

Key to Solutions 2014

Generation Z

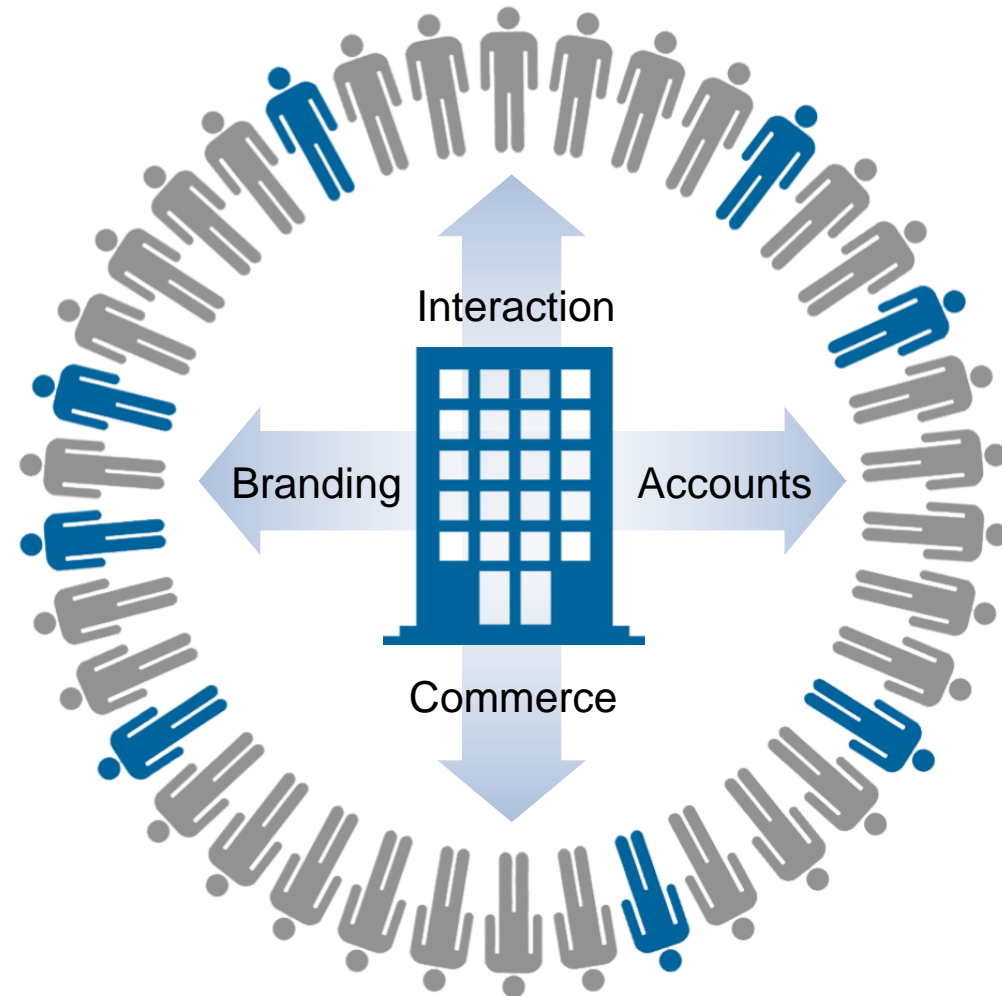
Namik Hrle
IBM Fellow



The Business Relationship Has Fundamentally Changed



Then: “I have an offer – let me find a customer I can sell to”



Now: “I have a customer – what does she/he, *individually*, need most?”



Customer experience is the competitive advantage for top-line growth

Demographic of One and Individual Enterprise



Demanding and connected customers

Brands built and destroyed in days

Great relationships trump great products



Telecommunications

Transforming their use of network data into new revenue streams

Electronic Retailing

Disrupted by social media, networks and mobile commerce

Political Campaigns

Game changing targeting and recruitment of individual voters

*Business models are constantly challenged
Not changing is the same as losing*

Advances in technology and computing intelligence are ushering in a new era



Cognitive Systems

Programmable Systems

Tabulating Systems



Social, Mobile, Cloud
Big Data & Analytics

World Wide Web
eBusiness

Client Server
PCs

Back Office
Computing

1900s

60s

80s

90s

2010s

Three Shifts in the Industry

Data is becoming the world's new natural resource

500 million DVDs worth of data is generated daily

1 trillion connected objects and devices by 2025

80% of the world's data is unstructured

The emergence of cloud is transforming IT and business processes into digital services

85% of new software is being built for cloud

25% of the world's applications will be available in the cloud by 2016

72% of developers say cloud-based services or APIs are central to the applications they are designing

Social, mobile and access to data are changing how individuals are understood and engaged

80% of individuals are willing to trade their information for a personalized offering

84% of millennials say social and user-generated content has an influence on what they buy

5 minutes: response time users expect once they have contacted a company via social media



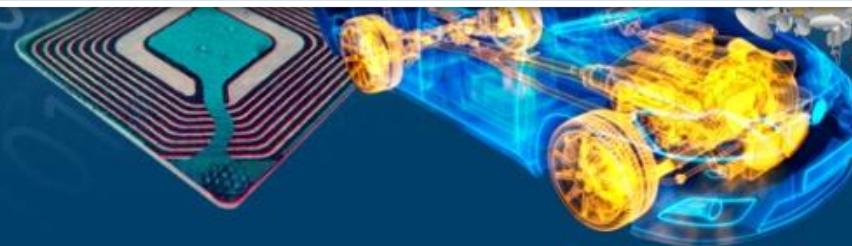
Cloud Computing

Big Data is the next Natural Resource

“We have for the first time an economy based on a key resource (Information) that is not only renewable, but self-generating.

