



2019 Advertising Regulation Conference

October 24—25 | Washington, DC

RegTech in Advertising Compliance and Beyond

Friday, October 25, 2019

9:45 a.m. – 10:45 a.m.

RegTech (Regulatory Technology) is more than a buzzword, it is a real movement that is already having an impact on regulatory compliance. Join FINRA staff and industry panelists as they share insight on innovative technologies being used to develop more effective, efficient, and risk-based compliance programs in the area of communications with the public. Panelists discuss how RegTech tools are helping address new challenges and regulatory implications associated with supervision, vendor management, data privacy and security.

Moderator: Pramit Das
Associate Director, Technology
FINRA Advertising Regulation

Speakers: Karl Brock
Vice President, Business, Legal and Enterprise Systems
FINRA Technology

Melissa Koide
Chief Executive Officer
FinRegLab

Haimera Workie
Head of Financial Innovation and Senior Director
FINRA Office of Financial Innovation (OFI)

RegTech in Advertising Compliance and Beyond Panelist Bios:

Moderator:

Pramit Das is Associate Director-Technology of FINRA's Advertising Regulation Department. In this role, his responsibilities include managing a filings review group; assisting with administration of the filings review program; developing and maintaining the department's technology needs; providing education to members, FINRA staff and other regulatory staff; and participating in certain rule amendment and rulemaking projects as necessary. He served in the same role at NASD before its 2007 consolidation with NYSE Member Regulation. Prior to joining NASD in 1994, Mr. Das worked for Metropolitan Life Insurance Company and Arthur Andersen & Co. He holds an MBA in Finance from the University of Maryland, College Park, and an MA in Financial Economics from Clemson University, Clemson, South Carolina. He was also Series 7 and 63 registered.

Speakers:

Karl Brock is Vice President, Business, Legal, and Enterprise Systems. In this capacity, he oversees strategy, development, support, and operations of enterprise applications and is the primary technology executive for the Enforcement, Advertising Regulation, Corporate Financing, Office of General Council, and Corporate Systems. Mr. Brock has been with FINRA since 2015 as an employee. He previously worked at FINRA as a consultant from 2006 – 2009 leading the Proctor rewrite and later was the technical lead for the NASD and NYSE Member Regulation Merger. Prior to joining FINRA, Mr. Brock spent 15 years in the financial industry working for regulatory, banking, trading, and mortgage organizations. He also serves on FINRA's Records Management Board, which is responsible for setting FINRA records management policy and for establishing and overseeing an enterprise-wide approach to records management, and is chairman of the Solutions Subcommittee, which is responsible for development of supporting technology and infrastructure. He holds a Bachelor of Science in Electrical Engineering and Semiconductor Physics from Texas A&M University and graduate degrees in Computer Science from Carnegie Mellon University.

Melissa Koide is the CEO of FinRegLab, a nonprofit financial innovation and research center that examines how technology and data can help achieve public policy aspirations, address regulatory requirements, and lead to a more efficient and inclusive financial marketplace. FinRegLab provides an independent platform for financial stakeholders and policymakers to dialogue and gain an evidence-based understanding of new financial technologies. FinRegLab's research and experiments focus on matters such as how data and technology can be used to expand prudent access to credit for underserved consumers and small businesses and how new technologies can improve customer onboarding and meet KYC obligations. Prior to establishing FinRegLab, Ms. Koide served as the U.S. Treasury Department's Deputy Assistant Secretary for Consumer Policy. In that role, Ms. Koide helped to build the first government offered preretirement savings product, the myRA, and she established the \$5 million Innovation Fund to support research and strategies to improve consumers' financial health and their access to safe and affordable financial products and services. Before joining Treasury, she was the Vice President of Policy at the Center for Financial Services Innovation. Ms. Koide is currently Vice Chair for the Milken Institute's Fintech Advisory Council.

