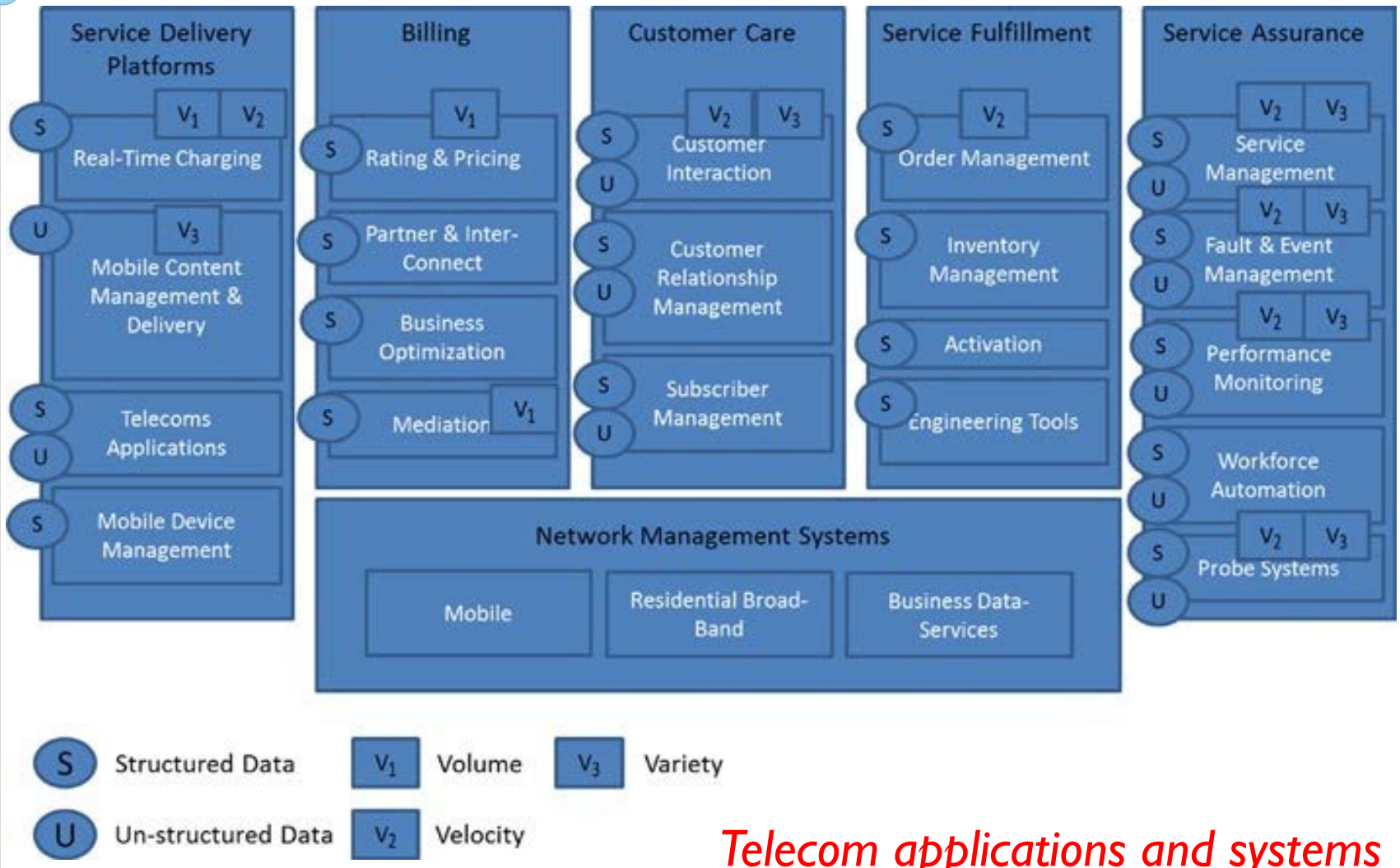
***Table 1-1.*** *Measuring Big Data*

| |
|---|
| 1000 Gigabytes (GB) = 1 Terabyte (TB) |
| 1000 Terabytes = 1 Petabyte (PB) |
| 1000 Petabytes = 1 Exabyte (EB) |
| 1000 Exabytes = 1 Zettabyte (ZB) |
| 1000 Zettabytes = 1 Yottabyte (YB) |

