

# AI for Finance

# **A Top Priority for Executives**

## **Significant Investment**

## **Strong Investment Growth**

# A Top Priority for Executives

- **76%** of banking CXOs agree that adopting AI would be critical to their organizations

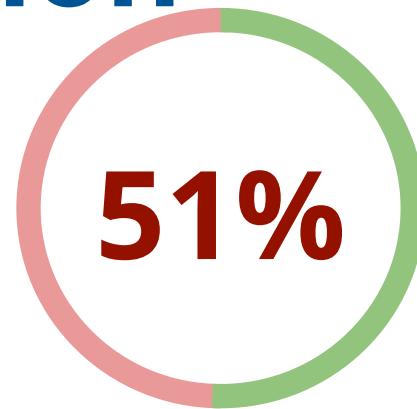
# Significant Investment

- **58 billion** in global AI investment by 2021  
(cross-industry)
- **10 billion** invested in AI from financial institutions by 2020

# Strong Investment Growth

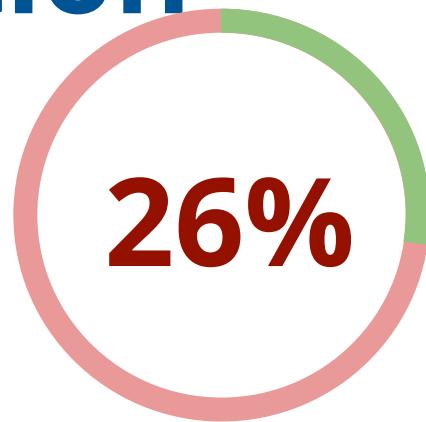
- **48% CAGR** in global cross-sector growth in AI investment through 2021

# Human-Machine Collaboration



of employees across financial institutions say  
human-machine collaboration is important to  
achieve their strategic priorities

# Human-Machine Collaboration



Banking CXOs believe only 26% of their workforce is ready to work with intelligent technologies

# Productivity Gains

**Productivity Gains from Automation (Bain 2018)**

Finance and Insurance: **25%**

**Automation Potential of Industry (McKinsey 2017)**

Finance and Insurance: **43%**

# From a GDP perspective....

- Accenture sees AI adding **\$1.2** trillion in financial services value by 2035
- Bains sees a potential of **\$1.1** trillion of associated GDP in the financial sector by 2030

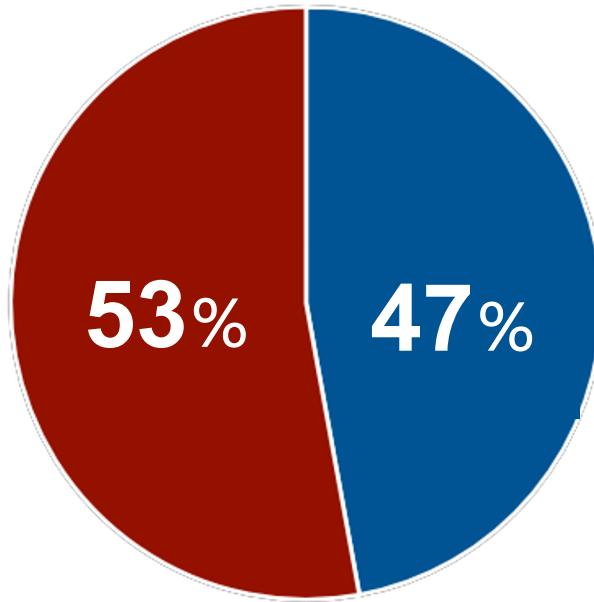
# From a GDP perspective....

Deploying **AI** across **financial services** potentially has a

**\$1 Trillion Impact**

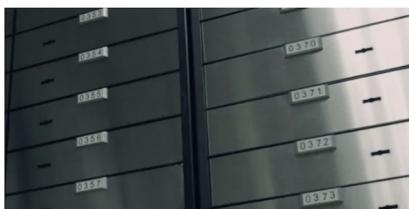
# The \$1 trillion Impact

**\$490 Billion**  
in **Front Office**  
(Distribution,  
Customer  
Interactions)



**\$550 Billion** in  
**Middle & Back Office**  
(Workflow Automation,  
Decision Making, New  
Product Development)

# Industry Trends on AI Applications for Finance



### NextGen banking

Outpace the competition with open banking standards, partner ecosystems, APIs and new business models.

[Learn more](#)



### Core Banking Digital Transformation

Digitally transform by embracing modern APIs, microservices, processes and payment capabilities.

[Learn more](#)



### Customer experience

Data and AI insights, design thinking and fintech innovation help reshape the customer experience.

[Learn more](#)



### Risk, compliance and security

Optimize all your risk, compliance and security needs with advanced analytics, AI and automation.

[Learn more](#)

# Cognizant

## RETAIL AND COMMERCIAL BANKING

Rebuild technology and operating models for the future. Create next-gen experiences for corporate customers and end-to-end experiences for retail customers that deliver more efficient operations and payments processes.



## LENDING

Keep the human factor in your lending processes. Achieve scale and stability with automated front and back offices.



## PAYMENTS

Modernize core processes. Our enterprise strategies and designs help you increase throughput and improve risk and fraud management.



## GOVERNANCE, RISK AND COMPLIANCE

Our teams track regulations, assess the impact on your organization and help implement the changes.



