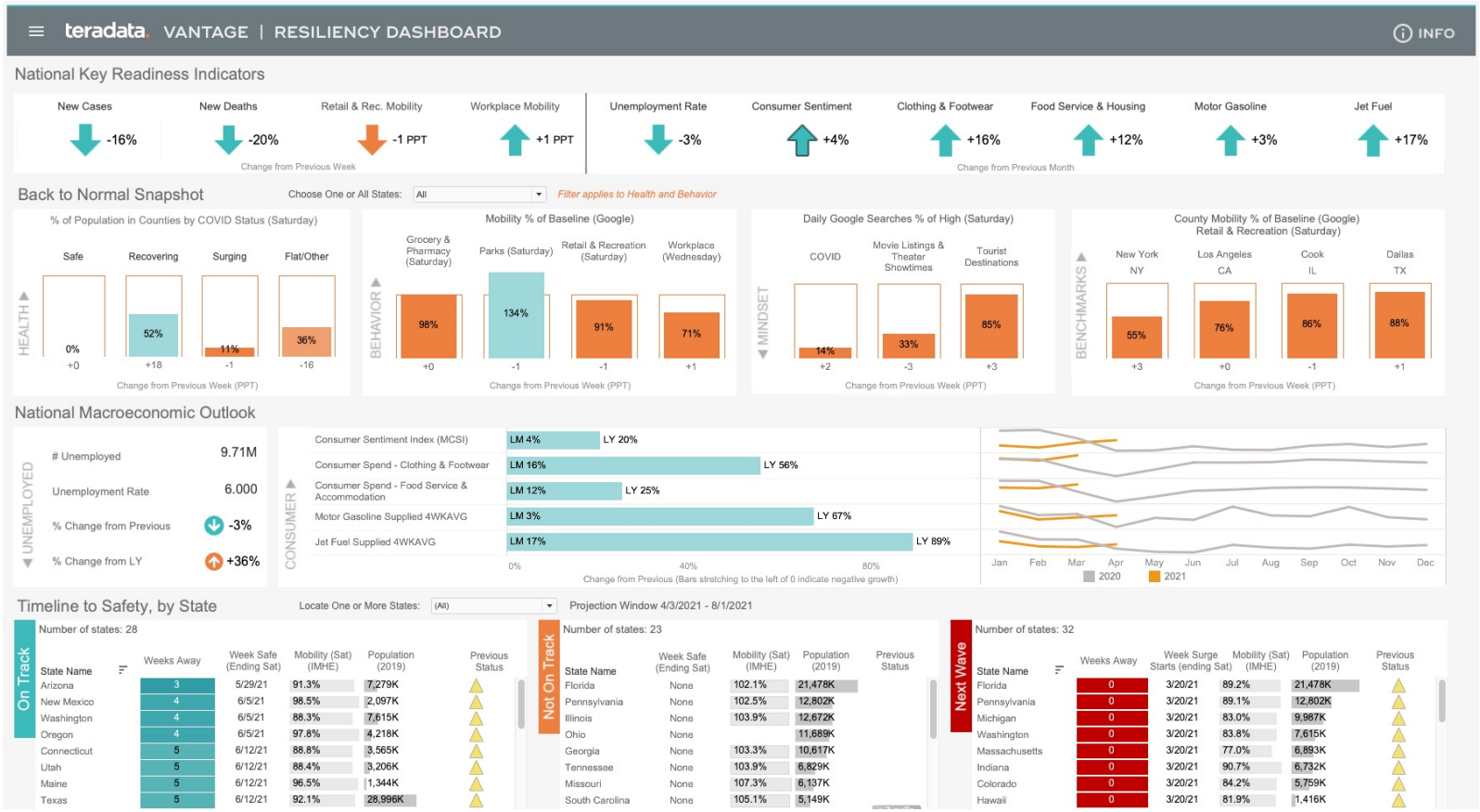
Visualizing Data: Executive Dashboard



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