IBM Cognitive Solutions

Bank to the Future

Vivek Bajaj

Vice President, Global Banking & Financial Markets

It's not personal
It's just business

FinTech

Lending
OnDeck > · LendingClub · Kabbage · PROSPER · gorefi · wonga · Funding Circle · Orchard · zestfinance · Affirm · borro · earnest

Personal Finance
Credit Karma · mint.com · playmoolah · peaff.com · BillPin · OnTrees · BILLGUARD · CoverHound · HelloWallet · planwise · smartasset · wallaby

Payments
Square · stripe · CardFlight · PayPal · Paydiant · fuzenetwork · protean · argopay · GC · ReadyForZero · WePay · iZettle · Loop · BillMeLater · venmo · Braintree

FinTech
1,000 Companies
$12.7B Funding

See the updated scan and more:
venturescanner.com/scans/
financial-technology

Retail Investments
ROBINHOOD · motif INVESTING · LV · PERSONAL CAPITAL · TradeHero · SigFig · Betterment · KAPITALL · wealthfront · FutureAdvisor · tradier

Institutional Investments
ADDEPAR · finalta · KENSHO · Quovo · Hedge SPA · LUCENA RESEARCH · StockTwits · SumZero · CONTIX

Equity Financing
CircleUp · angel.me · gust · TAIL · Grofolio

Remittances
XOOM · azimo · WorldRemit · CurrencyFair · RegaloCard · ayannah

Consumer Banking
SIMPLE · Cardlike · vudubu · Moven

Financial Research
Seeking Alpha · COSEER · STOCKTAGON · Q

Banking Infrastructure
plaid · BankScan · DemystData · STANDARD TREASURY · spout
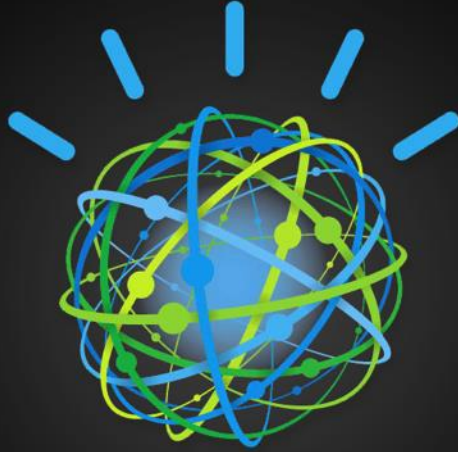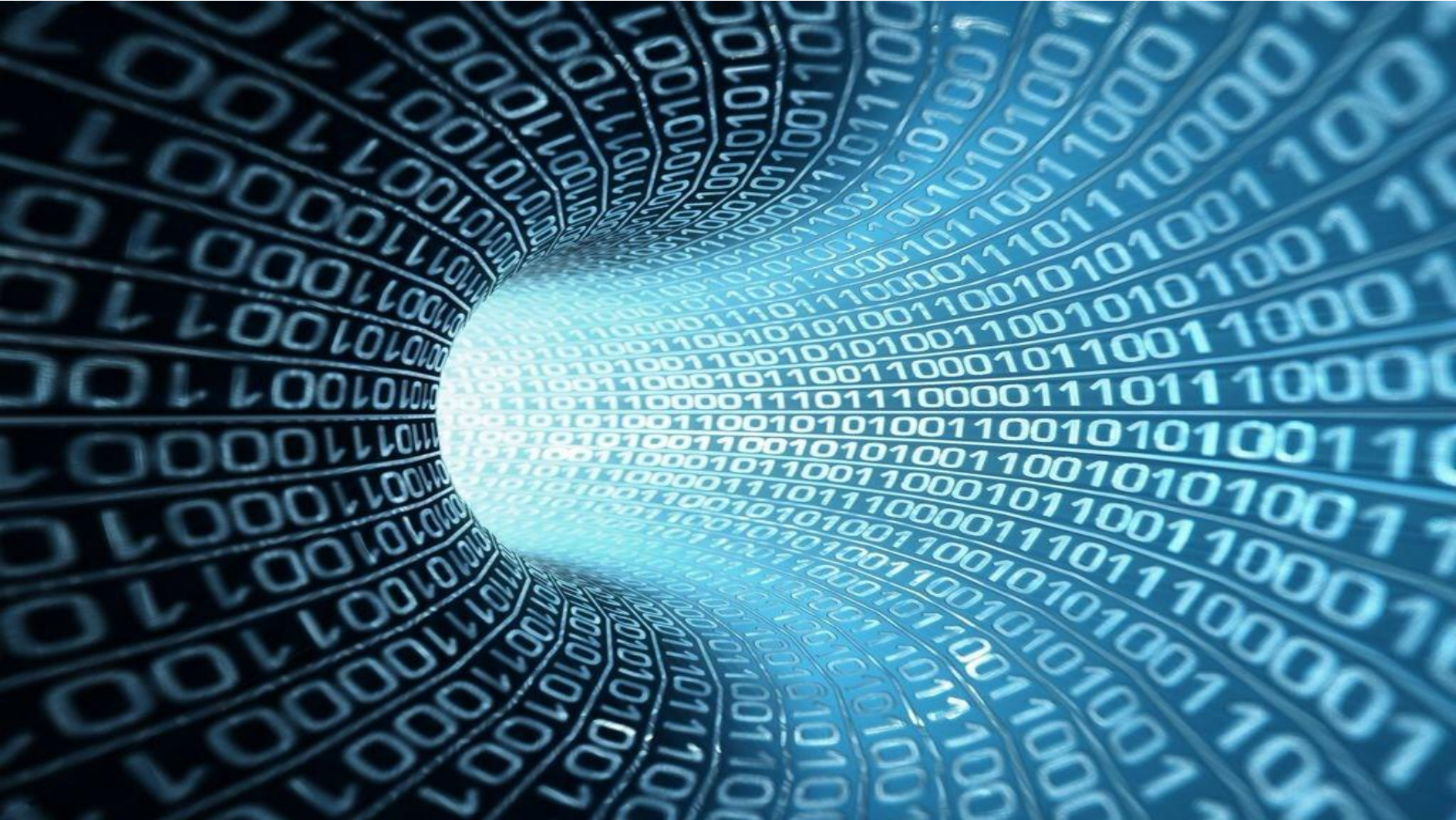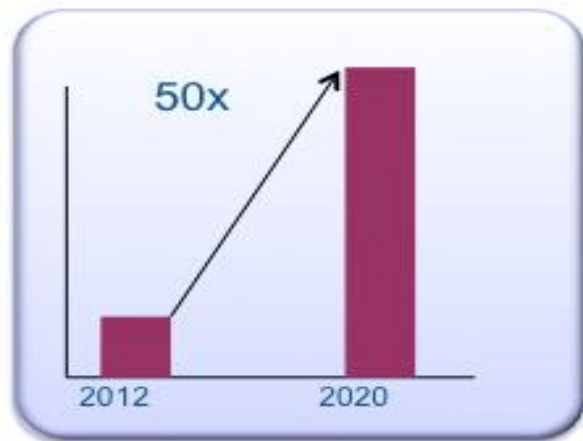
CONTEXT IS KING