## AI affects the business world in 3 aspects



A Automation

I Intelligent analysis and decision-making

N New business models and industries

## Applications in the financial industry

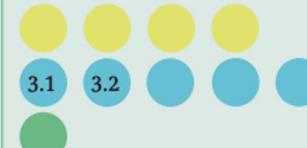
1 Banking



2 Insurance



3 Capital markets



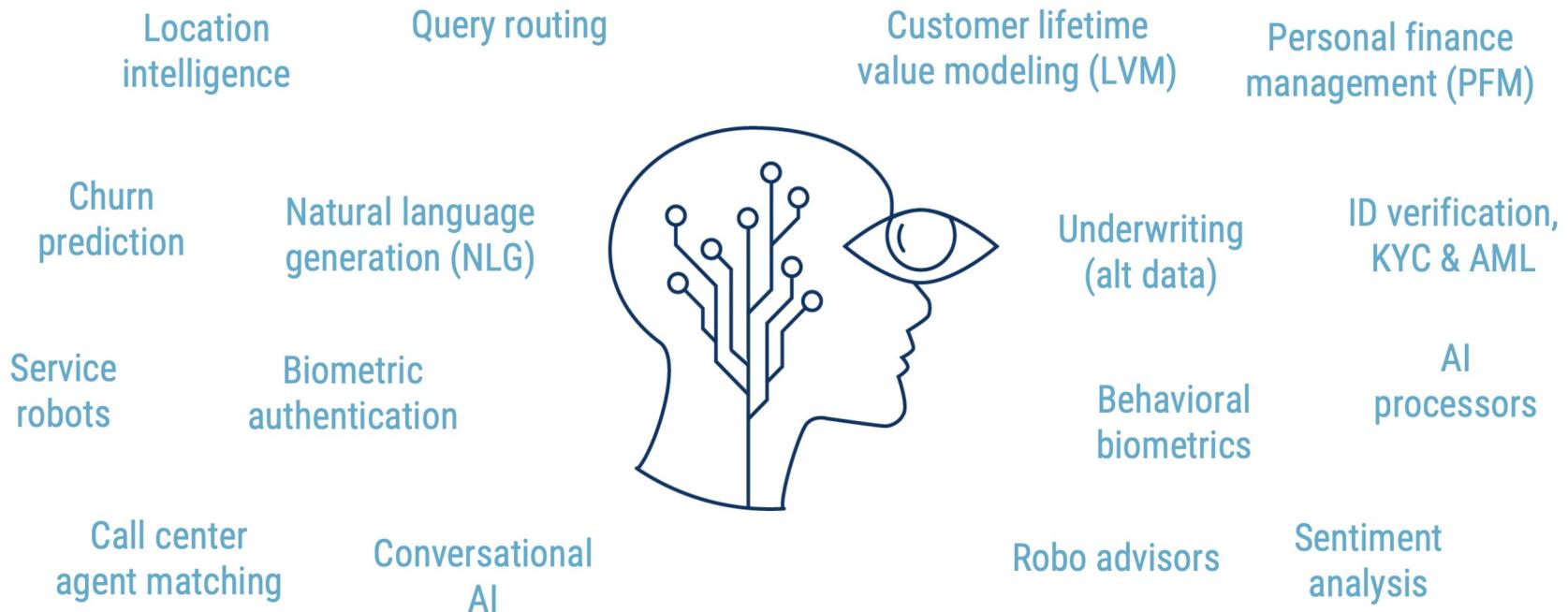
4 Functions



## USES OF AI IN BANKING



Source: Business Insider Intelligence, Autonomous NEXT, 2019