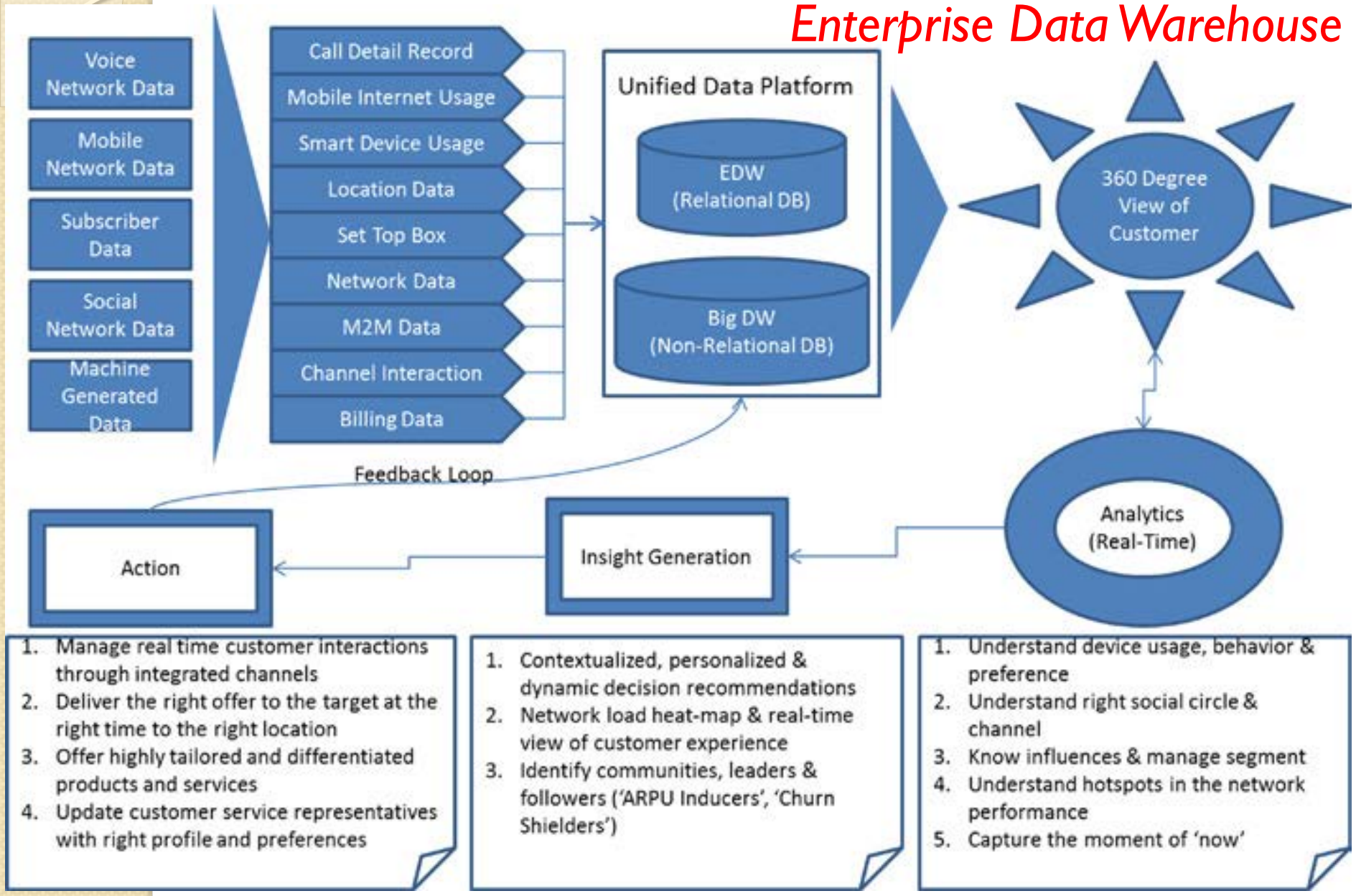
# Big Data Implications for Industry

Big Data Analytics for Telecom




*Telecom applications and systems*

# Enterprise Data Warehouse



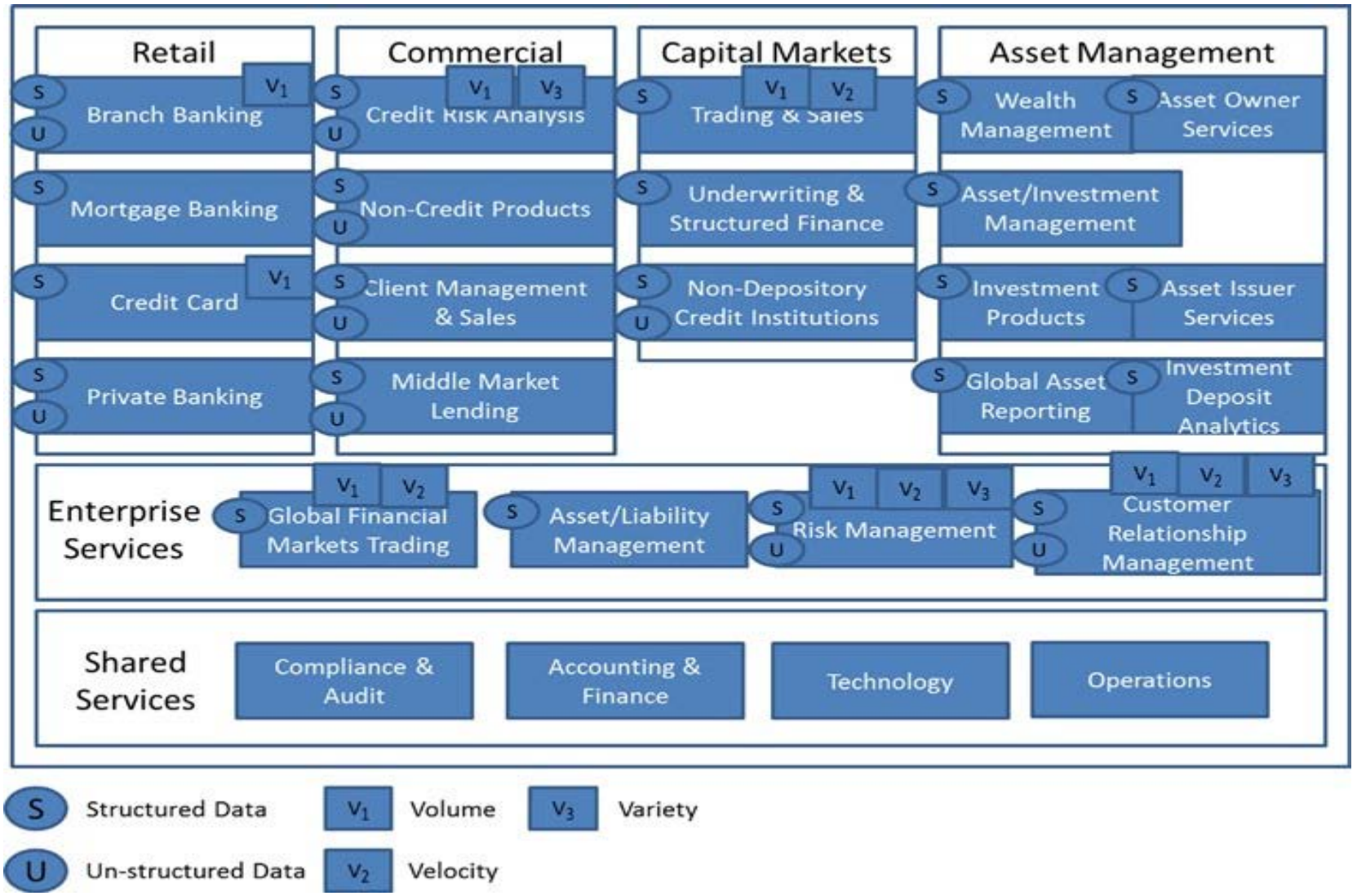

***Big data analytics platform to deliver a 360-degree view of the customer at real-time***

This enable operators to analyze and get better insight to network performance and quality of service from a customer's perspective and help them to take proactive measures :

- Which regions in my network had the most dropped calls in the past hour, day, week, and which of my customers were most affected? Are these customers profitable? Are they likely to churn?
- Is this a one-off scenario, or it is actually a trend? How can I prioritize where I should invest new capacity in my network, based on customer revenue and profitability?
- Which of the outages were due to handset problems, wireless coverage problems, or switch problems?
- Is my network performance breaching SLAs that have been agreed upon with certain customer segments? How can I prioritize the traffic of those customers in order to avoid SLA breach?