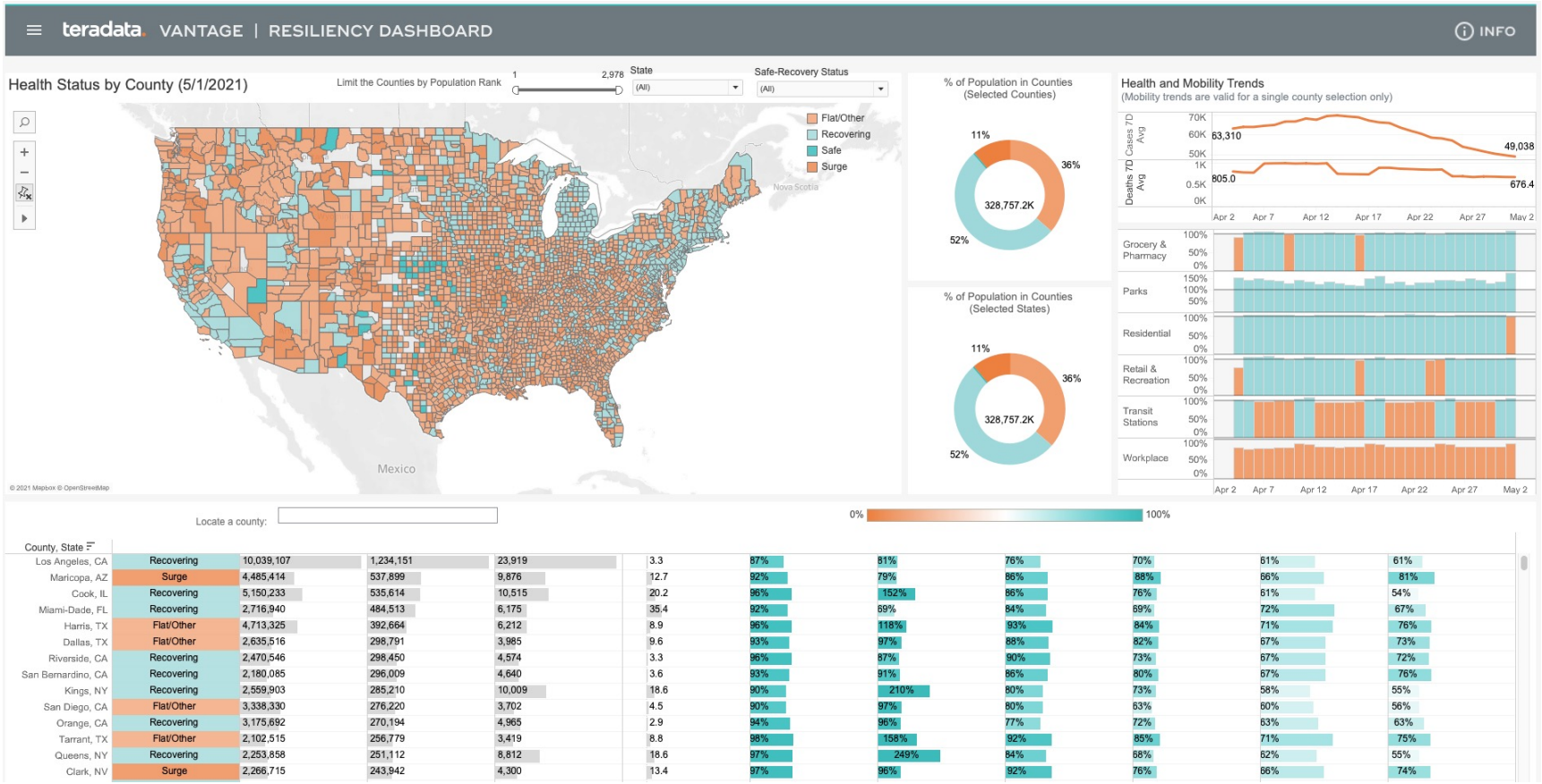
Visualizing Data: Drill Down to Counties