Customer  
Experience

Employee  
Productivity

## Customer Experience

Personal Finance  
with  
Conversational  
Interface

## Employee Productivity

Compliance,  
Fraud Detection,  
KYC

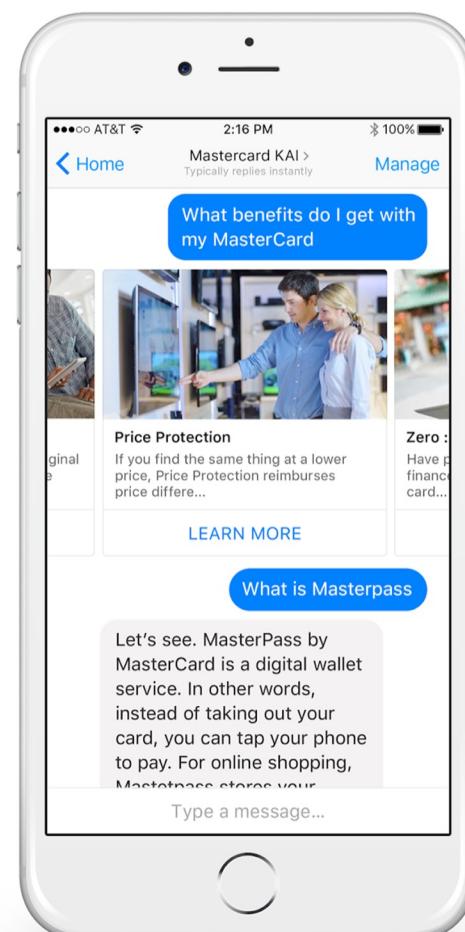
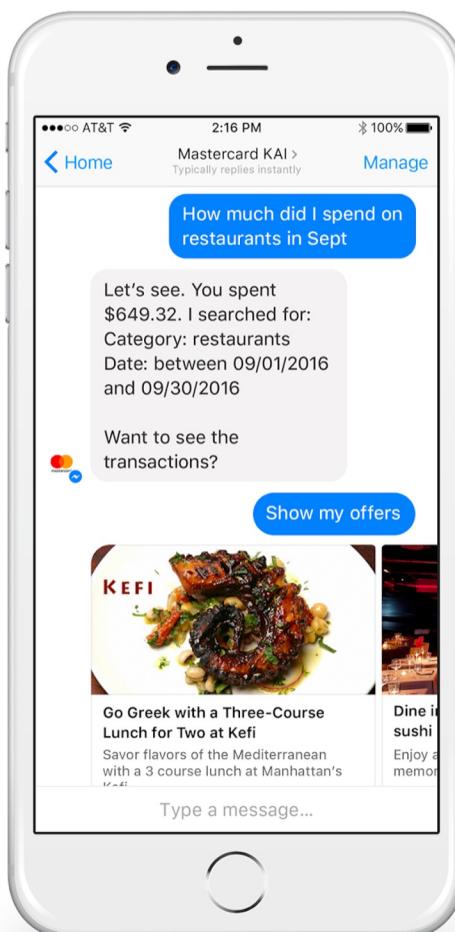
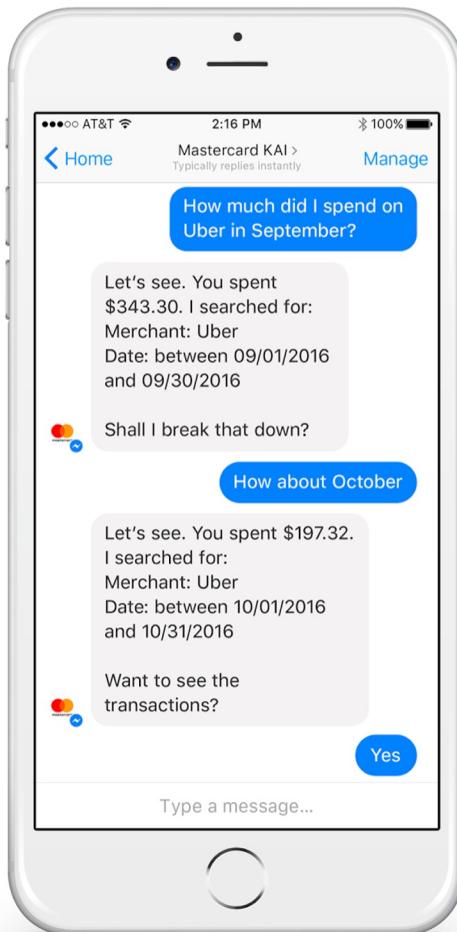
Risk Management,  
Underwriting &  
Investment  
Management