# Big Data Analytics for Banking

- Customer analytics use cases
- Fraud detection, risk analytics, credit scoring, and anti-money laundering are prime examples.




*Banking applications and systems*

**Next Best Action:** A recommendation engine that takes the bank's business priorities and the customer's needs comes up with a recommendation to cross-sell, up-sell, or provide a better service to the customer.

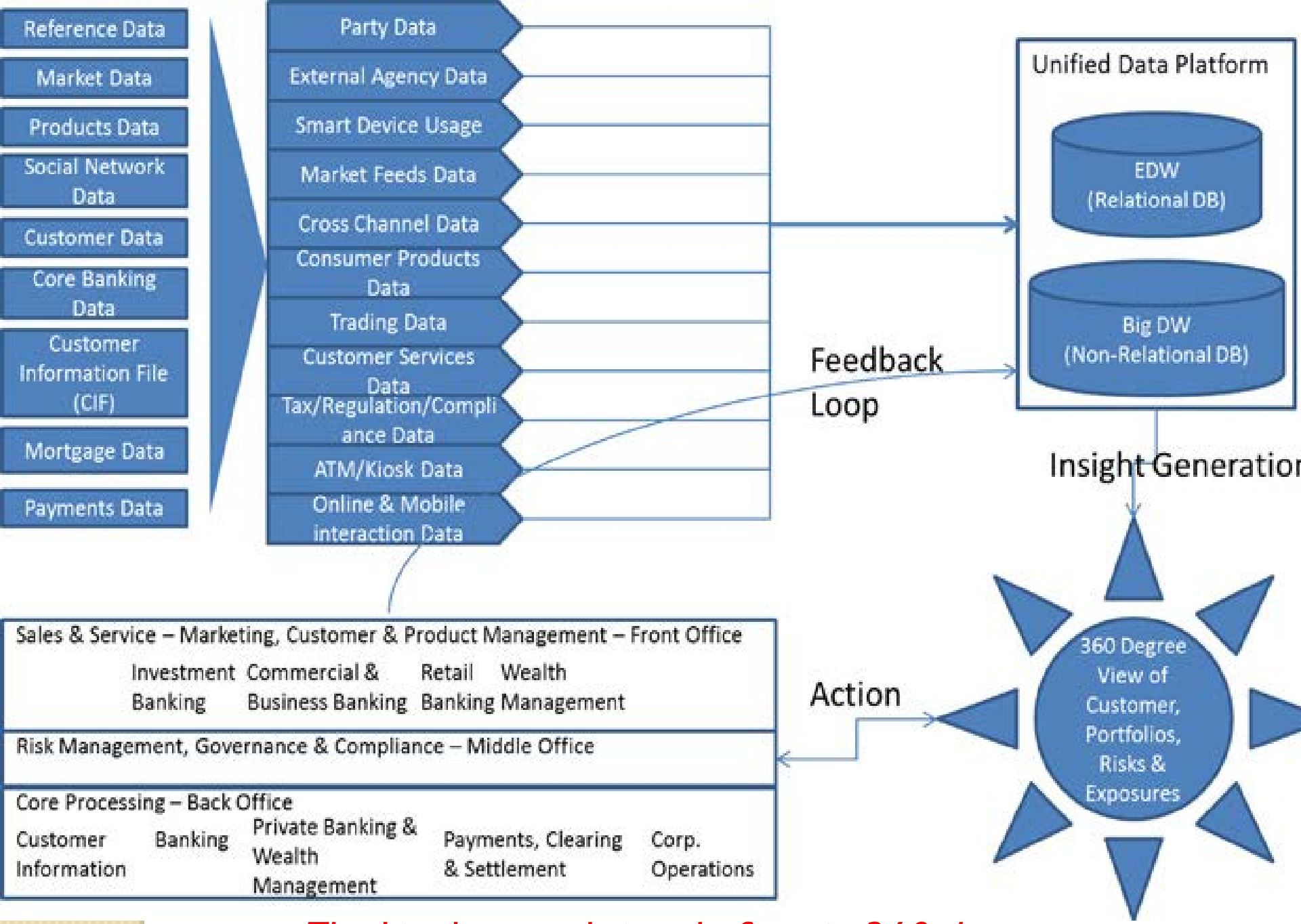
The recommendation engine should also consider what the right mode of interaction with the customer is. Based on customer's preferences and historical interaction data, the recommendation engine should advise optimal interaction medium: be it the branch, Web, contact center, ATM, or smart phone.

A big data and analytics platform enables the bank to collect and organize host of additional data such as customer preferences, behavior, interaction history, events and location-specific details, which banks have not previously leveraged, often because the technology to manage volume and variety of data was prohibitively costly.

**Predictive Analytics:** Banks have been pioneers in predictive analytics, applying statistical modeling techniques on historical data to predict what happens next. Notable examples are: *correlations, back-testing strategies, Monte-Carlo simulations*.

**Risk Management:** Better risk management is a critical function for banks, everything a bank has to offer (products or services), all revolve around risk. Thus the ability to accurately assess the risk profile of a potential customer or a loan is linked to bank's overall profitability.