Running out of it is not a problem, but drowning in it is.”

— John Naisbitt



Internet of Things

Big Data is All Data and All Paradigms

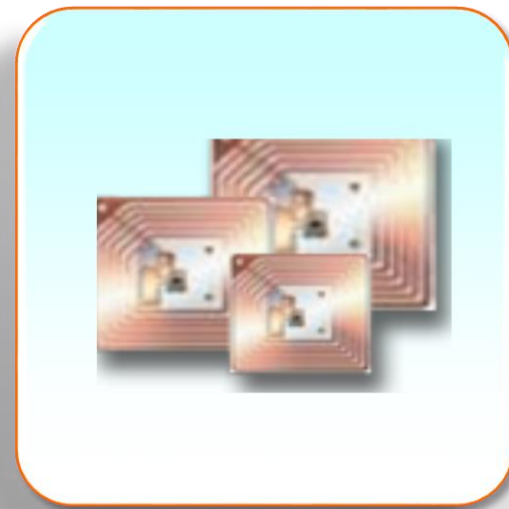


Transactional & Application Data



- Volume
- Structured
- Throughput

Machine Data



- Velocity
- Structured
- Ingestion

Social Data



- Variety
- Unstructured
- Veracity

Enterprise Content



- Variety
- Unstructured
- Volume

Every Industry can Leverage Big Data and Analytics



Banking

- Optimizing Offers and Cross-sell
- Customer Service and Call Center Efficiency



Insurance

- 360° View of Domain or Subject
- Catastrophe Modeling
- Fraud & Abuse



Telco

- Pro-active Call Center
- Network Analytics
- Location Based Services



Energy & Utilities

- Smart Meter Analytics
- Distribution Load Forecasting/Scheduling
- Condition Based Maintenance



Media & Entertainment

- Business process transformation
- Audience & Marketing Optimization



Retail

- Actionable Customer Insight
- Merchandise Optimization
- Dynamic Pricing



Travel & Transport

- Customer Analytics & Loyalty Marketing
- Predictive Maintenance Analytics



Consumer Products

- Shelf Availability
- Promotional Spend Optimization
- Merchandising Compliance



Government

- Civilian Services
- Defense & Intelligence
- Tax & Treasury Services



Healthcare

- Measure & Act on Population Health Outcomes
- Engage Consumers in their Healthcare



Automotive

- Advanced Condition Monitoring
- Data Warehouse Optimization



Chemical & Petroleum

- Operational Surveillance, Analysis & Optimization
- Data Warehouse Consolidation, Integration & Augmentation



Aerospace & Defense

- Uniform Information Access Platform
- Data Warehouse Optimization



Electronics

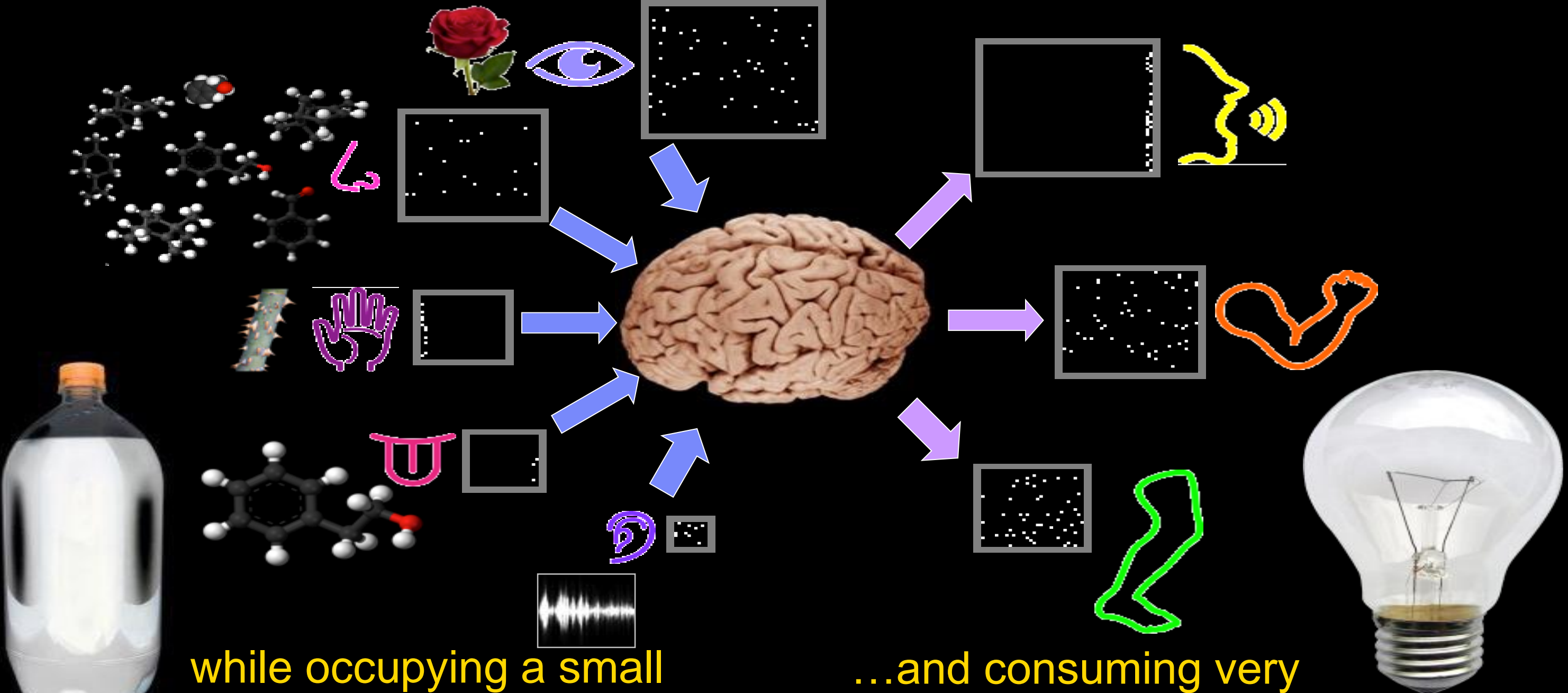
- Customer/ Channel Analytics
- Advanced Condition Monitoring



Life Sciences

- Increase visibility into drug safety and effectiveness

The brain is very good at integrating and co-ordinating multiple sensory inputs and motor outputs...



while occupying a small volume...