Haimera Workie is Head of Financial Innovation and Senior Director responsible for leading FINRA's Office of Financial Innovation, which focuses on analyzing financial technology (FinTech) innovations and emerging risks and trends related to the securities market. As part of these responsibilities, Mr. Workie works to foster an ongoing dialogue with market participants in order to build a better understanding of FinTech innovations and their impact on the securities markets. Previously, Mr. Workie served as Deputy Associate Director in the Division of Trading and Markets at the U.S. Securities and Exchange Commission. Mr. Workie also previously served as Counsel in the SEC Office of the Chairman. Prior to joining the SEC, he was an associate at the law firm of Skadden, Arps, Slate, Meagher & Flom, with a practice focusing on corporate law. He is a graduate of the Massachusetts Institute of Technology (B.S., M.S.) and Harvard Law School (J.D.).



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FINRA Advertising Regulation

Panelists: Karl Brock
Vice President
FINRA Application Platforms Business, Legal & Enterprise System

Melissa Koide
CEO
FinRegLab

Haimera Workie
Senior Director
FINRA Office of Financial Innovation

- I. Introduction
- II. Advancing the use of RegTech, Fintech, and data in financial services
- III. Overview of current research areas
 - a) Consumer data portability to increase financial health through improved financial products and management tools
 - b) Identity proofing to reduce financial fraud
 - c) Regulatory coordination
- IV. Overview of the Office of Financial Innovation
- V. RegTech:
 - a) Role and rise
 - b) Applications in the securities industry
 - c) Implications for the securities industry
 - d) Regulators' viewpoint

- VI. Convergence of Cloud Computing, Natural Language Processing (NLP), and Machine Learning (ML): The Future of Decision Support Systems
- VII. Using NLP, ML and Knowledge Graphs to assist a Document Review Process
 - a) Entity Recognition
 - b) Similarity
 - c) Flag potential risk or entities of interest
 - d) Analytics across document collections
- VIII. Q and A: from the audience



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Panelists

■ Moderator

- **Pramit Das, Associate Director, Technology, FINRA Advertising Regulation**

■ Panelists

- **Karl Brock, Vice President, Business, Legal and Enterprise Systems, FINRA Technology**
- **Melissa Koide, Chief Executive Officer, FinRegLab**
- **Haimera Workie, Head of Financial Innovation and Senior Director, FINRA Office of Financial Innovation (OFI)**



Advancing the use of RegTech, FinTech, and Data in Financial Services

Research Presentation

October 25, 2019

Advancing the safe and smart use of technology and data in the financial system to drive financial inclusion



Connecting industry, innovators, advocates, and policymakers to advance actionable market solutions and fact-based public policy

Domestic

60%

American households experienced a financial shock in the past year

40%

Americans who struggle paying an unexpected \$400 expense

International

1.7B

Lack a financial account worldwide

1 in 2

Have never sent a digital payment globally

>50%

Small and medium businesses globally lack adequate access to credit

Today



Technology can Help...

61M

Americans will use mobile payments in 2019.

\$658

Average Mobile POS Payment Value in 2019. Will **pass Digital Commerce level in 2021**. Half of all US retailers now accept Apple Pay, up 3% from 2014.

x7

Total dollar amount invested in RegTech companies **increase** from 2014 to 2019



Sources: [PRI](#), [Statista](#), RegTech Analyst, [eMarketer](#)

...But also Harm
>\$300 & >\$800

77%

Of consumers filing
fraud complaints who
were reached **via phone**

Billion

Fines levied since 2008 for regulatory issues
& **annual global cost** of money laundering

73%

Of companies are **struggling** to
harness tech innovation

49%

Of organizations globally in 2018 who
had experienced fraud and economic
crime, a 13% **increase** from 2017



Sources: [OVC](#), [Refinitiv](#), [PwC](#), [Centric Digital](#),
[UNODC](#)

...All while tracking over...

**200 regulatory
revisions daily
from over 750
global regulators**

So, how can technology and data
empower good change while
eliminating threats?