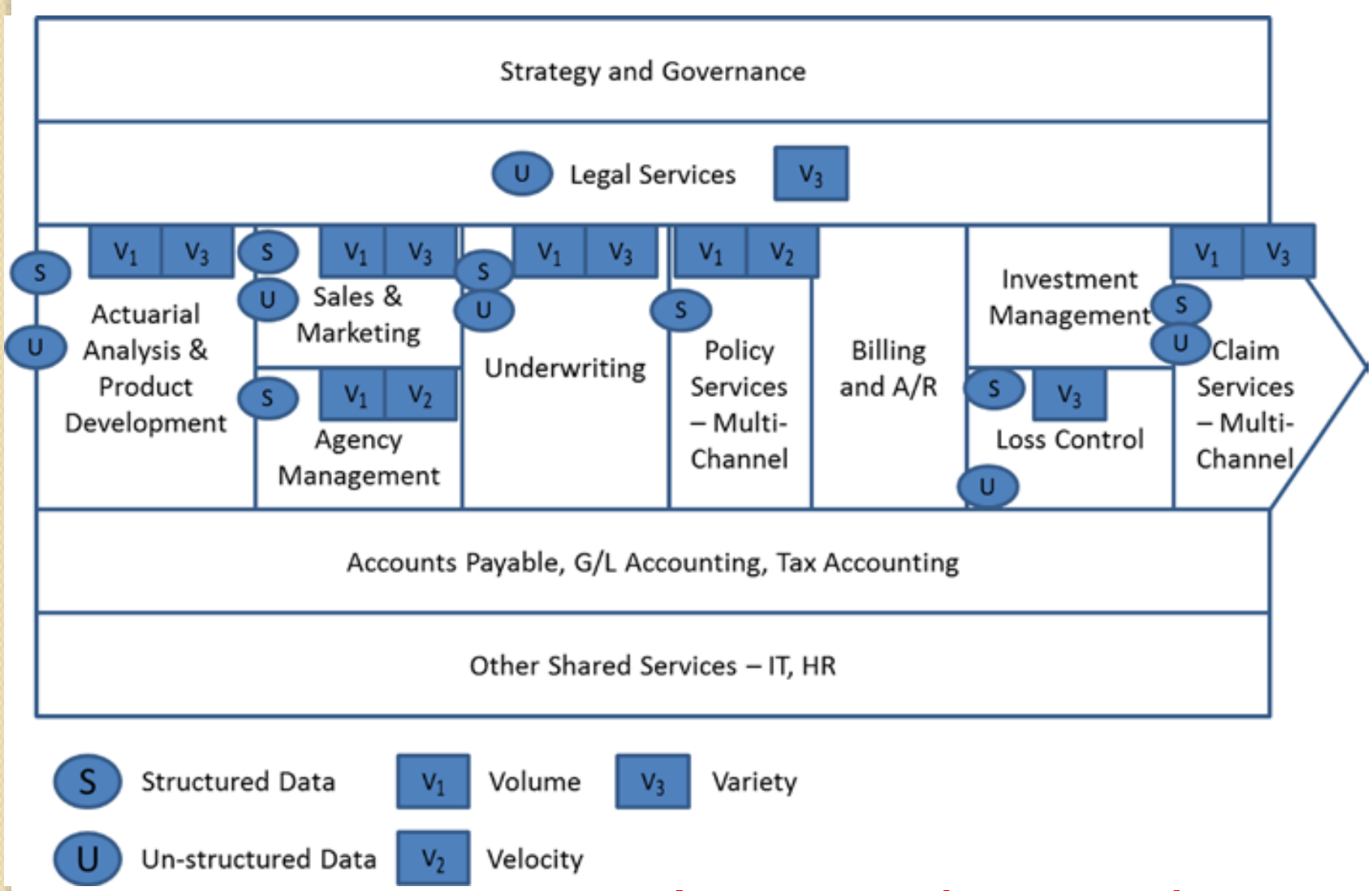
**Retail Banking:** Customer centricity is the key to the retail banking business. As retail banking functions are exploring innovative ways to offer new and targeted services to increase customer loyalty, it is increasingly becoming important to look at data sources and analytics capabilities beyond the customer's transactional data. Banks are now collecting and analyzing customer interaction data, location data, and preferences data to develop targeted service offerings with a greater level of sophistication and certainty




*The big data analytics platform in 360 degree*

# Big Data Analytics for Insurance

Insurers are actively pursuing analytics in three key areas (customer-centric, risk-centric, and finance-centric), combining internal customer information with new and non-traditional external data sources to provide more granular information of the perceptions and behavior of target audiences.