...and consuming very little power

Computers and the Brain: Different & Complementary



~5 GHz, sequential, linear,
clocked

10 Hz, parallel, high fanout,
event-driven

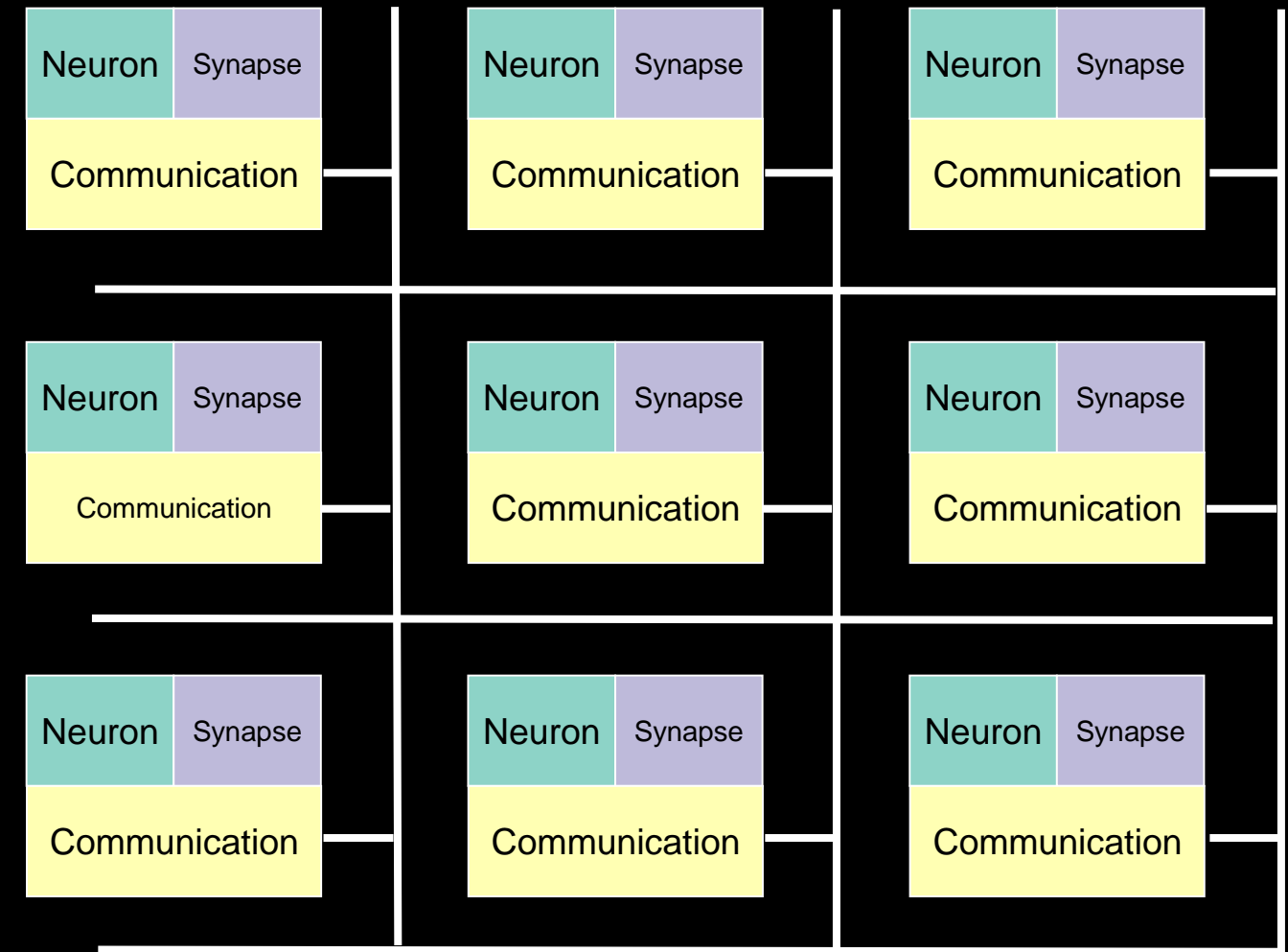
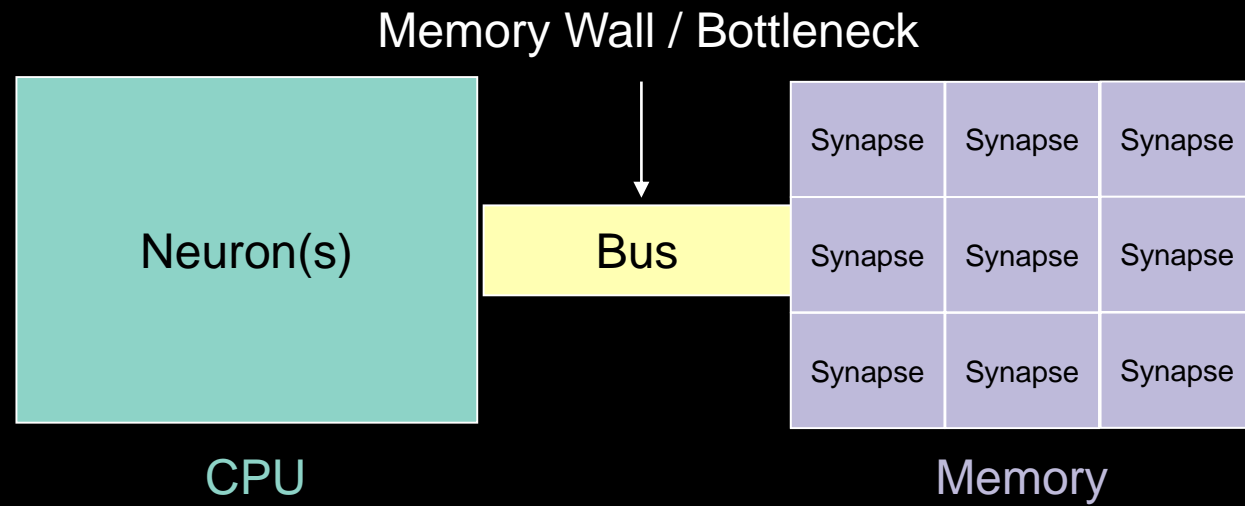
Separates memory,
computation, communication

