



CROSS INDUSTRY USE CASES OF BIG DATA ANALYTICS

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BIG DATA

The Hype



The 'always on-always connected' consumer has new expectations



Faster and faster "I want it quicker & I'm squeezing more into shorter periods of time"

My way "I want it my way and on my terms"

Quality new experiences "My expectations around experience keep getting higher & I look for new experiences to excite me"

Short attention span "Lots of things compete for my attention...so something has to stand out to draw me in"

Opinions Matter "I value people's opinion. I also have my own which deserve to be heard"

Blurred reality "I live in both the real and virtual worlds & these are increasingly intertwined"

Consumers generate an extraordinary trail of digital data every day.

In 2013 in 1 internet minute ...



The **challenge** is to continuously **listen** and piece together a **360 degree view** of how a customer **interacts across all touch points**, to interpret these signals, create **new insights** and take appropriate **actions**...increasingly in **real time**

Data is **diverse**...

which makes it difficult for most traditional technologies to enable capture, storage & analysis

Gartner's **3 V's** of **big data** ...



High **Volume** with an estimated 2.5 quintillion bytes of data created every day.

Comes in a **Variety** of formats...text strings, images, web logs, documents, numeric data etc. across a diversity of formats and sources.

This is data in motion, constantly changing high **Velocity** the relevance of which can decay rapidly

New world requires a **different approach**

- Un-aggregated, lowest level data
- Scalability
- Advanced analytics to enable 'discovery' & enable complex queries
- Ability to integrate heterogeneous data
- Fast, real time processing capability

Digital data is expected to double every 2 years and reach 40 trillion GB by 2020

2 broad categories of **Digital Data**

Created and consumed by consumers

e.g. watching digital TV, interacting with websites & social media, uploading and viewing photos/video, calling & texting through digital phone lines, using apps, sport monitors

Machine to Machine data e.g. video surveillance, subatomic collisions at CERN, healthcare/production/climate monitors, GPS, smart meters, satellite imaging, exploration

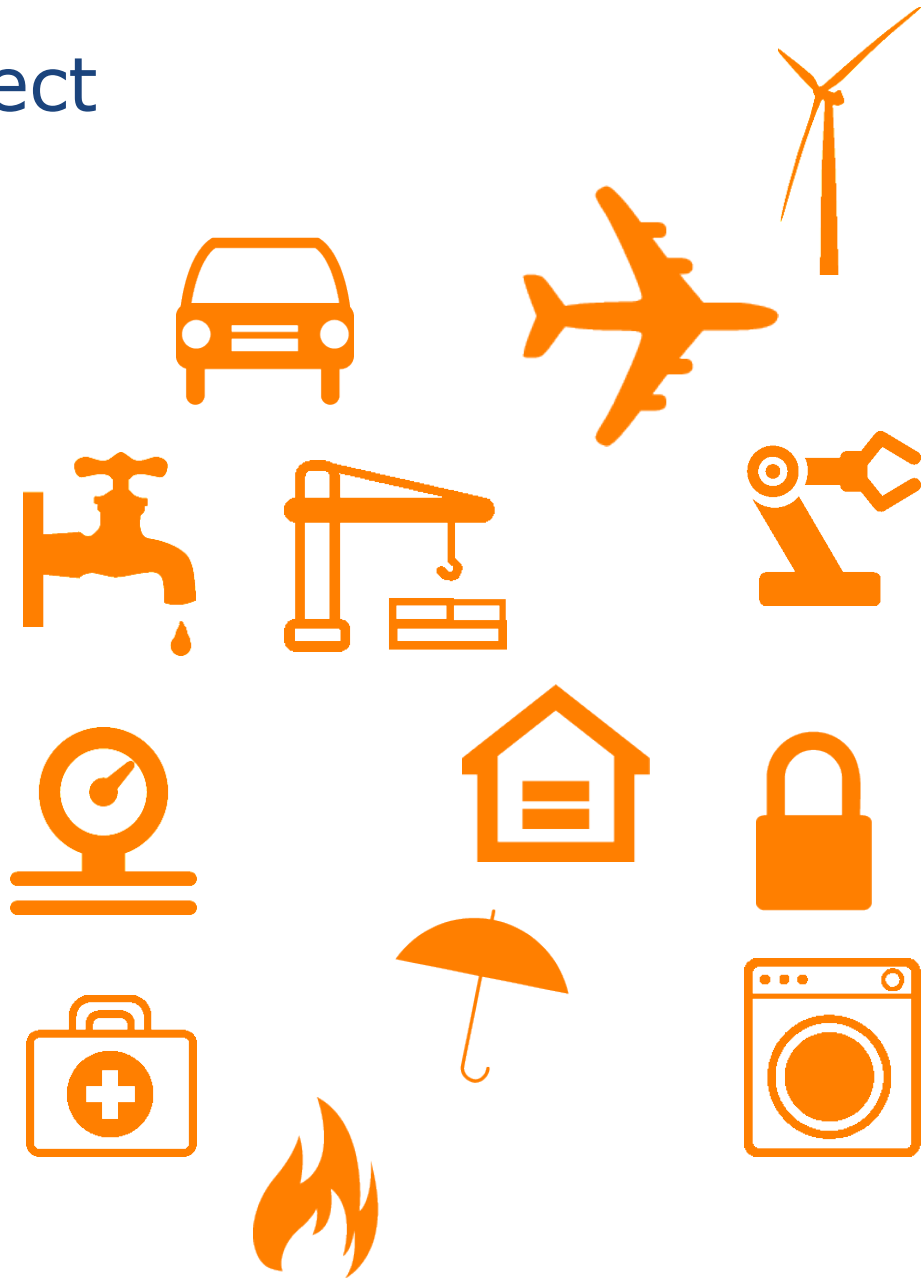
Digital data represents huge unfulfilled potential as only a small proportion is captured and analysed