***Insurance applications and systems***

## Customer Centric

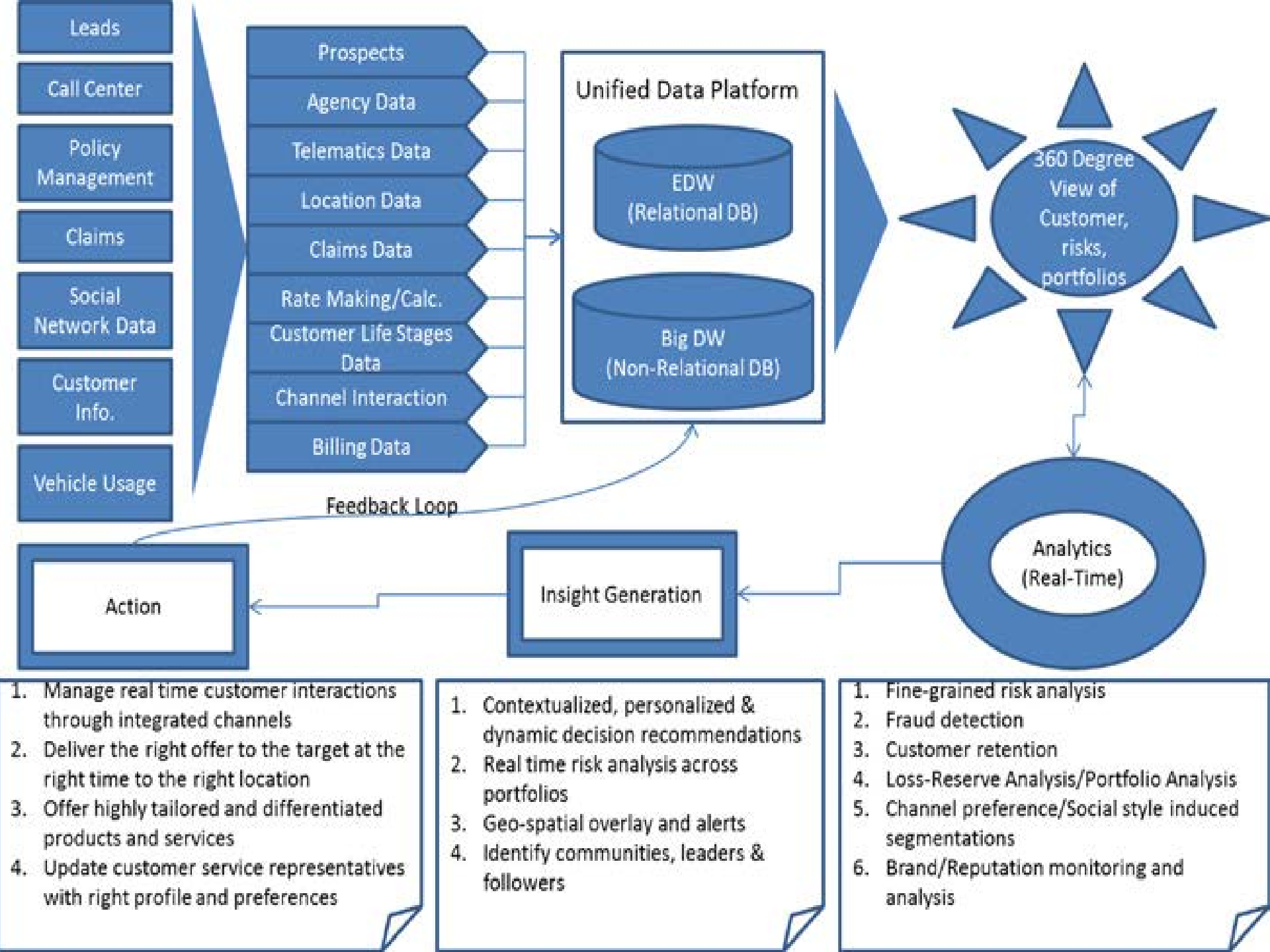
- Segmentation
- Prospect Identification
- Campaign Analysis
- Cross Sell/Up Sell
- Retention/Lapse
- Lifetime Value

## Risk Centric

- Product Design
- Pricing
- Underwriting
- Telematics
- CAT Modeling
- Fraud
- Reserving

## Finance Centric

- CAPM
- Asset/Liability Matching
- Portfolio Optimization
- Financial Modeling
- Econometric Modeling