Integrates memory,
computation, communication

100 W/cm²

10 mW/cm²

von Neumann versus TrueNorth for Brain-like Computation



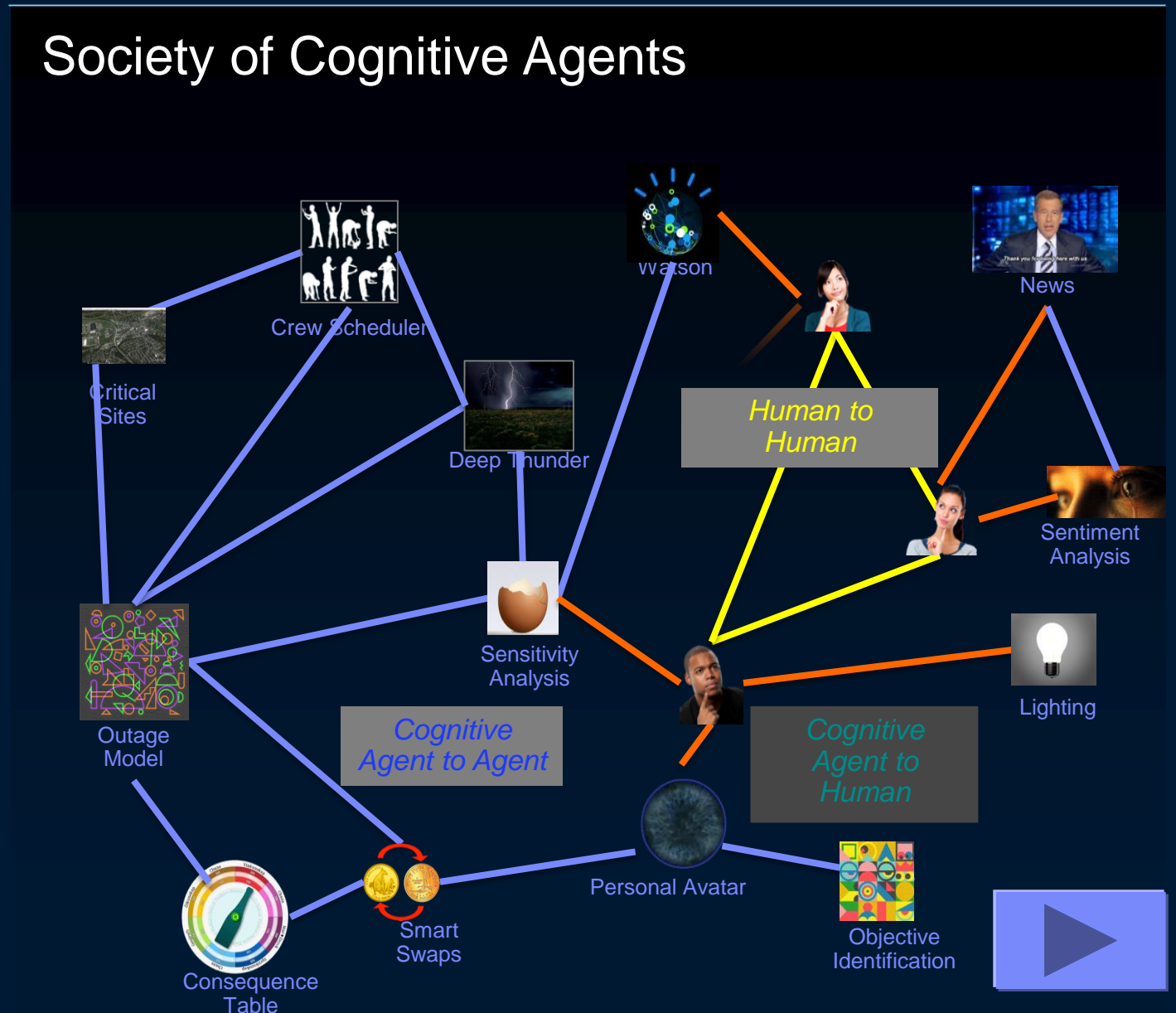
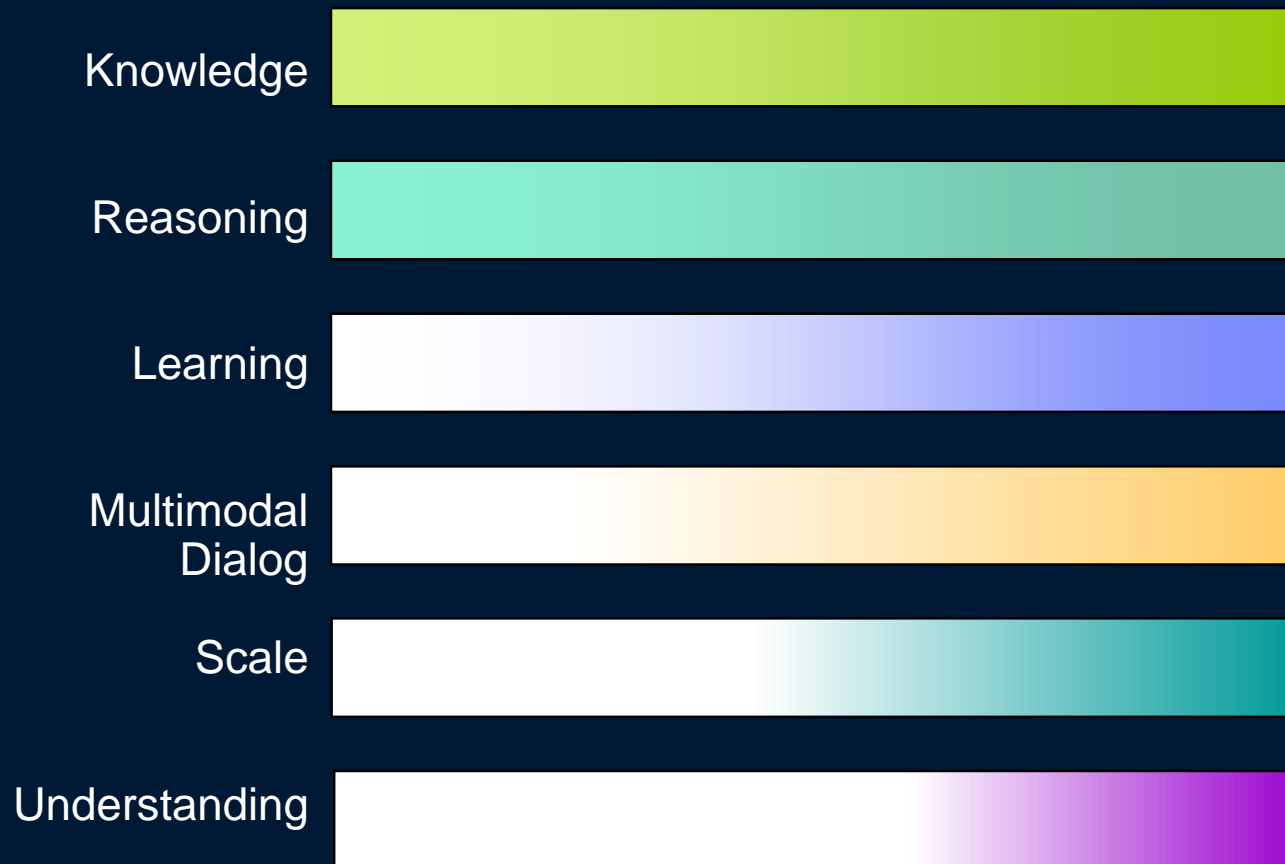
Watson Has Become the Engine of Systems of Insight