Are people who spend a lot after 9pm MORE LIKELY to overdraft?
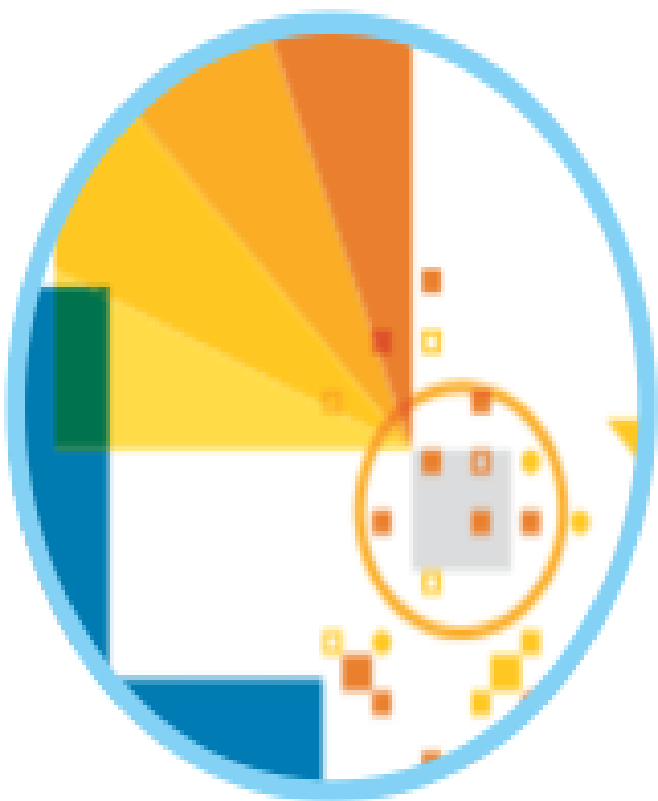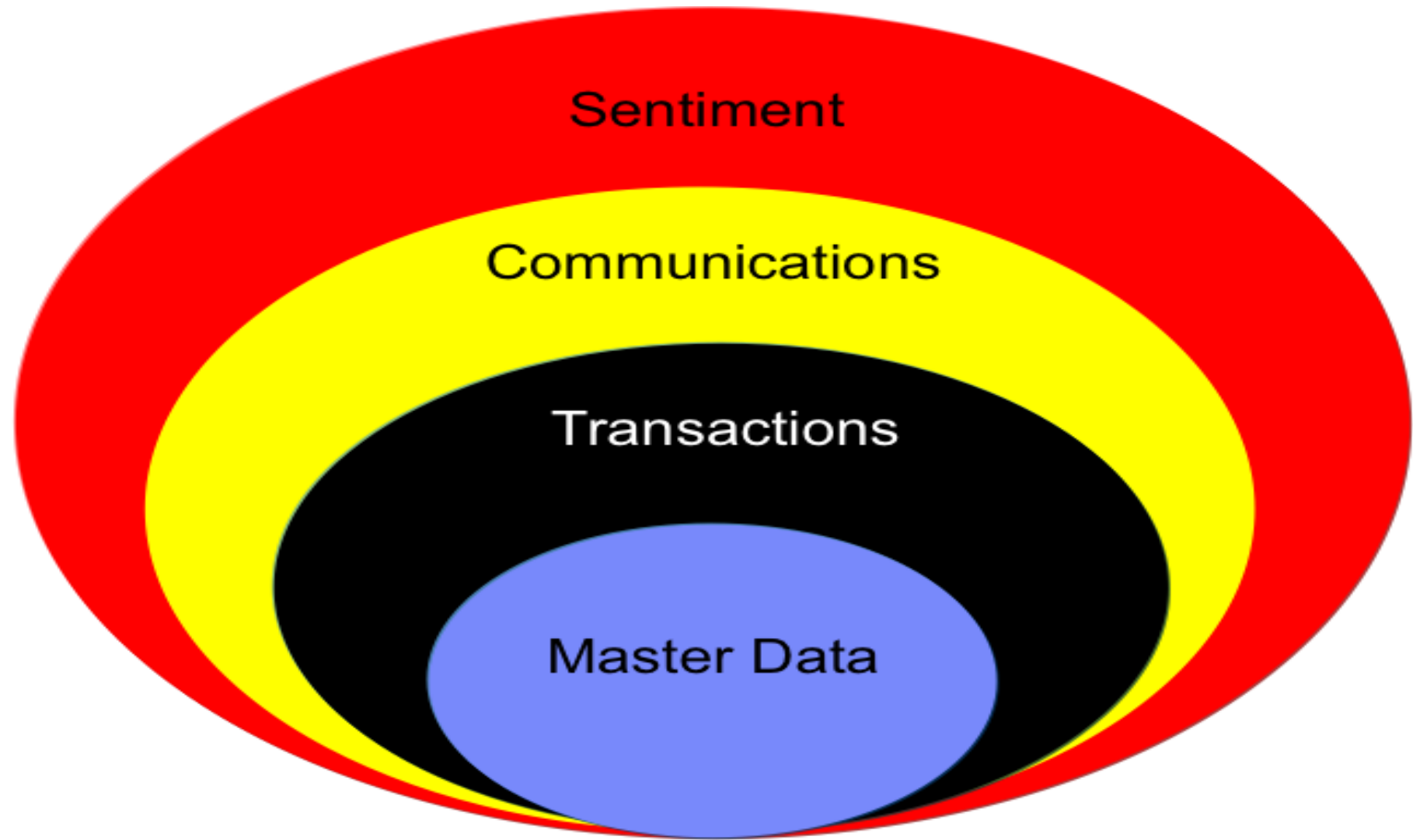
Big Data ≠ Hadoop