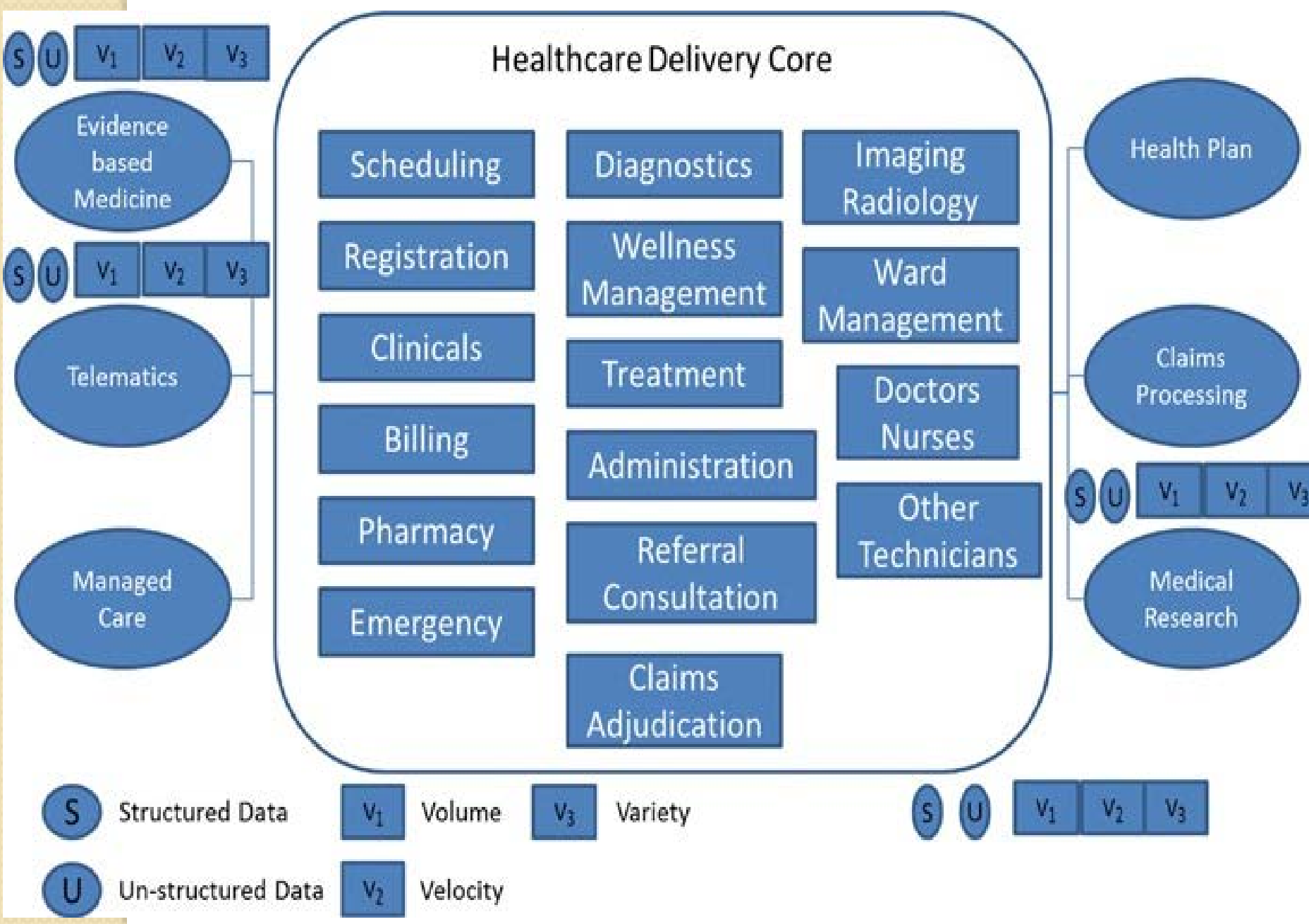

Leads
Call Center
Policy Management
Claims
Social Network Data
Customer Info.
Vehicle Usage
Prospects
Agency Data
Telematics Data
Location Data
Claims Data
Rate Making/Calc.
Customer Life Stages Data
Channel Interaction
Billing Data
Unified Data Platform
EDW (Relational DB)
Big DW (Non-Relational DB)
360 Degree View of Customer, risks, portfolios
Analytics (Real-Time)
Insight Generation
Action
Feedback Loop
1. Manage real time customer interactions through integrated channels
2. Deliver the right offer to the target at the right time to the right location
3. Offer highly tailored and differentiated products and services
4. Update customer service representatives with right profile and preferences
1. Contextualized, personalized & dynamic decision recommendations
2. Real time risk analysis across portfolios
3. Geo-spatial overlay and alerts
4. Identify communities, leaders & followers
1. Fine-grained risk analysis
2. Fraud detection
3. Customer retention
4. Loss-Reserve Analysis/Portfolio Analysis
5. Channel preference/Social style induced segmentations
6. Brand/Reputation monitoring and analysis

# Big Data Analytics for Health Care

- Many implications for patients, providers, researchers, payers, and other health-care constituents
- concerns around increasing cost of health care
- Options to reduce costs, boost outcomes, and improve treatment
- If all three parties (payer, provider, pharmaceutical company) work collaboratively and share data/insights, disease management programs will become cost-effective and deliver improved patient outcomes at a scale that will further optimize overall health-care cost structure.

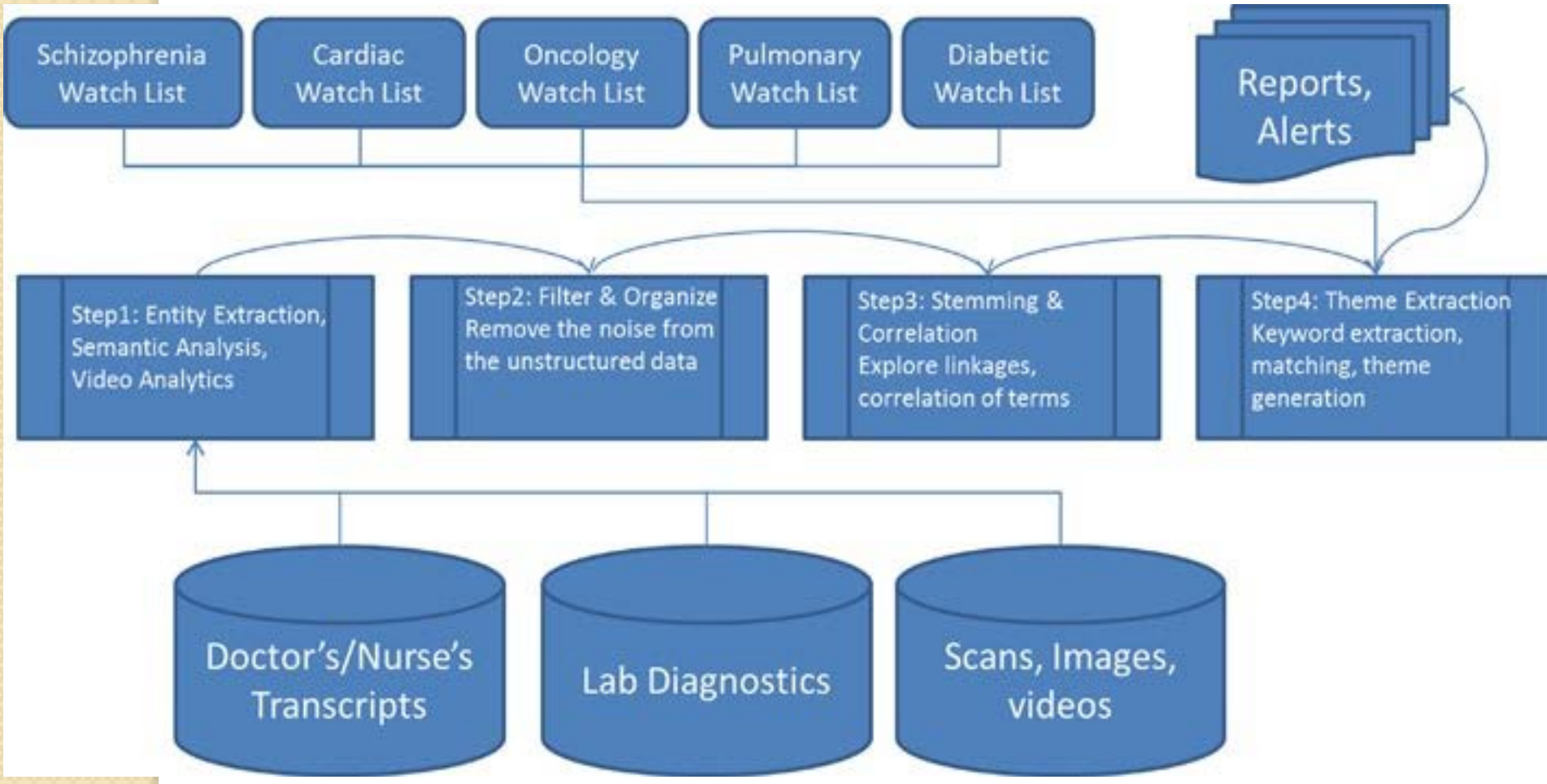
- make a sustainable difference.
- Providers bring the deep insight to a patient's health, • longitudinal view to the patient's disease progression, and hopefully some historical insight to a patient's past behavior in managing their health.
- Payers bring a comprehensive view to patient medical claims across providers, labs, pharmacies, etc. Additionally, they may have collected one or more health histories to proactively manage at-risk members.
- Although pharmaceutical companies do not bring individual patient data, they do bring a deep understanding of clinical trial data administered on patient populations from both primary and secondary market research studies.