Watson 1.0

Watson 2.0

Watson n



New Categories of Systems

Systems of engagement



Systems of insight



Systems of record



What is Business Critical Analytics?



- An analytics application that is tightly integrated with transaction systems and critical to the optimal running of a business
- Make decisions and deliver business insight based on real time or near real time data
- Failure of these analytics applications for any length of time can result in lost business
- Typically support a large concurrent user population with high volume of requests



Preventing Fraud



Reducing Customer Churn



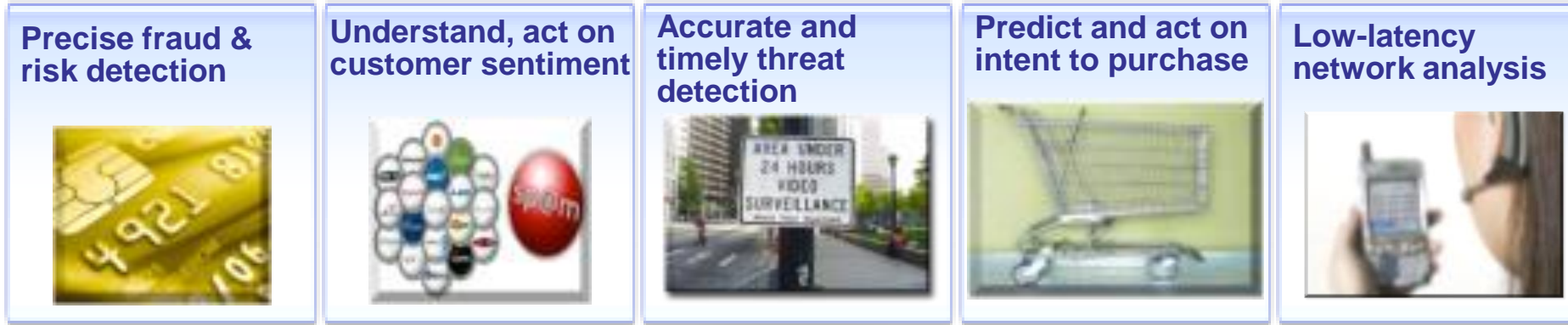
**Cross-selling,
up-selling customers**



**Realtime
Operational Reporting**

These applications require high degree of reliability, availability, scalability and low data latency