Source: [Deloitte](#)

Know Your Customer

- Countering Terrorism Financing and illicit activities like human and drug trafficking
- Bolstering formal financial systems and ID systems
- Faster and better onboarding for financial institutions



Source: [UNHCR](https://www.unhcr.org/)

Financial Inclusion

- Fair lending risk
- Proxying & bias
- Cheaper, diverse services



Source: [Good ID](#)

Consumer Wellbeing

- Marketing tactics
- Data protection
- Risk appetite and personal financial management



Source: [Forbes](#)

Other Topics on the Horizon

- **The Role of Consumers in Financial Data Security**

Data increasingly underpins financial services and the evolution of the financial system. But key cross-cutting questions remain in regard to the appropriate roles of consumers in this ecosystem. The continued growth of data-related innovations is poised to further accelerate data generation and sharing, and in turn elevate associated risks. Consumer protection as a foundation to build additional considerations for ecosystem rules.

Who owns this data? Who has the right to access data? Who can exercise control? How do you balance societal benefit of more data available for analytics versus personal control over data protection? What baseline consumer protections currently exist? What needs to exist? What are the challenges and tradeoffs with regard to privacy and security vs. efficiency and empowerment?

- **Machine Learning Explainability**

Machine Learning could improve predictiveness and fairness of credit underwriting, compared to traditional approaches. But a lack of clear guidance from regulators has slowed the adoption of machine learning for underwriting. How can we make models more understandable to improve regulator familiarity without sacrificing the potential predictiveness and fairness gained through new technology.



Consumer Data Portability & Protection

- **How to balance the necessity of protection with consumer freedom of choice and individual preference? Is consumer empowerment through individual choice the way of the future?**
- **Can we enable consumers to participate in data ecosystem while protect data regardless of consumer choices?**
- **More consumer choice could mean tradeoffs or tensions:**
 - Reduced access to representative data for societal or government research
 - Additional cyber or privacy challenges with increased data flows
 - Less innovation/competition if data cannot be monetized
- **Current baseline protections to guide evolution**
 - Protection from external, unauthorized access (cybersecurity expectations)
 - Protection from unauthorized/inappropriate use (UDAAP and discrimination)
 - Decision rights (disclosure)



Technology & Capital Markets

- **Scale of disruption from RegTech in capital markets**
- **Why have capital markets faced less disruption from technology than other financial services?**
 - Complexity of industry and regulations and technological innovation grey area
 - Bank risk aversion and negligence ramifications based on regulations
 - Scale of capital market networks and players
 - Market unpredictability
- **The opportunity for RegTech in capital markets**
 - Speed of innovation compared to larger institutions
 - Possibilities for solutions for KYC, for example, or trade surveillance
 - Partnerships with incumbents and addressing specific issues



Research Topics on the Horizon



Identity

Leveraging data and technology to better identify customers, reduce fraud, and improve financial inclusion locally and globally



AI Explainability

Assessing how ML outcomes in credit decisions can be understood by regulators and explained to consumers



Meaningful Consumer Consent

Utilizing data, AI, and devices to deliver effective disclosures and secure meaningful consumer consent



Emergence of Big Data

Determining how data can be used to help people and small businesses meet their immediate, near, and long term financial needs and goals



Financial Security

Leveraging technology and data to deliver affordable and accessible savings and wealth building products



Focus of Office of Financial Innovation

■ Outreach to FINRA stakeholders

- Roundtables, Topical Conferences, FinTech Office Hours
- Fintech Industry Committee

■ Training of FINRA staff

■ Research and Publications – www.finra.org/fintech

- Industry facing: E.g. Special Notice on Innovation, topical whitepapers, podcasts
- Investor facing: E.g. Investor Alerts on ICOs, digital assets, data aggregation, social media investing

■ Internal Coordination

- Central point of coordination for issues related to financial innovations

■ Regulatory Coordination

- Ongoing dialog with various domestic and foreign regulators

What is RegTech?