Other Workflow  
Automation

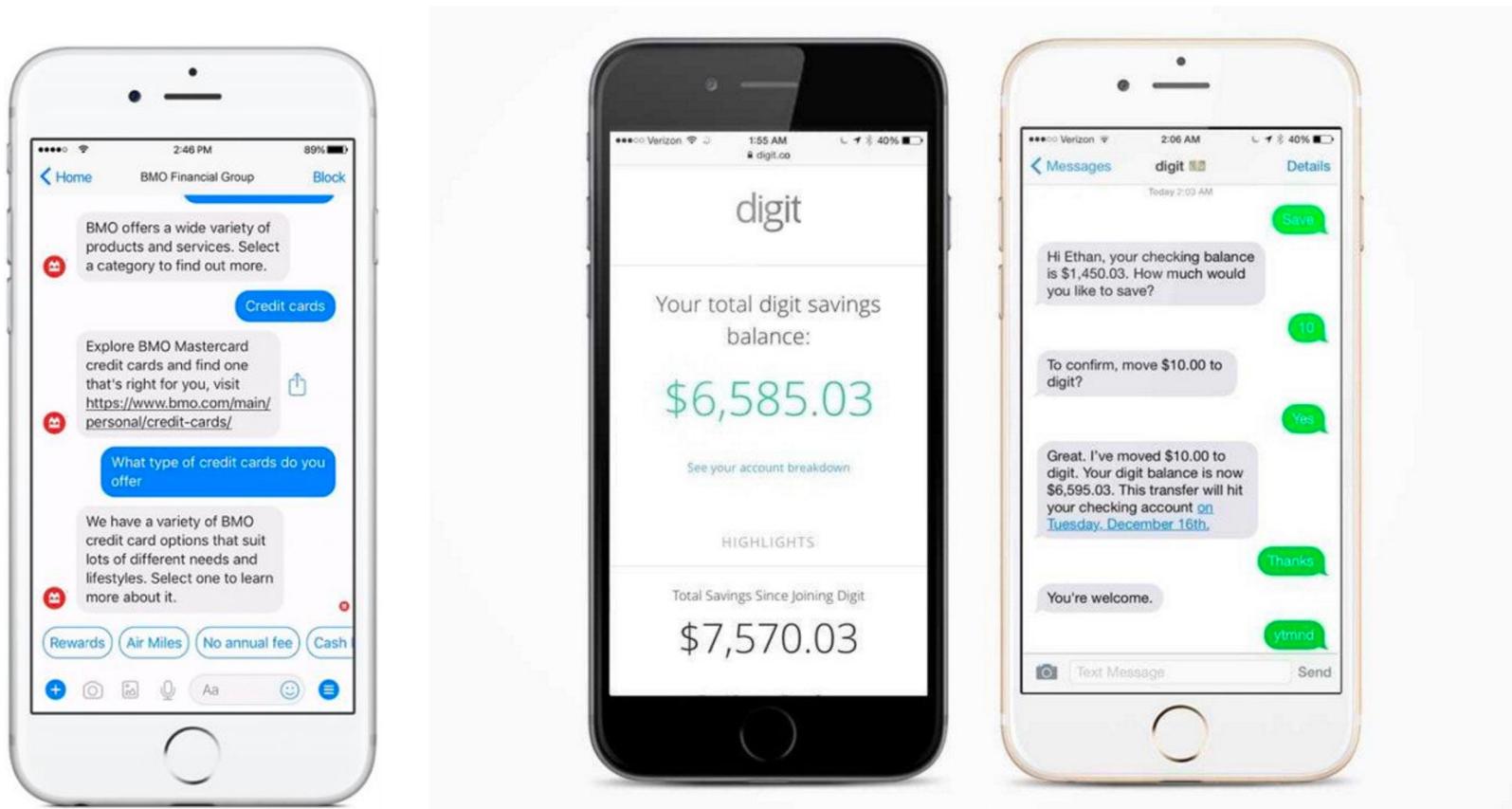
# Top Applications of AI in Finance

# **Personal Finance with Conversational Interface**

# Personal Finance with Conversational Interface



# Personal Finance with Conversational Interface



# Conversational Interface

- Conversational Interfaces are human computer interaction systems that allow humans to interact with a system or product using natural language in voice or text
- Examples : Apple Siri, Amazon Alexa, Google Home

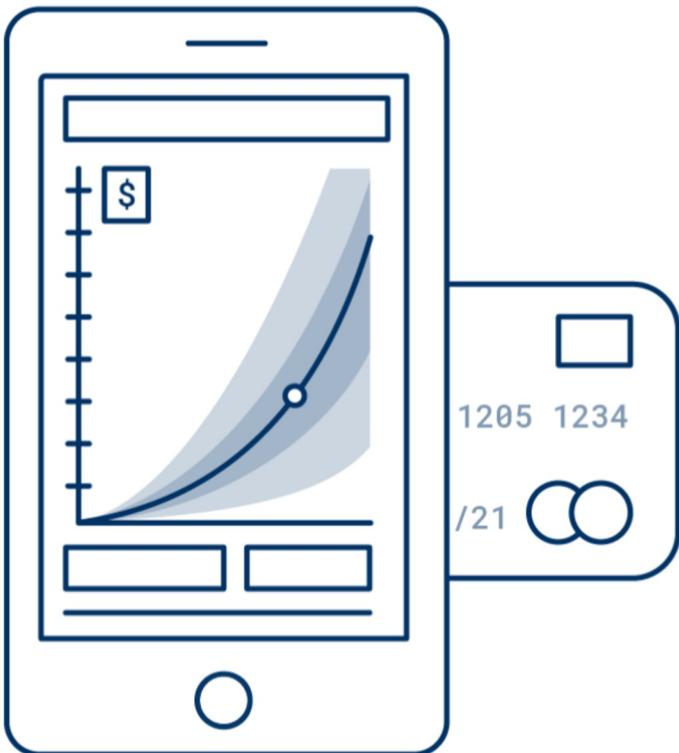
General Virtual Agent

General Customer Experience

Virtual Agent with  
access to User Specific  
Information

Personalized Customer Experience

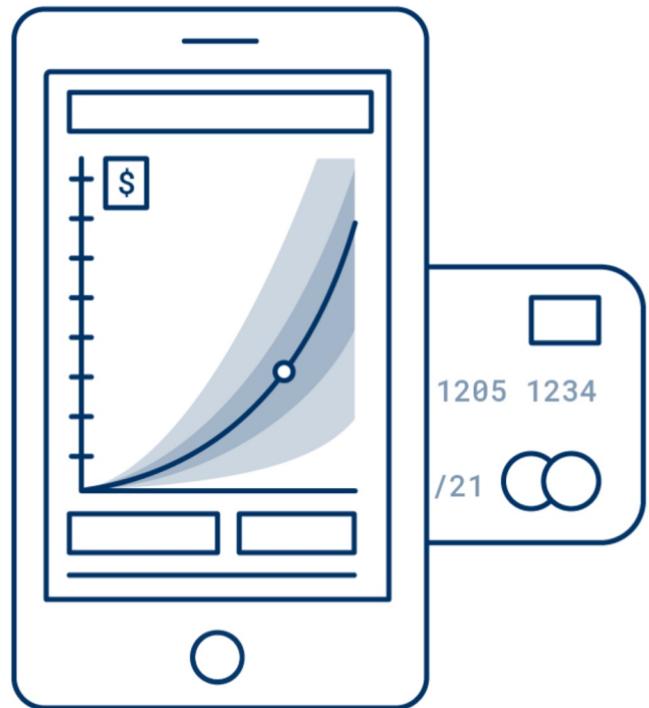
# Conversational Interface with Prediction Systems can dramatically improve user experience in personal finance management



Forecast

**“Your grocery spending will increase by \$50 this month.”**

# Conversational Interface with Prediction Systems can dramatically improve user experience in personal finance management



Auto-save

**“Moving \$30 into savings this month based on your forecasted expenses.”**

# Many banks are using the mix of personalized prediction with a conversational interface or one-way notifications to improve engagement



