

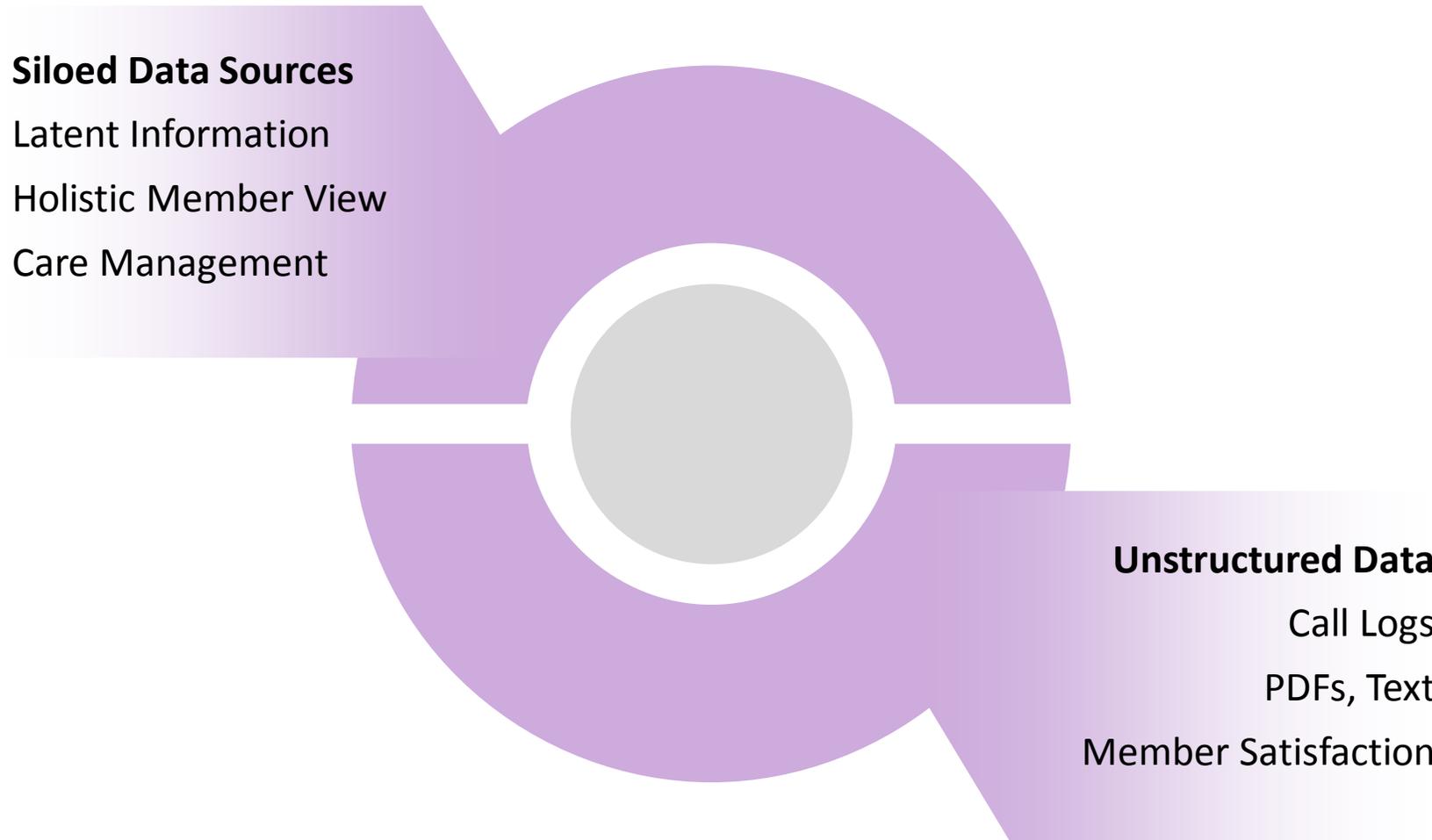


Aetna's Big Data Journey

Personalization

Alex Baldenko, PhD
Data Scientist

Big Data Opportunities



Siloed Data Sources

Latent Information

Holistic Member View

Care Management

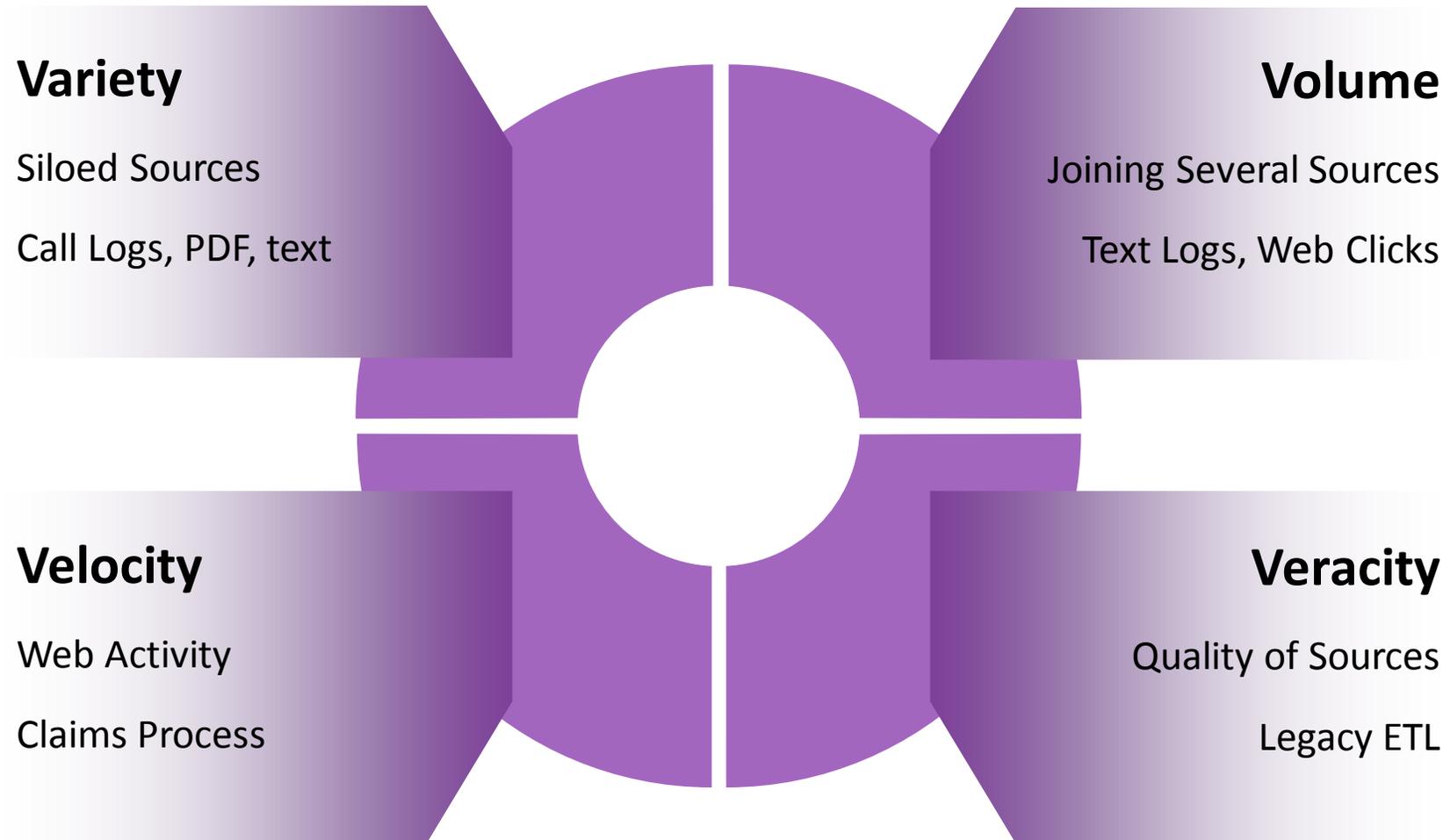
Unstructured Data

Call Logs

PDFs, Text

Member Satisfaction

Big Data Difficulties



Our Strategy

Machine Learning

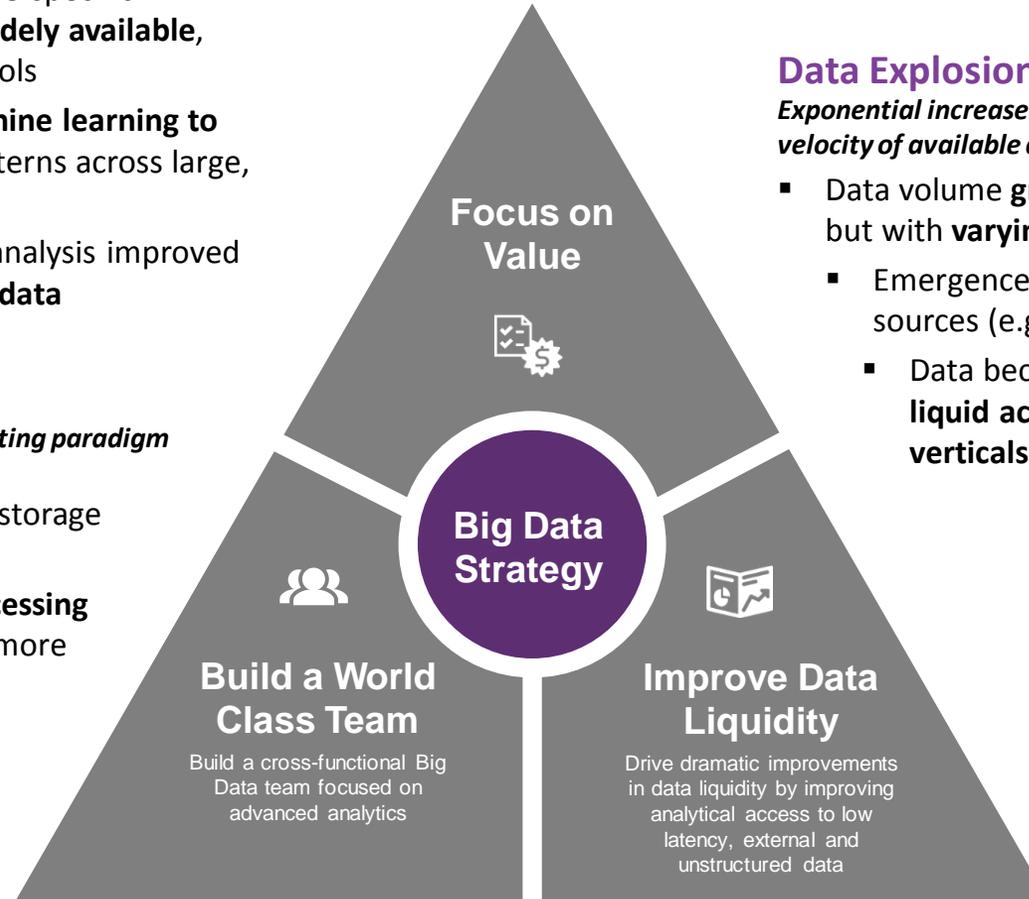
Democratization of arcane knowledge

- Formerly exotic discipline specific techniques are **more widely available**, often as open source tools
- **Rapid advances in machine learning** to identify and predict patterns across large, disparate data sources
- Depth and accuracy of analysis improved with **larger amounts of data**

Technology

Change in technology & computing paradigm

- **Relentless decrease** in storage and processing costs
- **Massively parallel processing** (MPP) enabling faster, more granular data-intensive analysis Commodity hardware and open source software **reducing barriers to entry**