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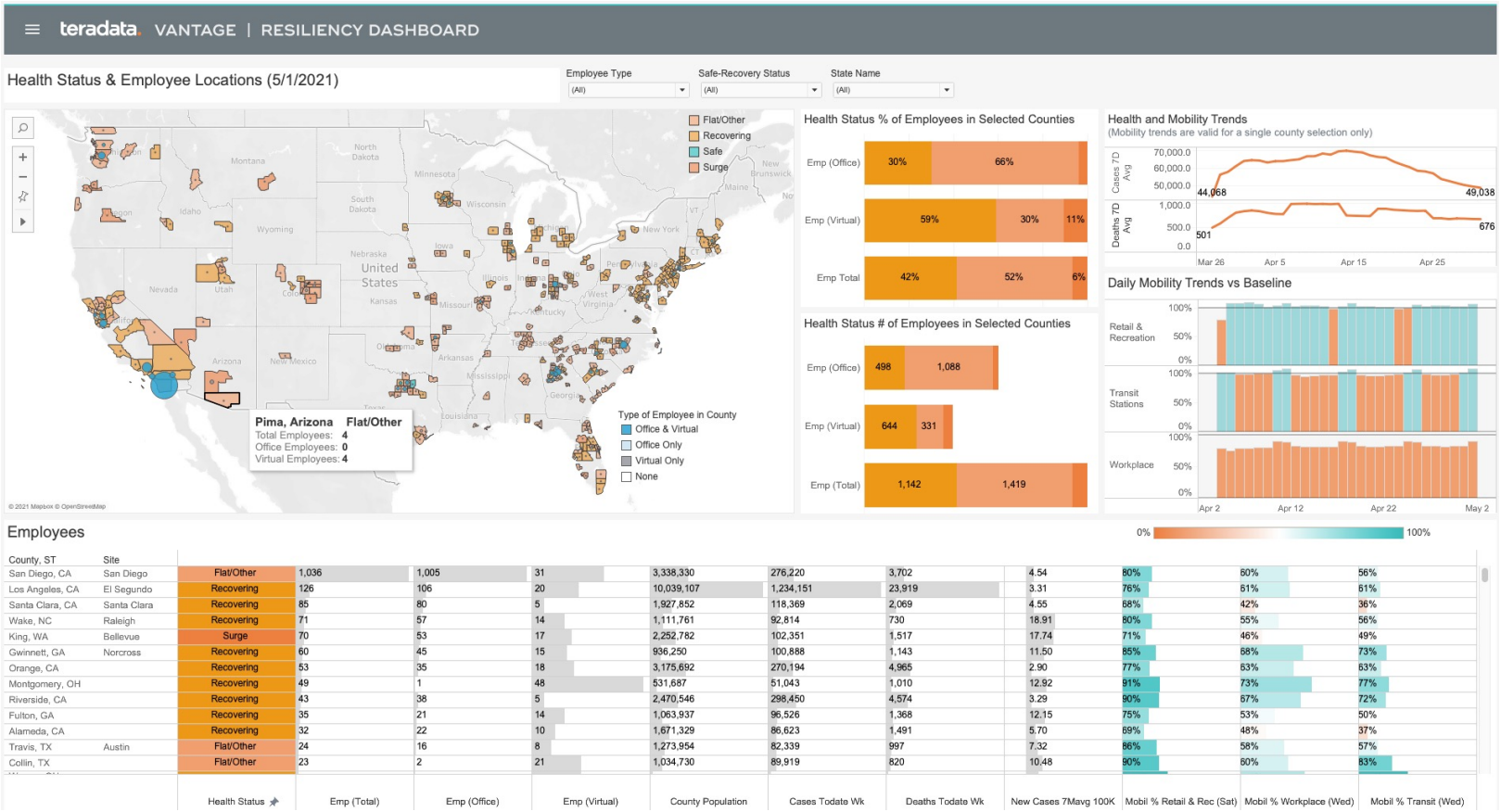
Visualizing Data: Applied to First-Party Data