# Healthcare applications and systems



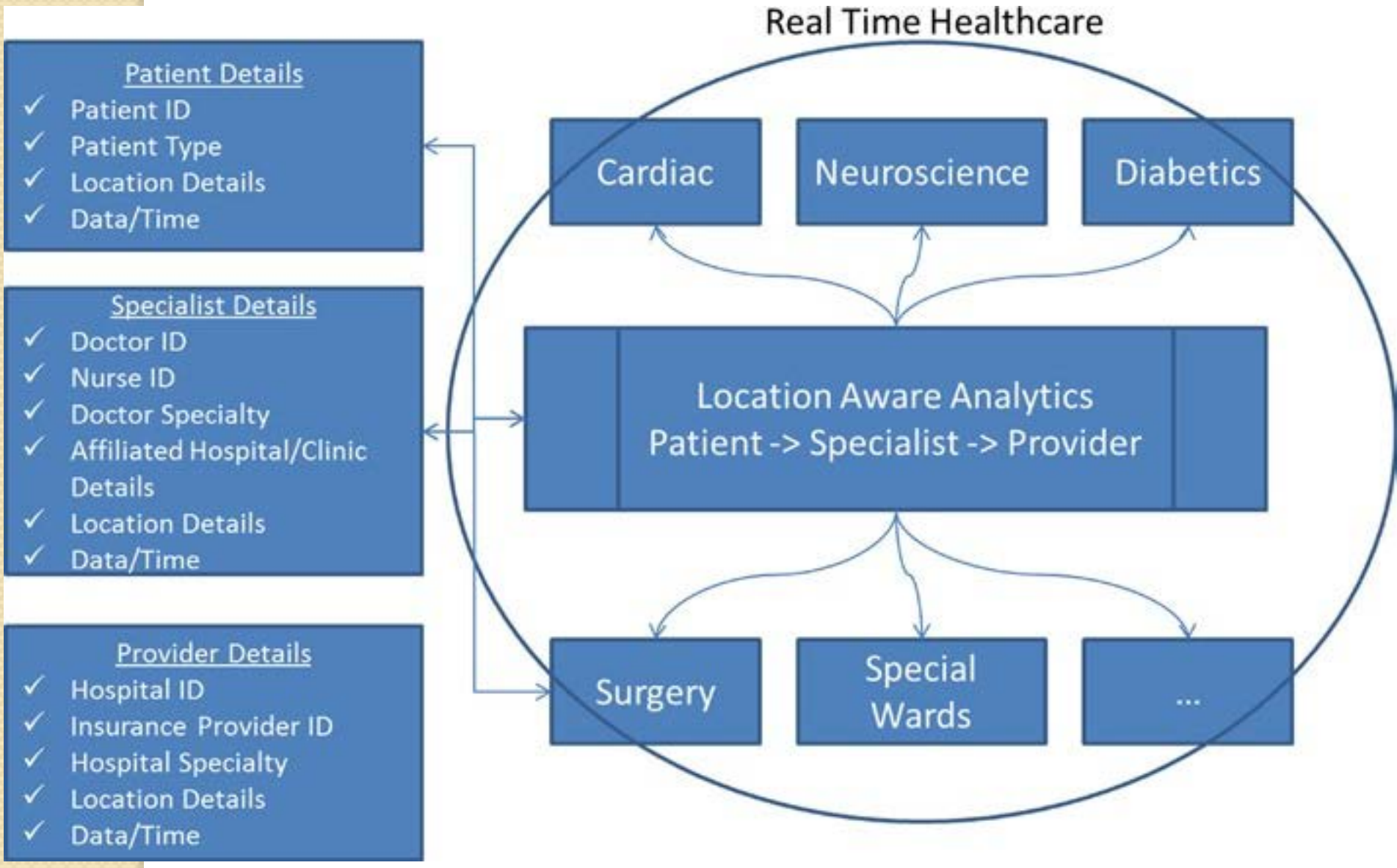
There are several other interesting health-care big data use cases that are emerging.