**Goldman  
Sachs**

In 2018, Goldman Sachs acquired personal finance app ClarityMoney



**BBVA**

Spanish bank BBVA partnered with Google to use recurrent neural networks for PFM

**personetics®**



**usbank**

Personetics' PFM app automatically sets aside money for savings based on users' spending

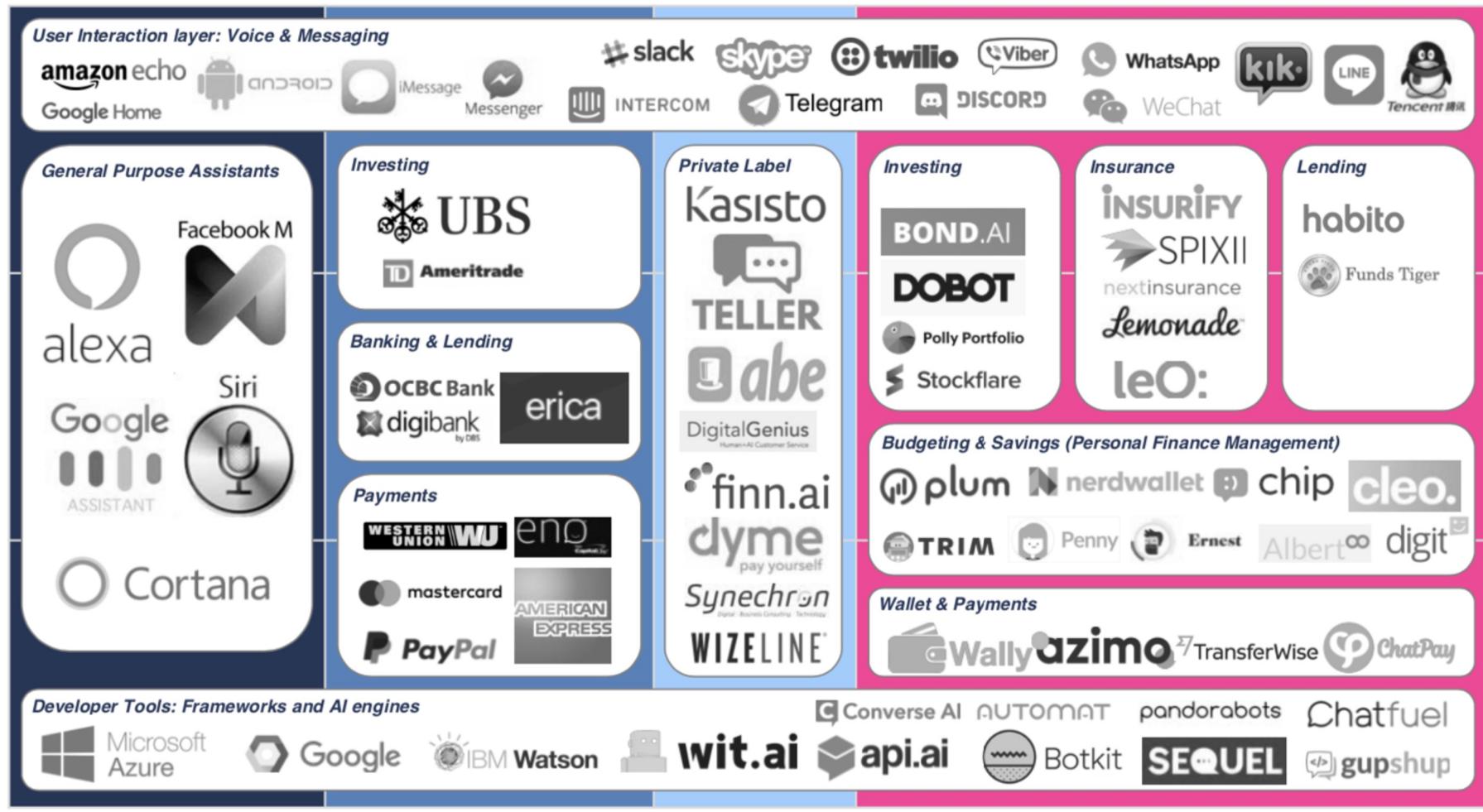
**Moven**  
ENTERPRISE

**TD** **Westpac**

Moven, a white label AI solutions provider, powers TD Bank's MySpend app

# Landscape of Conversational Interface

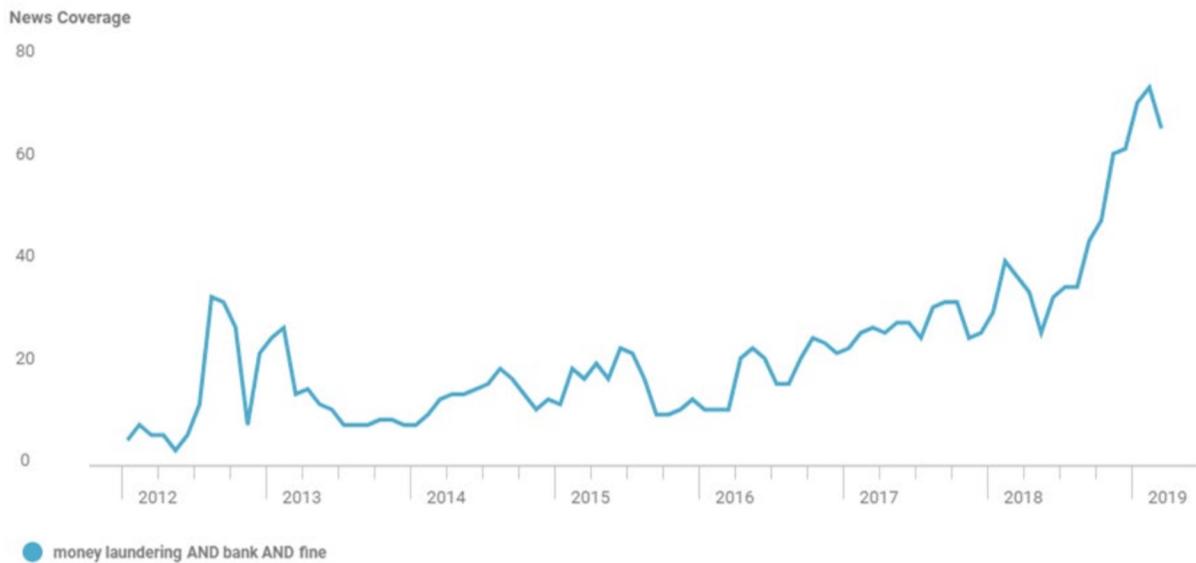
Closer to Client



Source: Autonomous Research Report, Venturebeat

# **Compliance, Fraud Detection, Know Your Customer (KYC), Anti Money Laundering (AML)**

# Increasing Non-Compliance Fines



**UBS hit with \$15 million in fines, penalties for AML problems**

12/17/2018