County, ST	Site	Health Status	Emp (Total)	Emp (Office)	Emp (Virtual)	County Population	Cases Todate Wk	Deaths Todate Wk	New Cases 7Mavg 100K	Mobil % Retail & Rec (Sat)	Mobil % Workplace (Wed)	Mobil % Transit (Wed)
San Diego, CA	San Diego	Flat/Other	1,036	1,005	31	3,338,330	276,220	3,702	4.54	80%	60%	56%
Los Angeles, CA	El Segundo	Recovering	126	106	20	10,039,107	1,234,151	23,919	3.31	76%	61%	61%
Santa Clara, CA	Santa Clara	Recovering	85	80	5	1,927,852	118,369	2,069	4.55	68%	42%	36%
Wake, NC	Raleigh	Recovering	71	57	14	1,111,761	92,814	730	18.91	80%	55%	56%
King, WA	Bellevue	Surge	70	53	17	2,252,782	102,351	1,517	17.74	71%	46%	49%
Gwinnett, GA	Norcross	Recovering	60	45	15	936,250	100,888	1,143	11.50	85%	68%	73%
Orange, CA		Recovering	53	35	18	3,175,692	270,194	4,965	2.90	77%	63%	63%
Montgomery, OH		Recovering	49	1	48	531,687	51,043	1,010	12.92	91%	73%	77%
Riverside, CA		Recovering	43	38	5	2,470,546	298,450	4,574	3.29	90%	67%	72%
Fulton, GA		Recovering	35	21	14	1,063,937	96,526	1,368	12.15	75%	53%	50%
Alameda, CA		Recovering	32	22	10	1,671,329	86,623	1,491	5.70	69%	48%	37%
Travis, TX	Austin	Flat/Other	24	16	8	1,273,954	82,339	997	7.32	86%	58%	57%
Collin, TX		Flat/Other	23	2	21	1,034,730	89,919	820	10.48	90%	60%	63%

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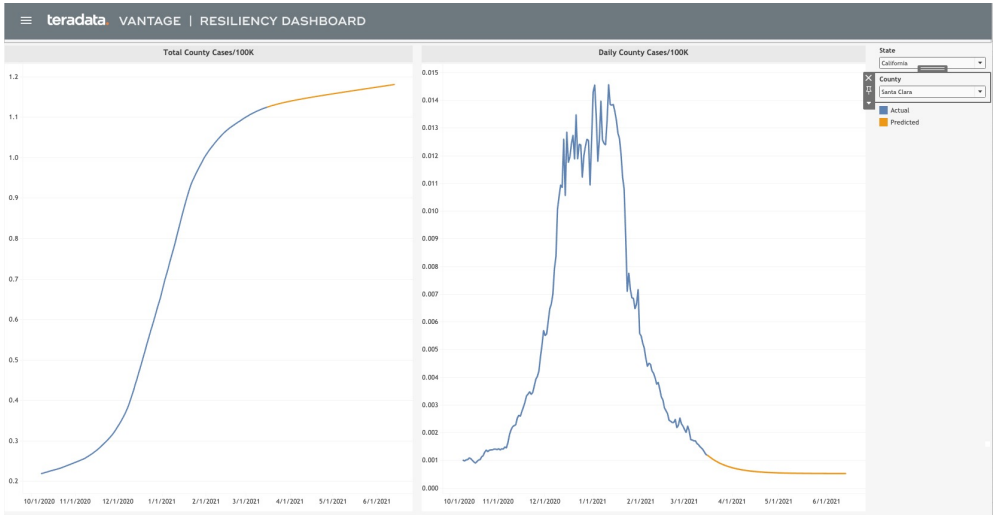
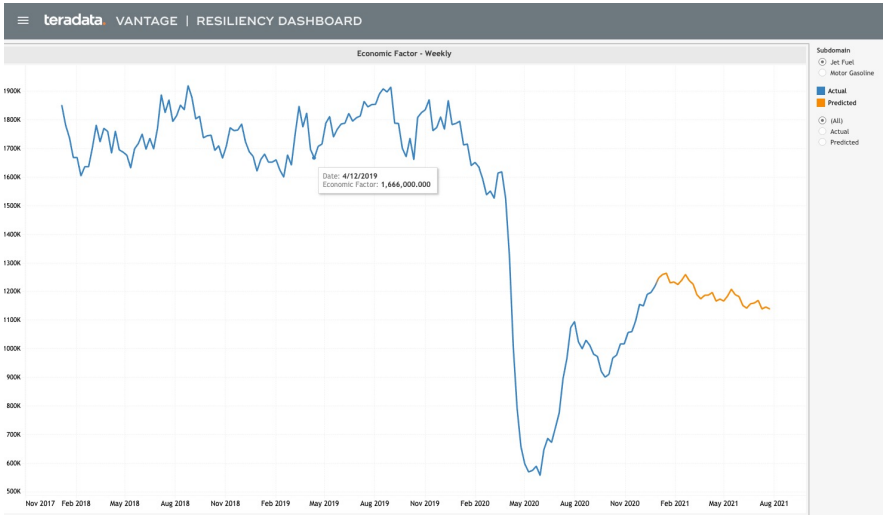
Predictive Modeling on Data