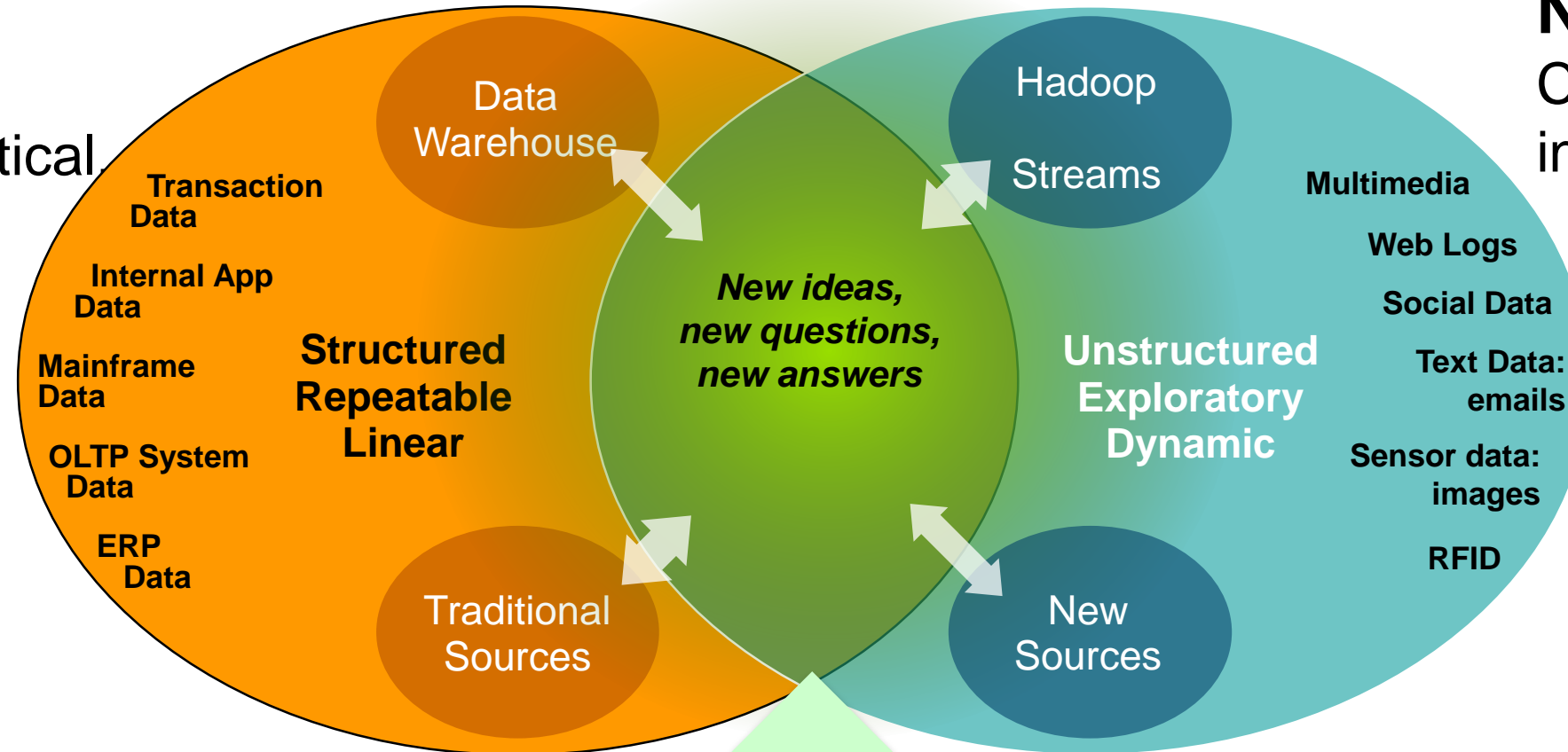
Leverage All Data Assets



Traditional Approach

Structured, analytical, logical

Data: rich, historical, private, structured
Customers, history, Transactions



New Approach

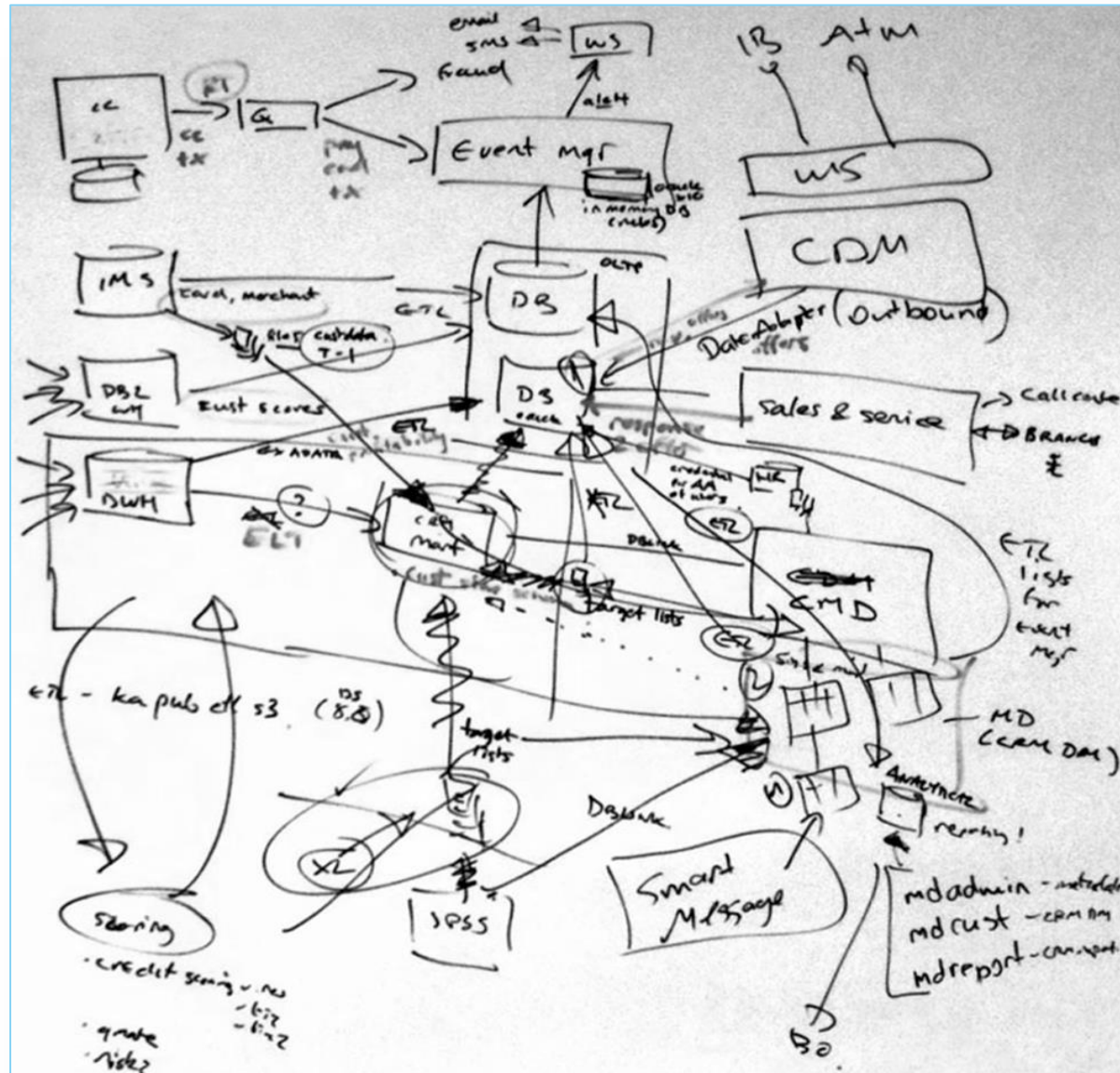
Creative, holistic thought, intuition

Data: intimate, unstructured. social, mobile, GPS, web, photos, video, email, logs, ...

The real benefit is derived from integration of new data sources with traditional corporate data

- How can you query across both realms?
- How can you preserve security and lower TCO?
- How can you avoid costs and risks of offloading?

Challenges with traditional analytics processing



Significant complexity

Data is move from operational databases to separated data warehouses/data marts to support analytics