The Data Sensors Collect

• Events generating data

- Vibration
- Temperature, humidity
- Wind speed, direction
- Air/liquid flow or pressure
- Location, navigation
- Tilt level, rotation
- Light, sound
- Radiation, chemicals
- Biological
 - Heart rate, blood pressure
 - Brain activity, chemicals
- Inventory, sales (RFID)

• Data format: JSON or proprietary



Shinagawa Station Vending Machines



Insurers Wake Up to Personal



BodyTel (blood pressure)



GlucoTel (blood sugar)



PillCam (digestive track)



iHealth Oximeter (pulse, oxygen)



Moticon (pressure, temp)



BodyGuardian
(cardio)

Retain “At Risk” Customers

Primary
Audience:
Marketing



Business Objective

Deploy relevant, personalized marketing campaigns to prevent “at risk” spenders from defecting

Challenges

- Large amounts of data – terabytes of data per day
- Numerous data sources and many different data types
- Analysis of customer behavior over time
- Granular and detailed analysis of high volumes of data negatively impacts performance
- Traditional techniques require time intensive coding

Solution

- Unified Data Architecture which includes Teradata Integrated data warehouse, Aster discovery platform and Hadoop
 - Pathing analysis with Discovery Platform to discover High Value customers migrating to unengaged
 - Perform further SQL analysis to discover trends and commonalities in events or purchase patterns of declining spenders
 - Fast, iterative analysis for business users

Opportunity to Impact

A 10% increase in retention results in a 30% increase in value of the company– *Bain & Co*

- Re-engage customers before they defect
- Increase retention and re-engagement of high value customers
- Decrease number of customers with declining engagement
- Grow incremental store and web traffic

Drive Conversion, Upsell and Cross Sell



Business Objective

Drive omni-channel shopper conversion, upsell and cross sell leveraging cross channel analytics

Challenges

- Analysis requires large sets of multi-structured, hard to gather online browsing data
- Data discovery can require specialized skills and long lead times to implement

Solution

- Unified Data Architecture enables omni-channel analytics to leverage a discovery platform to identify "path to conversion"
- Delivery of customer behavior analysis on all channels and at any level of granularity
- Fast, iterative analysis for business users

Business Impact

- Up to 300% ROI over 3 year period
- Reduction in cart abandonment rate as a result of targeted, timely offers
- More customer-relevant promotional up-sell and cross-sell
- Increased retention of high value customers
- Incremental store and digital traffic

Create Optimal Online Navigation and Merchandising Capabilities



Business Objective

▶ Improve digital content management and navigation and influence purchase behavior in a personalized and profitable way via click stream analysis

Challenges

- Large amounts of data – petabytes per day
- Real time customer interaction required on-line
- Digital and mobile experience is generic and content and recommendations must be personalized to add value

Solution

▶ Click Stream with Unified Data Architecture.