InvestmentNews

**Capital One Bank fined \$100 million over money-laundering controls**

10/23/2018

REUTERS

**FINRA fines Morgan Stanley \$10 million for AML program and supervisory failures**

12/26/2018

FINRA  
Financial Industry Regulatory Authority

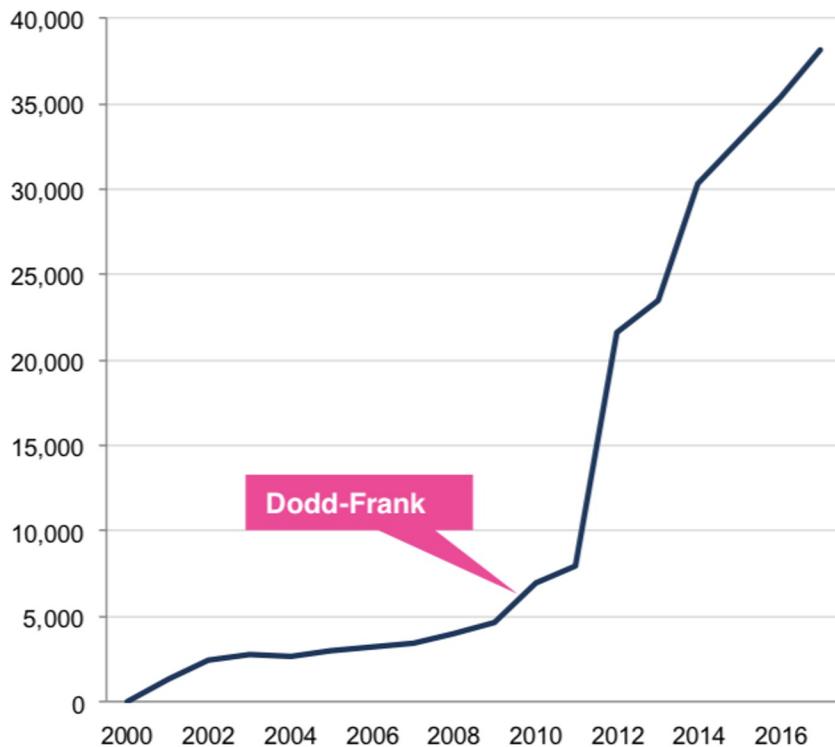
**Swedbank head office searched as money laundering allegations grow**

3/27/2019

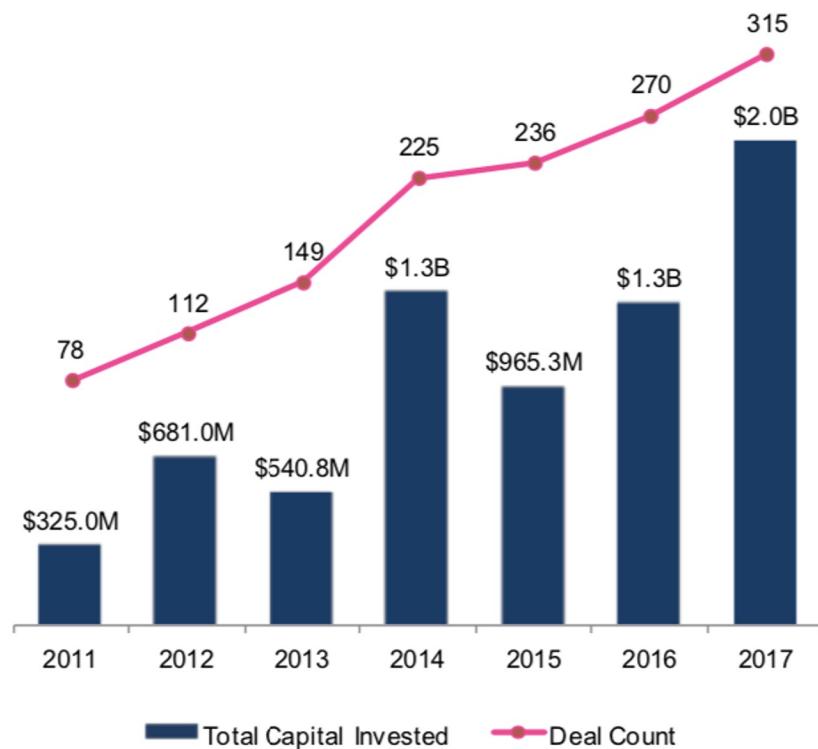
CNBC

# Increasing complexity to stay compliant

Cumulative Pages of Financial Regulation Since 2000



Venture Capital Funding in RegTech & Fraud Prevention



- The last decade has seen a steady increase in writing dedicated to financial regulation