Data Explosion

Exponential increase in volume, variety and velocity of available data

- Data volume **growing exponentially**, but with **varying quality**
- Emergence of **unstructured data** sources (e.g., text, video)
- Data becoming increasingly **liquid across industries and verticals**

Personalization

Data Science
Value Analytics

Select Rx and Location

Rx Code: REMICADE (J1745)

State: NY City: New York Zip Code: All

Providers Near Location

Grace C. Wright	office	New York, NY	\$45
New York Rx, Inc.	other	New York, NY	\$66
Jay B. Adlersberg	office	New York, NY	\$73
Beth Israel Pediatric Assoc	office	New York, NY	\$73
Joseph Felder	office	New York, NY	\$73
Adam Franklin Steinlauf	office	New York, NY	\$73
William Bover	office	New York, NY	\$74
Sara B. Kramer, MD	office	New York, NY	\$76
Jody Robert Twersky	office	New York, NY	\$76
Huachen Wei	office	New York, NY	\$76
Huachen Wei, MD	office	New York, NY	\$76
Paula J. Busse	office	New York, NY	\$76
Beth E. Corn	office	New York, NY	\$77
Elena Resnick	office	New York, NY	\$77
Henn University Physicians He.	facility	New York, NY	\$78
Raymond D. Pastore	office	New York, NY	\$78

Quick Search by Tax ...

Tax Identification Number: All

Rx Finder

Rx Finder
Specialty Rx Physician Finder

Aetna Marketplace

Welcome to the Plan Shopping App

If you are an Aetna member, enter your name below

Member Name:

Recommended Plan:

Silver

Old Plan Spending:

\$ 9000

Estimated New Plan Spending:

\$ 7125

Total Savings:

\$ 2675

Plan Recommender

Data Science
Marketing Analytics

Customer Segment: Micro Segment

Business Line Name: Commercial

Business Segment: Multiple Values

Plan Sponsor Name: All

Industry Code: Multiple Values

Generations: Multiple Values

Segmentation
Geographical

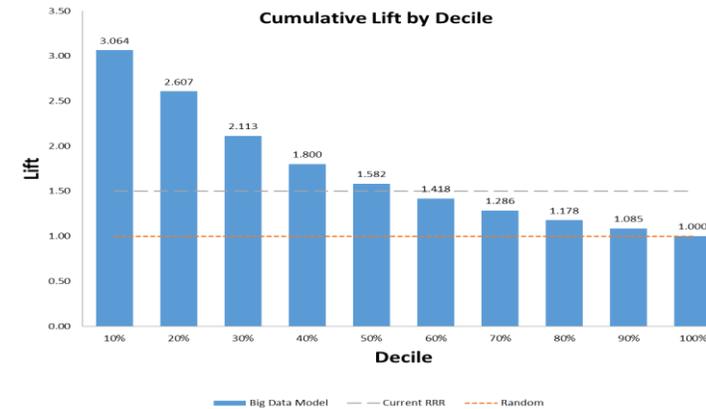
Segments Across the US

Profitability by County

Emergency Room Visits by County

Prospective Risk Score by County

Segmentation



Readmission Prediction