IDC Financial Insights: Top 10 Global Predictions

ORGANIZATIONAL IMPACT

Companywide

Multiple departments or business units

A single department or a business unit

Cloud Use Doubles — 1

IT Spending Hits Milestone — 5

PFM Inspires Mobile Growth — 4

Monetizing Risk and Compliance — 6

7 — Cognitive Drives Efficiency

9 — Mobile Payments Goes Big

2 — Impact of IoT on Insurance

8 — Transforming Internal Payments

3 — Omni-Engagement Importance

10 — Investment Advice with Analytics

TIME (MONTHS) TO MAINSTREAM

0-12 | 12-24 | 24+

1. Top tier banks double workloads being put into Cloud technologies.

2. By 2018, there will be a competitive market for packaged IoT software platforms for the insurance industry.

3. Omni-engagement levels becomes barometer of customer profitability for financial institutions as number of interactions increases 10% year over year.

4. In 2016, personal financial management (PFM) tools will inspire evolution of the mobile banking channel.

5. FSI investment in IT will grow at a 4% CAGR through 2019, with total investment in both 3rd party and internal IT resources reaching $500 billion by 2017.

6. Over the next 2 years, FSI's will begin to monetize risk and compliance investments and leading firms will reuse compliance data to power innovations in sales and marketing programs.

7. The implementation of cognitive systems in FSI creates 20% improvement in IT efficiency - starting with trouble ticket and case management and migrating to customer self-service by 2018.

8. In the next 2 years, investment by financial institutions worldwide will eclipse $300 million annually on software to begin transforming internal payment technology.

9. Within the next year, total worldwide mobile payments will approach $1 trillion, the majority of which will be online purchases through mobile devices.

10. By 2018, 50% of capital market players will strategically invest in advanced analytics to automate investment advice, client analytics and reporting, and to optimize predictive modeling.

Note: The size of the bubble indicates complexity/cost to address. Source: IDC Financial Insights, 2015

Cognitive Solutions for Call Center Agents

Empower agents to better respond to requests and improve call conversion rates
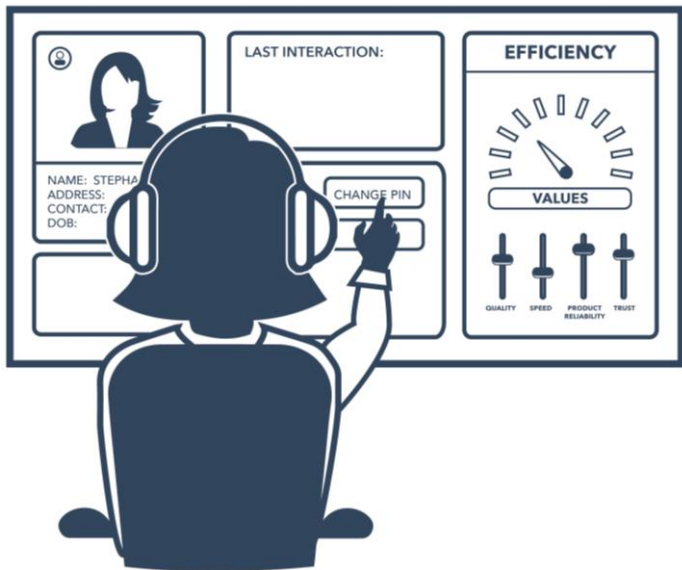
The call center agent dashboard delivers a comprehensive, real-time view of the client with the ability for an agent to ask questions or gain deep insights around clients including personality and preferences

Value Add

- Aggregate relevant customer information in real-time
- Personalize the client experience with deep insights into preferences and interaction history
- Deliver consistent and accurate answers to agent questions
- Efficiently scale expertise to novice agents

One of the world's largest banks employ cognitive to help mass market customers at call centers select higher value investments

NEED

One of the world's largest banks wanted to help its call center mass market customers decide to invest in higher value assets instead of retaining cash deposits

SOLUTION

Bank implements cognitive at its call center as many mass market customers do not understand what alternative investment options they have other than cash deposits.

BENEFIT

Cognitive provides customers with answers to their questions about investments and dialogues with customers to reassure them about their investment options

Source: IBM case study

Cognitive Virtual Agent

Provide the expertise of an agent in a user-friendly application

A Virtual Agent digitally engages clients in intelligent conversations about complex topics personalized for every client

Value Add

- Deliver accurate, evidence-based information
- Cross- and up-sell seamlessly
- Decrease call center volume
- Save call center training costs

Banking Questions?

We have the answers.
Anytime, Anywhere.

IBM Watson

Snow History

Emily: yes!

Watson: Congratulations Emily, you pre-qualify for a $400,000 home. Can you please confirm that your e-mail address is Emily@PersonalBank.com ?