- **RegTech – subset of FinTech, technology innovations for regulatory compliance**
- **FINRA RegTech Report (September 2018)**
- **What Changed?**
 - **Relatively newer technologies present opportunities for faster, more efficient, risk-based compliance**
 - Artificial intelligence, machine learning, biometrics
 - Cloud-based computing and big data analytics
- **Market Size**
 - **Global demand for RegTech software is expected to reach \$119 billion by 2020**
 - **RegTech startups have raised \$2.3 billion in funding in last five years**

Applications of RegTech

Generally categorized in five broad areas:

- 1. Surveillance and Monitoring**
- 2. Customer Identification and AML Compliance**
- 3. Regulatory Intelligence**
- 4. Reporting and Risk Monitoring**
- 5. Investor Risk Assessment**

Convergence of Cloud Computing, NLP, & ML

- When big technology shifts occur, a wave of digital disruption ensues
 - In 2006, Cloud Computing disrupted the software distribution and hosting models and enabled the Infrastructure-as-a-service (IaaS) model
 - IaaS provides virtually unlimited scalability – both data and compute
- Convergence of Cloud Computing, Natural Language Processing (NLP) and Machine Learning (ML)
 - Old technologies that were not practical due to data and compute limitations are unleashed by the Cloud Computing disruption
 - Spawning new waves of new innovation in how decision support systems are developed
 - Can now process massive amounts of data very quickly

Keeping up with an avalanche of data

FINRA



Investor
protection



Market
integrity



Monitoring **99%** Equities
& **65%** Options in the US



Up to
135 Billion
events per day



100+
Million
Unstructured
Documents



30+pb
Structure
Data



Reconstructing
Trillions
of Market Nodes & Edges

Advertisement Review Process

FINra®



Communications with the Public

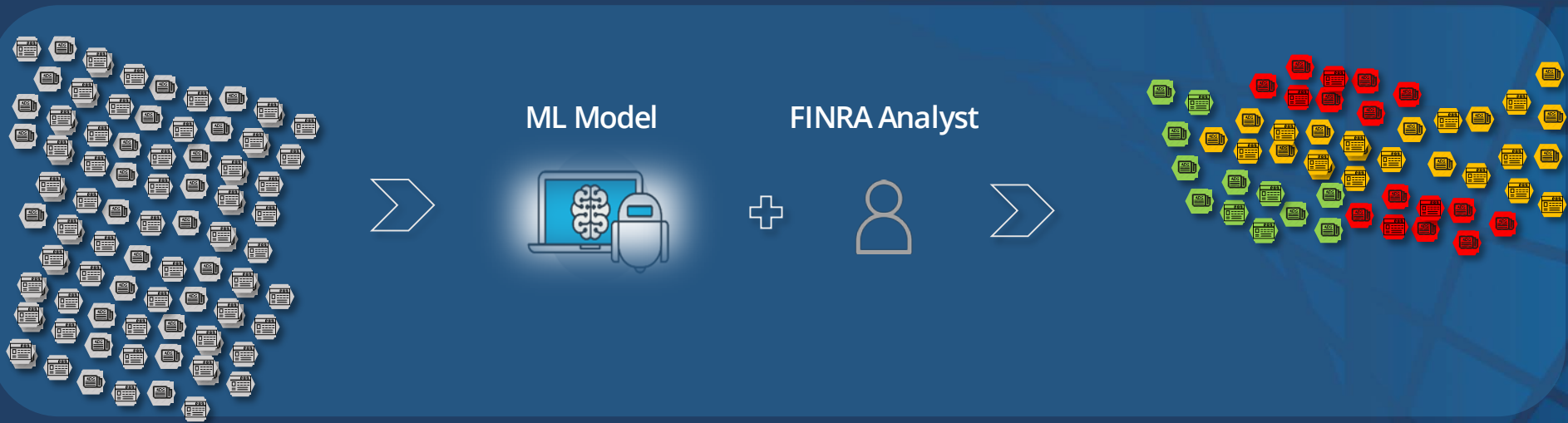


Retail Investors

75K Ads annually



Goals for using NLP + ML to assist with Reviews

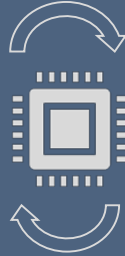


- Identify “risky” ads
- Identify “most similar” communications previously reviewed or pending review
- Extract pertinent information from documents and summarize
- Provide a seamless experience to the users

Machine Learning : Model Training and Prediction



Historical Advertisements



Machine Learning Algorithms



Trained Model



New Advertisements



Trained Model



Model Predictions



FINRA Analysts



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Questions & Answers