▶ Identify product associations with next click, search pathing, basket and affinity analysis at any level of granularity. Frequently review and update paths and basket analysis to insure online recommendations are current and applicable.

Opportunity to Impact

- Example:
 - Retailer with \$4B on-line revenue and \$53B store revenue
 - 2-3% sales increase on-line; .25% sales increase in stores
 - Increase conversion, UPT and basket size

Many to Many Affinity Analysis in Brick and Mortar Retailers

Category Management
Marketing
Merchandising
IT



Business Objective

- Drive cross sell and up sell of products with affinity analysis by customer segments

Challenges

- Large amounts of detailed data – *billions of records per month*
- Granular analysis not possible due to slow performance
- Traditional techniques require manual and time intensive coding
- Merchants do not have access to affinities when creating ads

Solution

- Affinity Analysis leverages the Unified Data Architecture (Big Data), including the discovery platform
- Perform many to many and one to many affinity analysis by customer segments at any level of granularity
- Fast, detail analysis to explore data relationships not easily done within a typical Analytical Platform

Opportunity to Impact

- More customer relevant promotional up-sell and cross-sell
- Increase retention and loyalty of high value customers
- Grow traffic in store and on the web
- Collaborate with vendors to optimize promotional events

Optimize Lane Capacity



Business Objective

Optimize line haul capacity between the origin & destination movement of cargo.

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Challenges

The growing number of transactions/interactions occurring via a carrier's on-line portal provides a rich source of insights regarding demand and shipper behavior but difficult to access and analyze.

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Solution

A platform which enables discovery analytics on-line portal data (ex web logs) to identify shipping demand and then integrated with network (TMS) cargo data to will expose the under-utilized lane opportunities.

Opportunity to Impact

- Reduce by 1 – 2 basis points from the industry average 7% - 12% empty miles
- Improve pricing sensitivity models to optimize capacity and operating margin down to the lane level detail
- Align sales & marketing efforts to optimize operational support

Restaurant Operational Analytics



Business Objective

- Optimize **sales** potential (*regular & promo*) and lower **costs** (*waste / labor*) through effective operational analytics

Challenges

- Large multi-national restaurant chains generate a **large volume** of POS data on a daily basis (*10 million – 70 million transactions per day*)
- Transactional data in EDW is often **summarized** and **missing** critical data elements (*time stamp, payment type, keystroke data*)

Solution

- Discovery environment to analyze massive volume of **raw XML** data to identify operational opportunities
- **Pattern analysis** to understand production requirements to meet peak demand
- **Path analysis** to identify key customer patterns in restaurant and drive thru during peak and promotional periods

Opportunity to Impact

- Increases sales and guest counts through efficiency improvements at front counter and drive thru. Up to **50 to 200** basis point improvement
- Labor efficiency / optimization through proper staffing to meet anticipated demand
- Lower waste (up to **25 to 50** basis points) through better predictive product demand

Forecasting Prescription Demand



Business Objective

Identify key drivers that impact pharmacy inventory demand by identifying event patterns that influence payor, prescriber and patient's timing of prescription refills

Challenges

Combining structured POS data with massive volumes of semi-structured and unstructured data to identify the impact of benefit coverage; prescriber's treatment selection; treatment effects; and patient's behavior on drug product demand

Solution

Quickly identify how aggregations of factors across time influence product selection to produce the likeliest refill rates and for each pharmacy location. Timely intervention to maximize sales and address patient-loss threats before they result in over stocks

Opportunity to Impact

- \$200B in prescriptions are not filled on an annual basis; and average \$5M annually for the average pharmacy
- 10% of an average pharmacies inventory is overstocked
- Accurately predict drug demand to increase inventory productivity
- Identify and apply risk factors that could delay or eliminate patient refills to improve accuracy of forecasting inventory demand

Online Sales Conversion Optimization – Airline



Business Objective

- Drive incremental customer bookings by analyzing online page design and user experience through A/B testing to optimize website presence