I'm here to answer your insurance questions and help you take action.

Banks will provide better financial advice more widely through cognitive, with limited human intervention (robo-advisors)

Allan, 28 year old, recently joined a technology company on an average income

Cognitive solution

Tom, branch manager of retail bank XYZ, has dealt with thousands of banking customers over the years

Allan wants his bank to understand his financial needs at his time in life

Millennial such as Allan can service himself and digitally engage by having meaningful dialogue about their financial needs with **cognitive system-based virtual relationship managers (automatic-advisors)**

Cognitive expert system can enable bankers to understand retail customer's financial needs and answer customer queries in natural language

Tom wants to provide a seamless omni-channel and personalized experience to all customer segments

Tom can use **cognitive** to **draw insights** about his customers from internal and external structured and unstructured data to provide a seamless experience

Case Study - DBS

A transformative Watson engagement has enabled DBS relationship managers to efficiently deliver personalized, consistent and fact-based investment advice

| Challenges	Solution
1. Overwhelming amounts of data for RMs 2. Increasingly informed and digitally-enabled clients 3. Expectations of personalized product recommendations	Watson (with a suite of integrated IBM technologies): 1. **Analyzes large volumes of structured and unstructured data** 2. **Delivers personalized market and client insights to advisors** 3. **Dynamically engages relationship managers through natural language dialogue**