***Use case - 1: Keyword mining of doctor's/lab transcripts using text mining and co-relations to patient outcomes.***



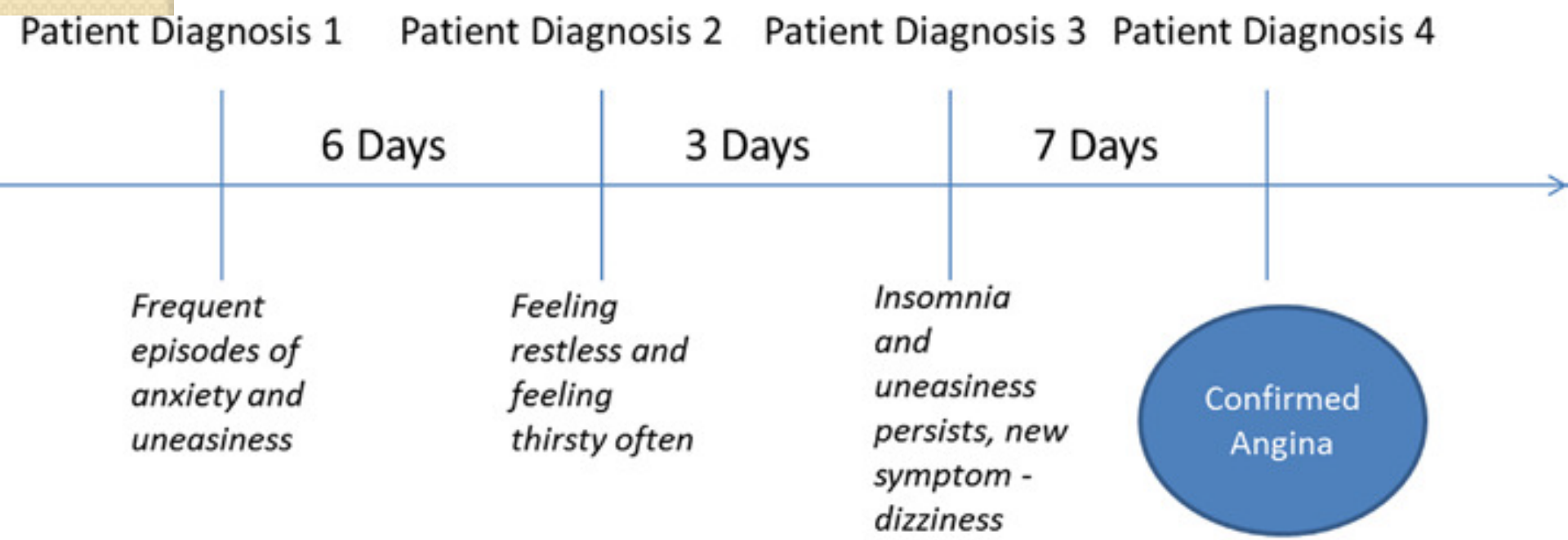

**Text mining and correlations to patient outcomes**

***Use case - 2: Location aware application analytics for enhancing customer experience and optimizing nurse/doctor deployment.***




**Location aware analytics application for optimal healthcare service**

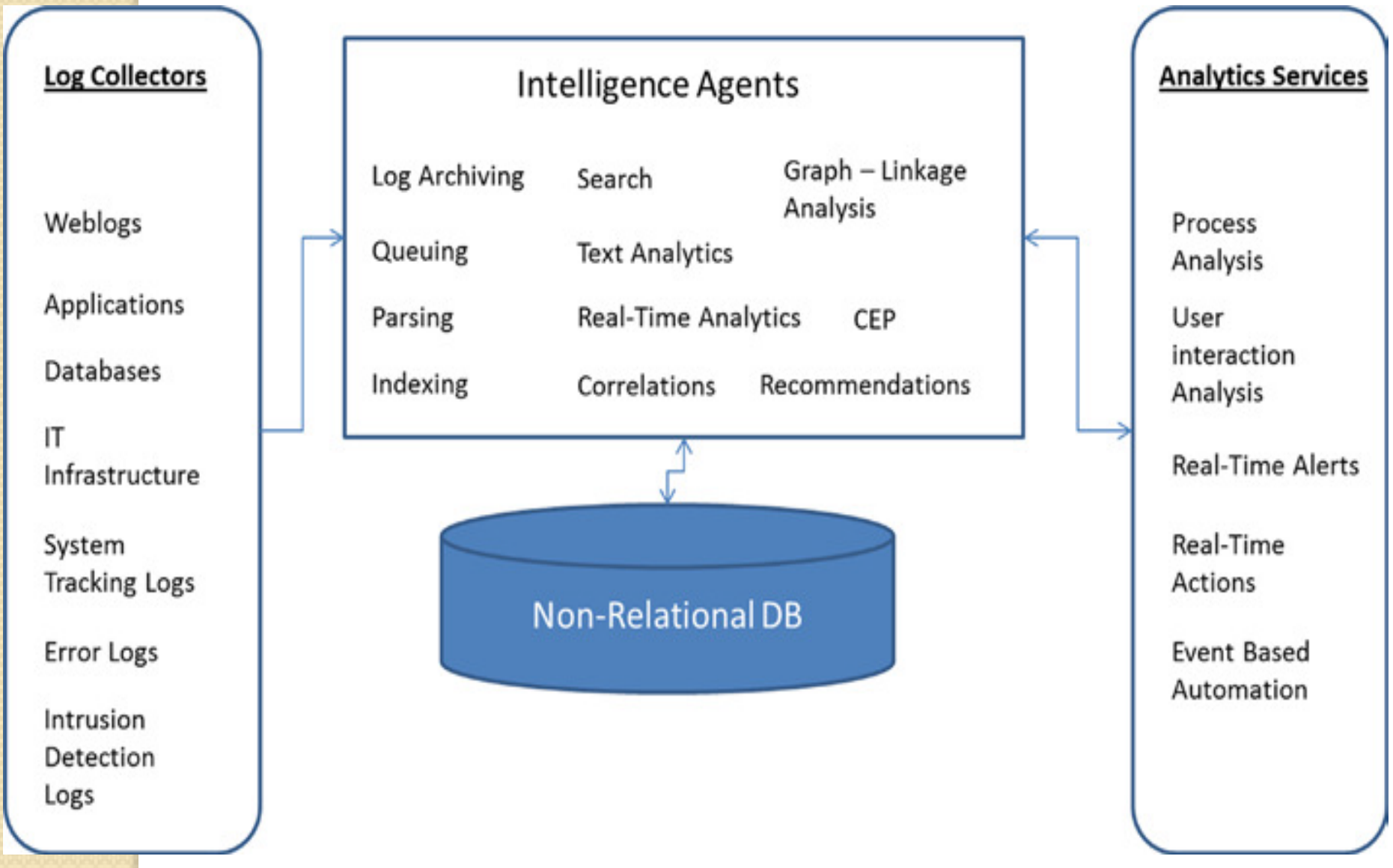
## *Use case - 3: Apriori sequence analysis to define new clinical pathways*




| Antecedent | Consequent | Lift | Support |
|---|---|---|---|
| Anxiety | BP Issue | 0.5992387 | 0.0001879 |
| Thirsty | Vitamin Deficiency | 0.5892134 | 0.0001976 |
| Insomnia | Angina | 0.3583213 | 0.0001890 |
| Restlessness | BP | 0.5874321 | 0.0000891 |
| Dizziness | Angina & BP | 0.8976123 | 0.0000090 |

**A priori analytics application for diagnosis and preventive actions**

# Big Data Analytics for IT/Operations




**Big data analytics platform for log analysis**

# Thank you