Challenges

- Requires large amounts of data types including, clickstreams, social network data, advertising logs.
- Traditional techniques are difficult requiring manual and time intensive coding

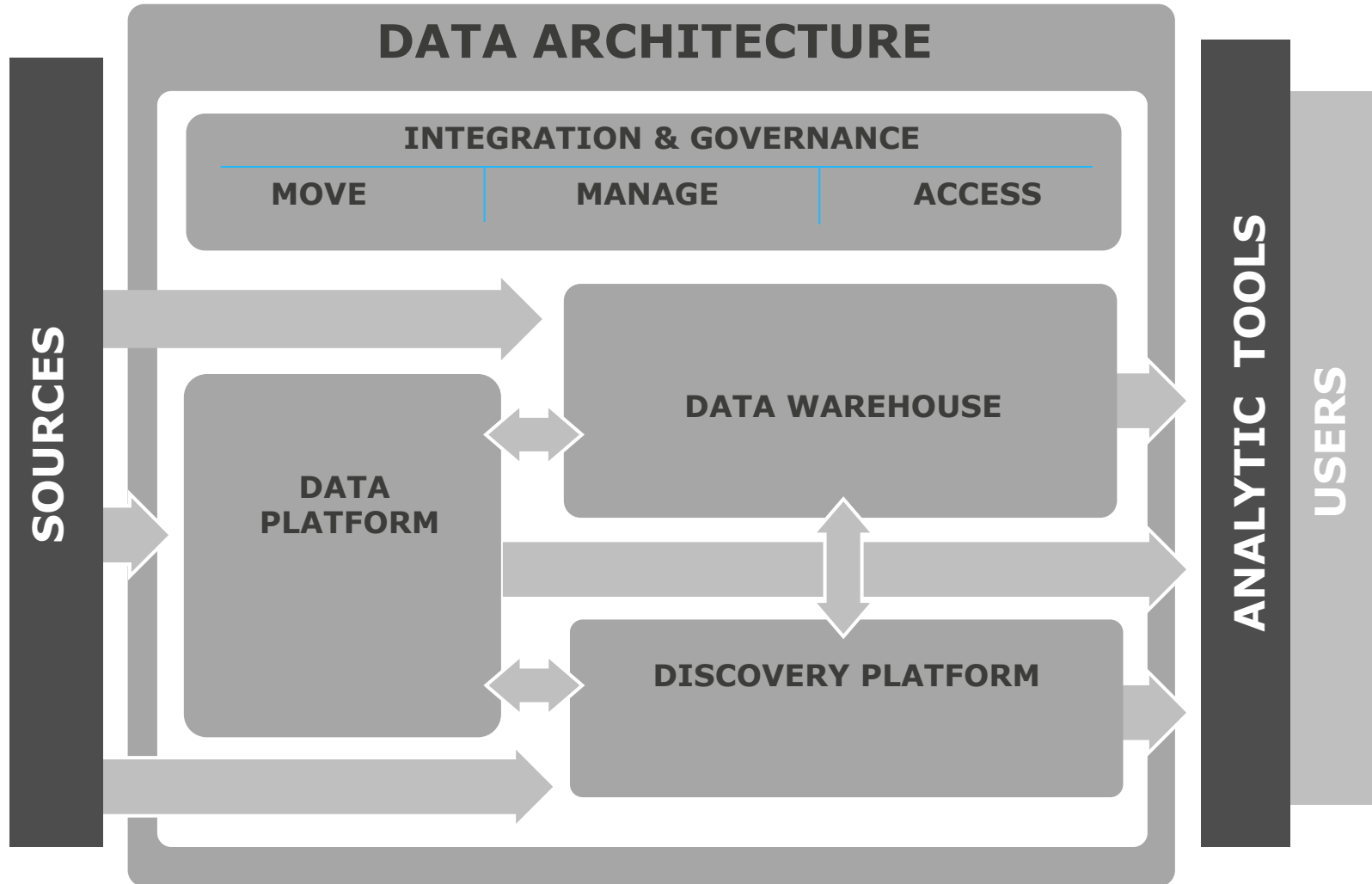
Solution

- Unified Data Architecture that includes storage, preprocessing, a discovery platform, and an integrated data warehouse.
- Utilize visual nPath for Pattern Matching to uncover insights.