- To deal with the increasing complexity of regulation, compliance and fraud, early stage investors have been funding RegTech as a theme

# Compliance, Fraud Detection, KYC, AML

- Compliance, Fraud Detection, Know Your Customer (KYC), and Anti Money Laundering (AML) are all about finding a few bad actors from thousands or millions of transactions or interactions
- Real time products and services mean providing real-time compliance functions and fraud/risk management
- Many AI based Anomaly Detection systems are used
- Transaction monitoring, Email Monitoring, Vendor Profiling

# Many banks are partnering with organizations that provide these compliance tools



HSBC partnered with two startups for anti-money laundering

ComplyAdvantage screens government sanctions list and media, and monitors transactions



RBC uses NetOwl's EntityMatcher for fraud detection



TigerGraph is integrating ML into a graph database for transaction monitoring

# Landscape of AI in Compliance and Regulatory Technology

KYC / AML



Biometrics & Identity



Compliance Workflows



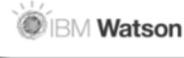
Diligence & Vendor Risk Management



Financial Risk Management



Cyber Security



Surveillance / E Comms



Complex, multi-step processes

Operating Use-Cases

Transactions

Closer to Client

Closer to Infrastructure

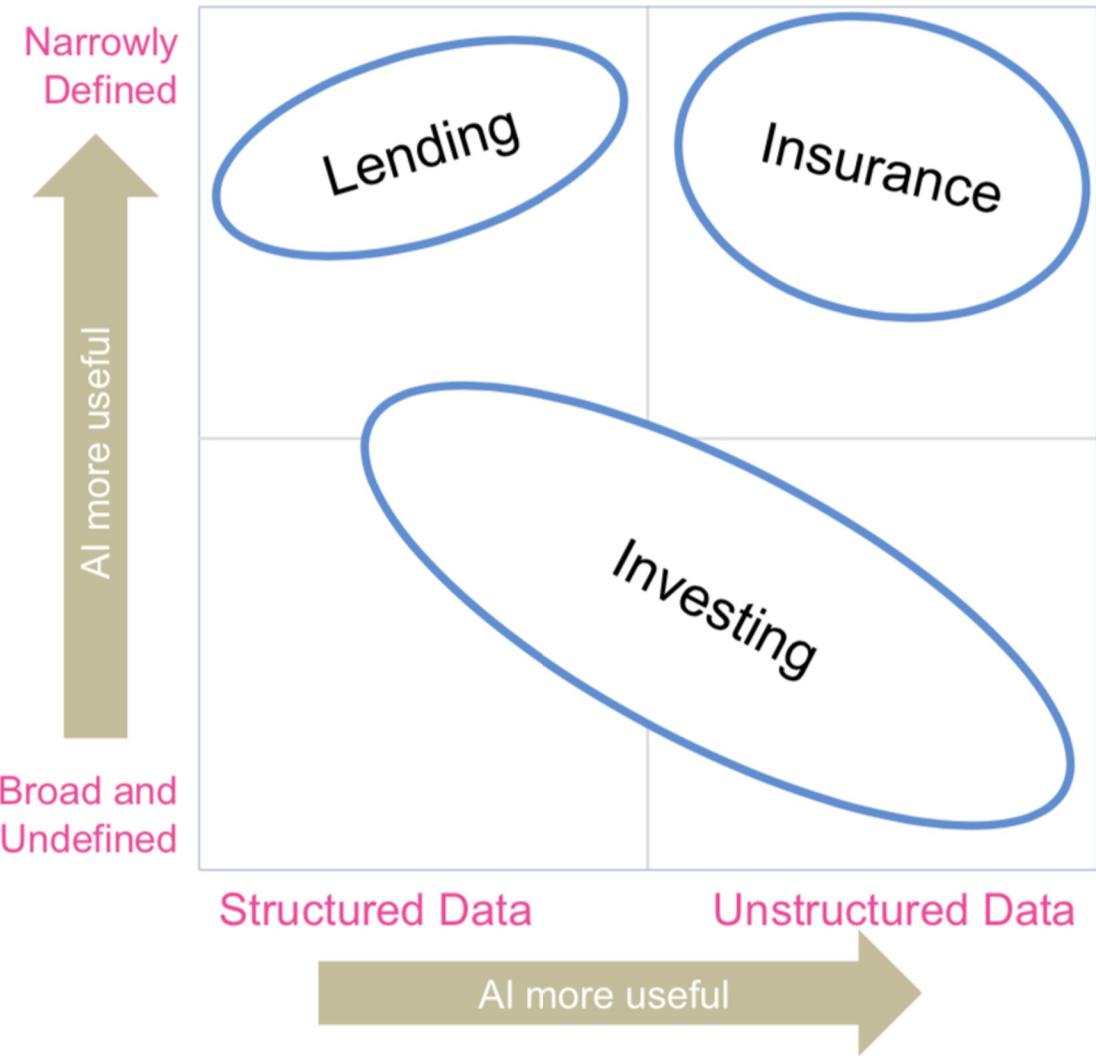