County-level cases and deaths



Economic factors



Blue indicates historical values, and orange represents Vantage-powered predictions

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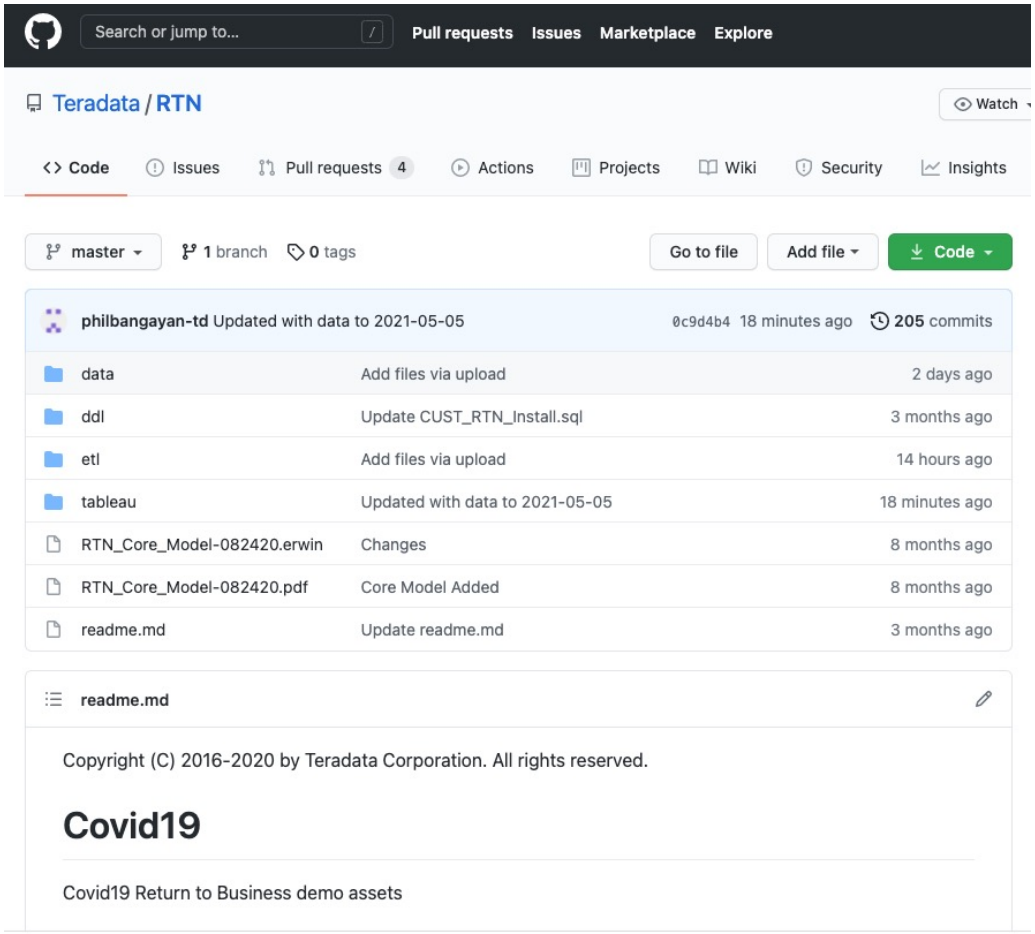
Doing Good