Outcomes

1 **25% productivity uplift for DBS relationship managers**

2 **Consistent level of service across advisors, channels, and geographies**

3 **Powerful and easy to use consumer experience tool**

Cumulative Effective of Regulations on Cost Structures

RegNMS

IFRS 9

MiFID

FRTB

BCBS 239

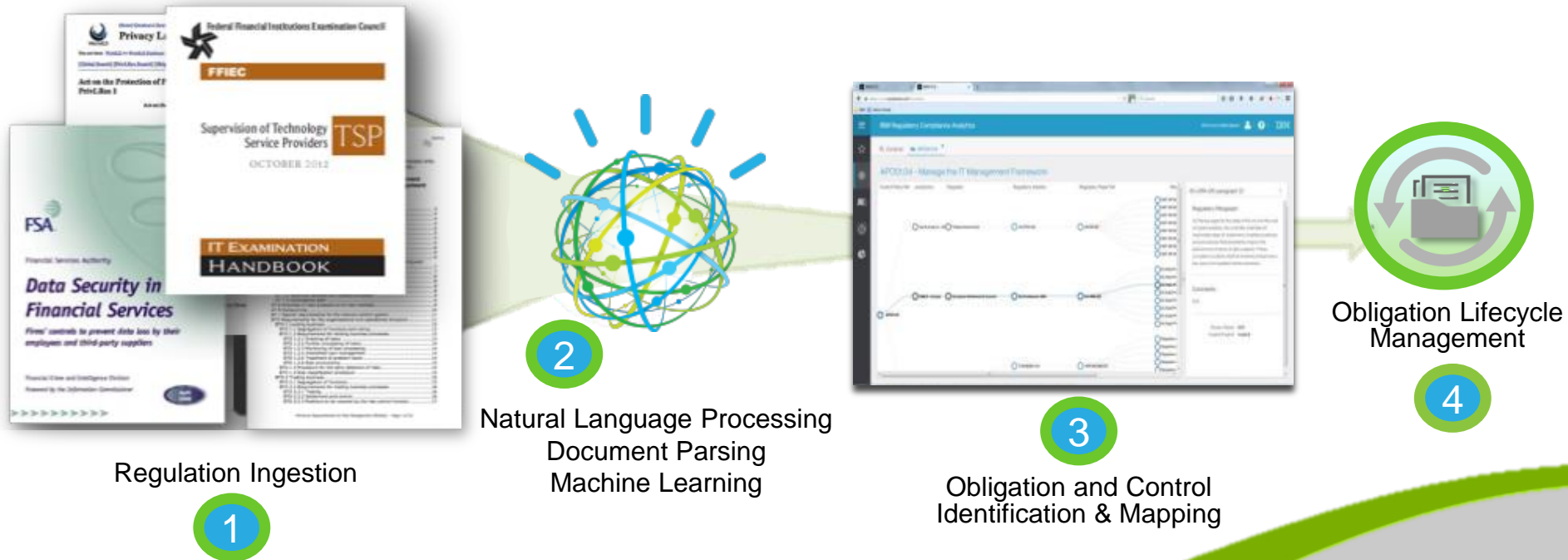BCBS 319

Basel III

IAS

Solvency

Dodd Frank

AML III

CCAR
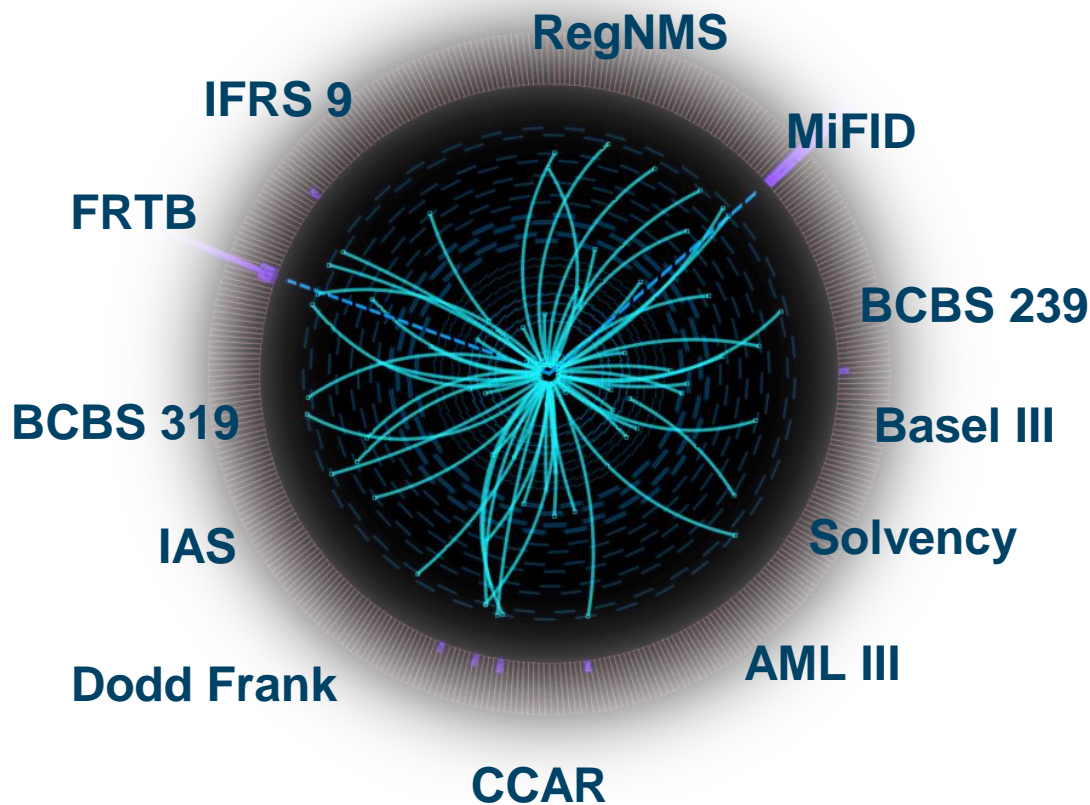
" Citigroup has hired about **10,000** people in regulatory and compliance-related roles, even though its overall employment number has fallen about 20,000 over the past two years…

Wall Street Journal "

Top 50 Banks have an estimated **5,000 to 15,000 employees** focused on managing regulatory change and compliance.

Regulatory Compliance empowered by Cognitive Computing

Helps compliance specialists streamline the identification of potential obligations and controls required to address constantly changing regulations and manage the lifecycle of implementing those controls

Regulation Ingestion

1

Natural Language Processing
Document Parsing
Machine Learning

2

Obligation and Control
Identification & Mapping

3

Obligation Lifecycle
Management

4

Cognitive computing to explore internal and external information to provide a comprehensive view of companies

MVP

- Comprehensive insights from internal & external sources
- Entity recognition analysis
- Solution recommendations
- Benchmarking and financial performance
- Real-time news classification and monitoring

A large European bank uses cognitive to gain insights into institutional client behavior to predict future transactions

NEED

Bank wanted to invest in a technological capability that would provide a competitive edge

SOLUTION

Bank identified business functions to apply cognitive, such as sales, trading, and risk management. Insights were sought on competitor and institutional client behavior, trading patterns and external data

BENEFIT

Fund managers have better understanding of market sentiment real time and are better able to time their transactions in the financial markets

Source: IBM case study

IBM Institute for Business Value

Getting Started