Analytics latency

Transactional data is not readily or easily available for analytics when created

Lack of synchronization

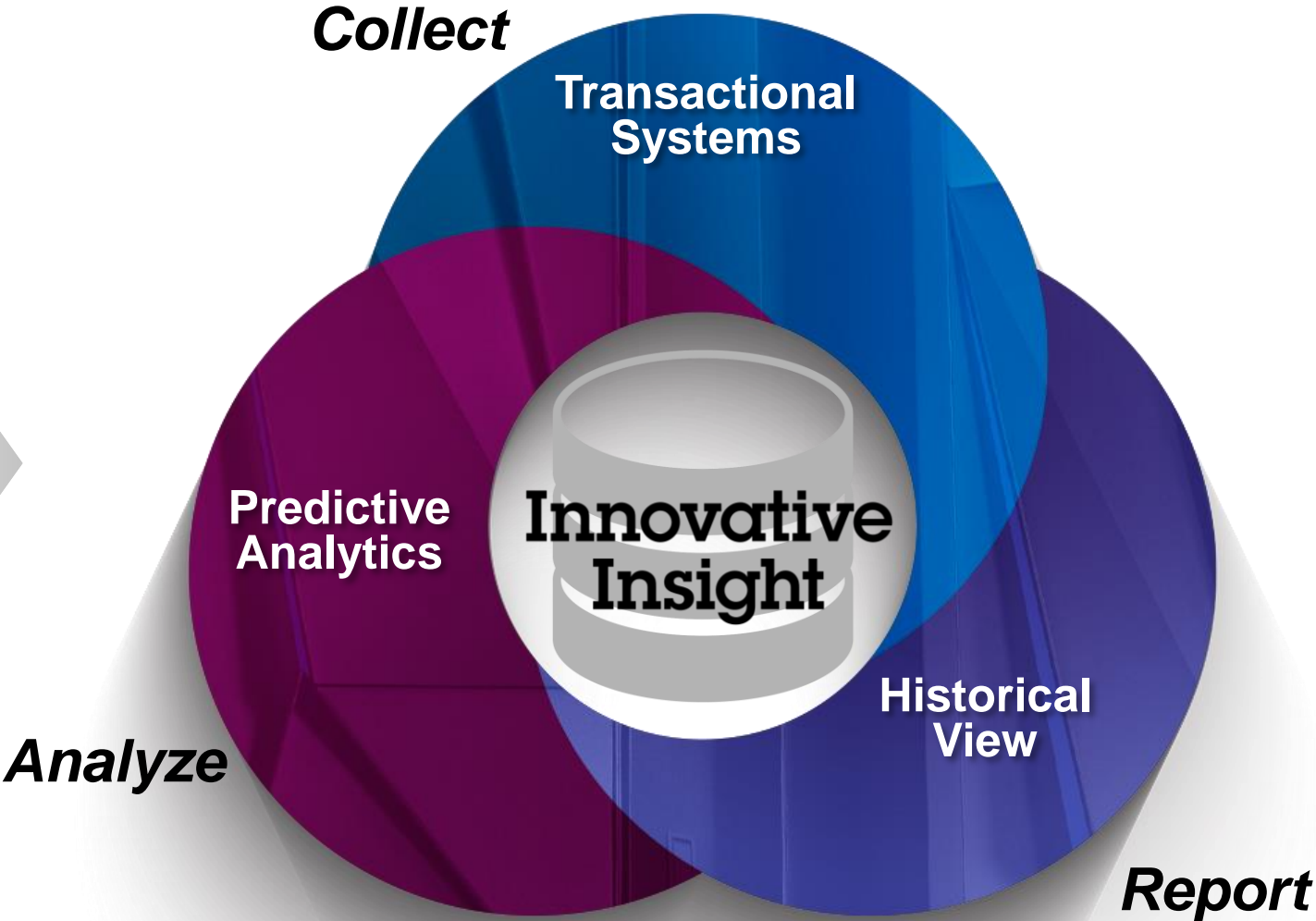
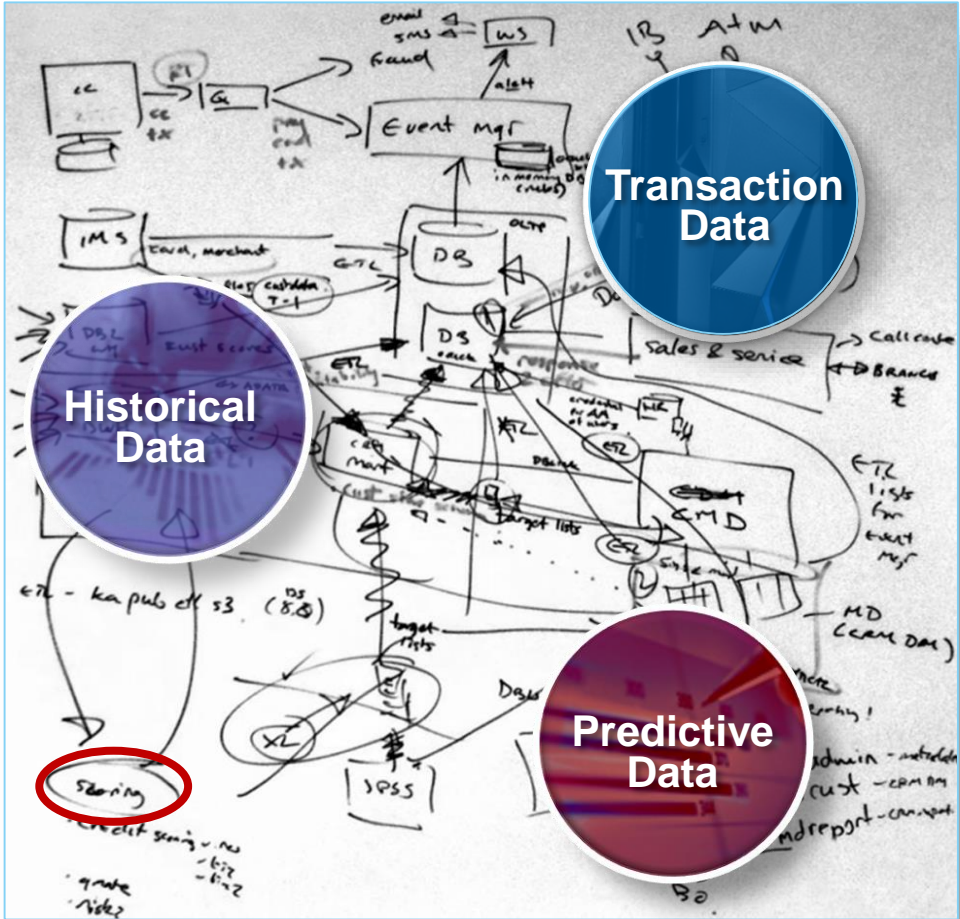
Data is not easily aggregated and users are not assured they have access to "fresh" data

Data duplication

Multiple copies of the same data is proliferated throughout the organization

Excessive costs

An IT infrastructure that was not designed nor can support real-time analytics



... because business outcome matters.



Scalable

processor, horizontal, vertical

Flexible

heterogeneous, configurable,
optimized

Reliable

resilient, redundant, recoverable

Secure

trusted, proven

Manageable

automation, orchestration

Designed for Big Data



Continuous data load



Massive IO bandwidth



Grid-scale storage



Flash for extreme performance



Cognitive capabilities



Low latency

Defined by Software for the Cloud



Private



Dynamic Hybrid



Public

Open and Collaborative



Our Point of View



Make markets by transforming industries and professions with data

- Enterprises need to apply more sophisticated analytics across more disparate data sources in more parts of the organization to drive business outcomes.
- Enterprises need to develop ‘speed of insight’ and ‘speed of action’ as core differentiators to capture the time value of data.
- Enterprises increasingly need cognitive capabilities to change the game in industries or professions.

Remake enterprise IT for the era of cloud

- Enterprises need to integrate public and private clouds with back-end systems to create dynamic, hybrid environments.
- Enterprises need to manage cloud environments with the same rigor as an on-premise datacenter.
- Enterprises will benefit the most by using cloud to reinvent core business processes and drive innovation.

Enable ‘systems of engagement’ for enterprises, and lead by example

- Enterprises need to use mobile and social technologies to increase speed and responsiveness, and meet customers, partners and employees where they are.
- Enterprises need to personalize every meaningful interaction to offer more value.
- Enterprises need to continuously earn the right to serve customers by providing privacy and security and earning trust.