- Made all code and templates available for free on github
- Framework for others to make their own solutions
- Installed for free at over 30 Teradata clients



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Implementations

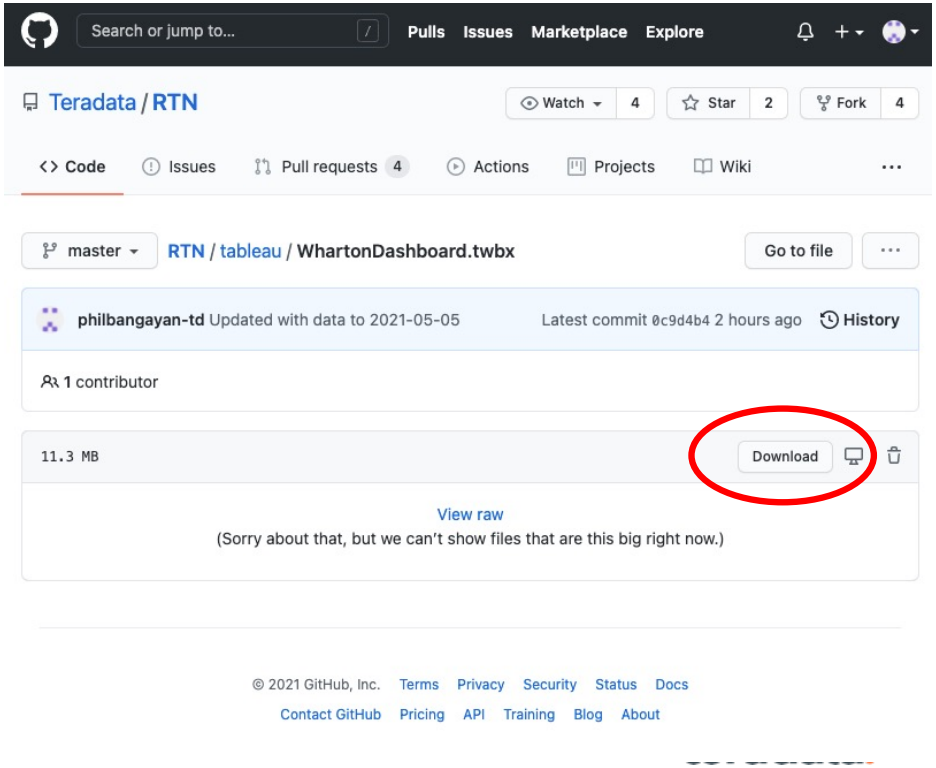
Source:
https://stock.adobe.com

Helping You

- What challenges does your industry face as a result of the current situation?
- How can utilizing publicly available health and behavioral information improve your decisions?
- Where can the themes of this solution help you?

Source:
https://stock.adobe.com

Hands On (Optional)

- Download Tableau Reader
  - https://www.tableau.com/products/reader

- Download Resiliency Dashboard
  - Main github site: https://github.com/Teradata/RTN
  - Click on Tableau folder
  - Select WhartonDashboard.twbx
  - Click on Download