Opportunity to Impact

- Find new channels that leads to new visits and incremental sales
- Increase conversions: from “look to book”
- Provide a foundation for better promotional upsell and cross-sell opportunities
- For new visitors (non-members) who convert, expand follow up opportunities including acquisition of new members into the frequent flier programs

BIG Data Architecture



Never Bring a Knife to a Gunfight



Questions

TERADATA®

Presentation: Objectives

Case Studies:

examine case studies, success stories, and adoption and user challenges

Focus Area:

Big Data Analytics

Discussion:

- *Pakistan's status on business analytics adoption*
- *Regional trends*
- *How to develop an effective strategy for business intelligence, performance management, and analytics*
- *Roadmap and landmarks for adoption of business analytics*
- *Future direction of business analytics*

Panelists



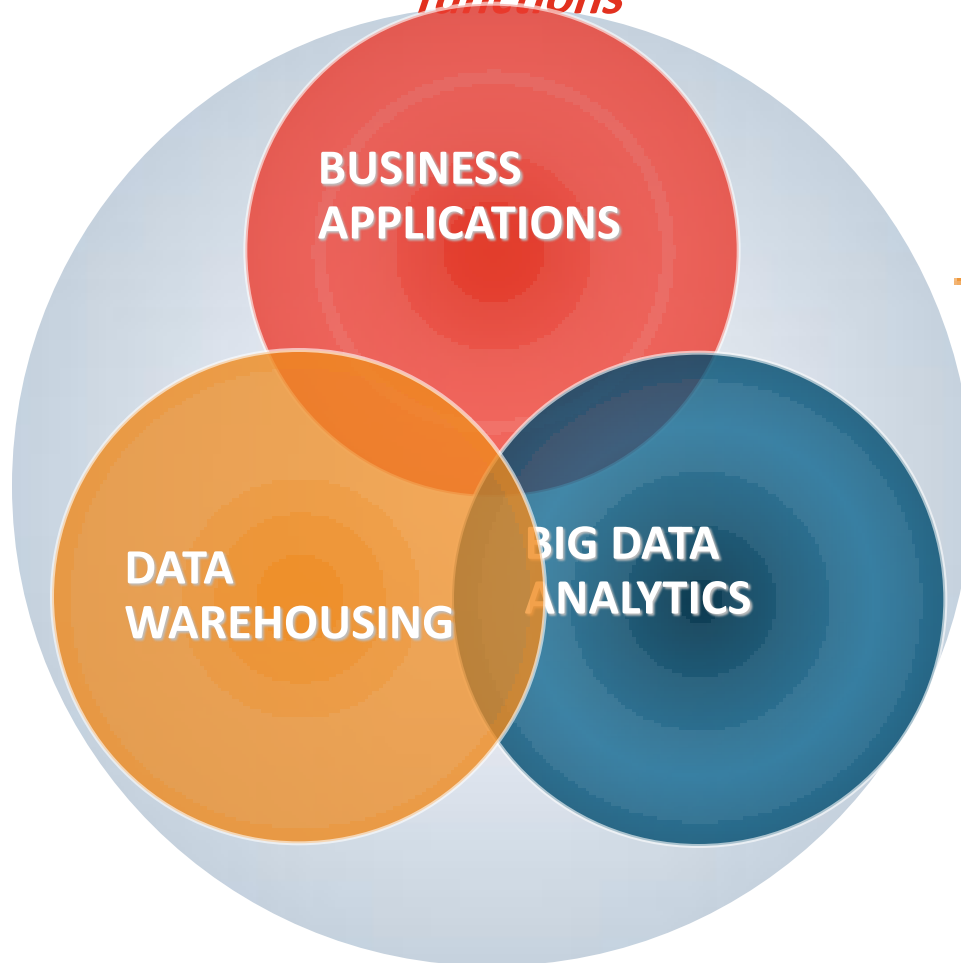
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Teradata Solutions

Applications that utilize the data and insight to address key business functions



TERADATA.
Integrated data foundation for competing on analytics

TERADATA. ASTER

Technology and solutions to drive greater insights from new forms of data (exploding volumes and largely untapped)

CONCLUSION

TERADATA

THE BEST
DECISION
POSSIBLE

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