# **Risk Management, Underwriting, and Investment Management**

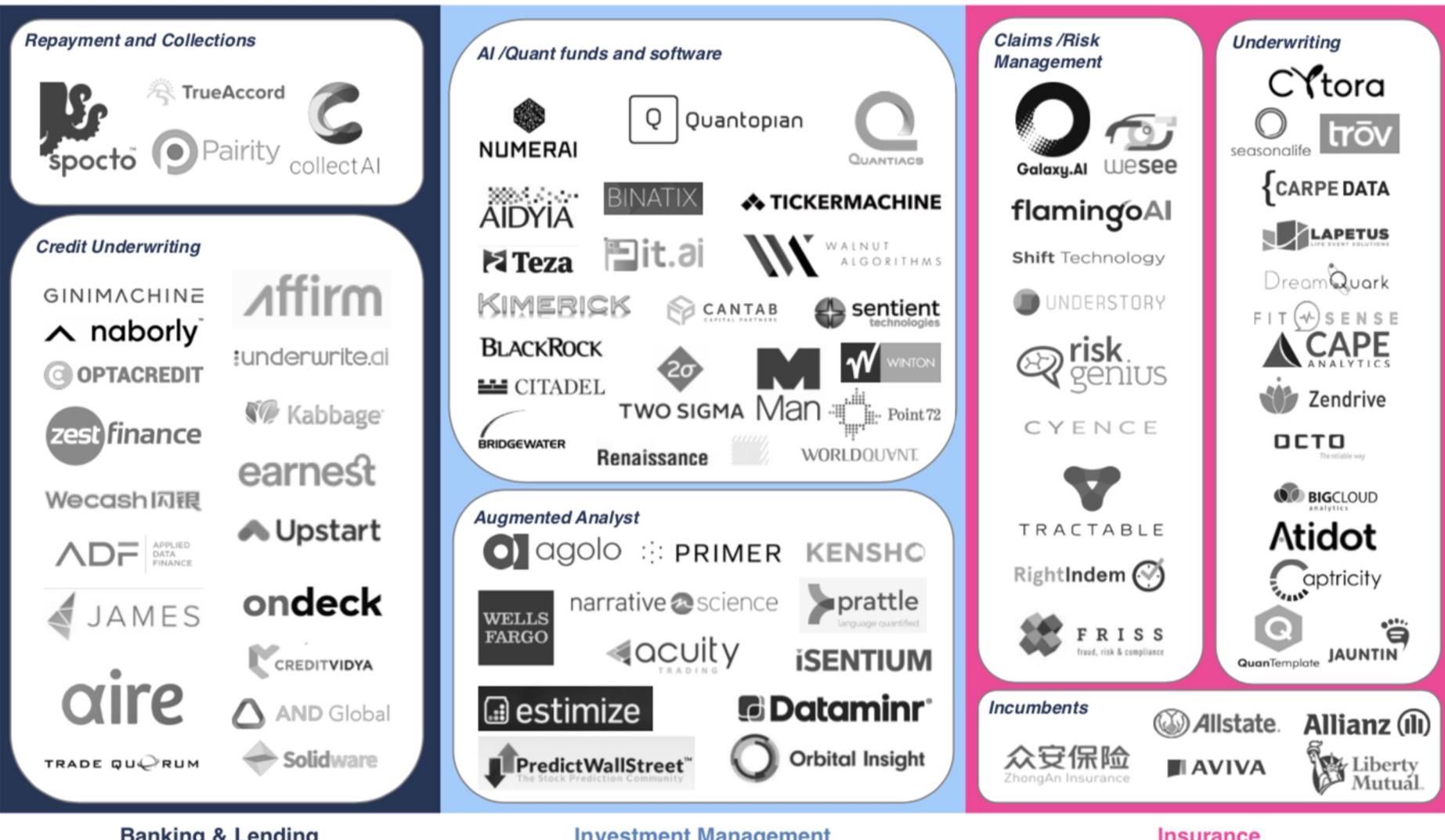
# Risk Management, Underwriting, Investment Management

- Machines can process both structure and unstructured data in larger scale for underwriting
- Real-time data can be used for better risk modeling
- Tailored financial products can be built for each individual customer without adding too much cost

- **Credit:** AI Solves the narrow problem of whether to provide a consumer or business credit, and does so leveraging structured data like financials, zipcode, age, salary and savings
- **Insurance:** Within underwriting, AI can attempt to minimize losses from decisions; and within claims assessment it can incorporate unstructured data sets like images of broken cars and houses, or health data
- **Investment management:** Still learning how to define a problem set narrow enough not to be overwhelmed by noise and unachievable goals, but progress has been made in AI-enhanced trading and alpha-generating hypothesis formulation and testing



# Landscape of AI in Risk Management, Underwriting, and Investment Management



Source: Autonomous Research Center

# Challenges in Integrating AI in Finance

# Challenges for Integrating AI in Finance

Data Silos

Outdated  
Infrastructure

Compliance  
Complexity

No All-  
Encompassing AI  
Strategy

AI Decision  
Explainability  
Problem

Lack of AI Talent