July 1, 2021

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Response to Request for Information and Comment on Financial Institutions' Use of Artificial Intelligence, Including Machine Learning

OCC: Docket ID OCC-2020-0049; Federal Reserve: Docket No. OP-1743; NCUA: Docket No. NCUA-2021-0023; FDIC: RIN 3064-ZA24; CFPB: Docket No. CFPB-2021-0004

The Financial Technology Association (FTA) appreciates this opportunity to respond to this multi-agency request for information regarding the use of artificial intelligence (AI) and machine learning (ML) in financial services (the "RFI"). As outlined in the request, AI/ML holds substantial promise in increasing the efficiency, accuracy, and capabilities of a broad number of important financial services and compliance functions and activities, but also requires clear understanding and guideposts for both the firms that leverage such tools and the regulators that oversee them. This RFI can help to drive further responsible adoption of AI/ML tools, while informing ways to mitigate identifiable risks.

The Financial Technology Association (FTA) and the Role of AI/ML in Fintech Innovation
(Question 17)

The Financial Technology Association (FTA) is a nonprofit trade organization that educates consumers, regulators, policymakers, and industry stakeholders on the value of technology-centered financial services and advocates for the modernization of financial regulation to support inclusion and innovation. The FTA is focused on informing tomorrow's regulations, policy frameworks, and public understanding in order to safeguard consumers and advance the development of trusted, digital financial markets and services.[1]

AI/ML technologies are a key building block of fintech operating models. Subject to appropriate human oversight, AI/ML can replace inefficient, manual, costly, time-consuming, and subjective processes, which may otherwise introduce bias. These advances can thereby yield more efficient, fair, and accurate results, whether in the context of underwriting, investment advice, fraud detection, AML and sanctions compliance, KYC, trade surveillance, or customer service. Firms that responsibly build around AI/ML technologies can ultimately offer consumers and market participants enhanced and safer products and service offerings, and expand access to financial services to consumers from traditionally underserved communities.

Recent advances in AI/ML can largely be traced to three key factors.[2] First, advances in AI/ML computer science have moved the field beyond prior rules-based approaches (for example, if-then statements), which previously limited the ability of machines to find correlations, connections, anomalies, and insights that go beyond human analysis. These advances hold substantial promise across a range of activities, including identifying creditworthy borrowers who would previously be declined to finding suspicious financial activity that would have previously dodged rules-based detection. Additionally, in certain applications, these AI/ML approaches can be continually "trained" using new datasets, thereby allowing the AI/ML model to refine its analysis through constant iteration.

Second, the development of exponentially more powerful and lower cost computers and data storage systems, including through use of public cloud, allows programmers to innovate on AI/ML models in ways that were unimaginable only a decade ago. Open source tools have further sped the pace of innovation and facilitated broader access to AI/ML tools that can be used for a variety of functions ranging from underwriting to compliance.[3]

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[1] FIN. TECH. ASS'N, www.ftassociation.org (last visited June 28, 2021).
[2] *Shaping the Future of Finance*, FIN. TECH. ASS'N (Mar. 10, 2021), https://www.ftassociation.org/wp-content/uploads/2021/03/fta-launch-paper_shaping-the-future-of-finance.pdf.
[3] Mark Hermeling, *Open Source and Cloud: A Power Couple in Financial Services*, FINTECH MAG. (May 16, 2020), https://fintechmagazine.com/venture-capital/open-source-and-cloud-power-couple-financial-services.

Third, the world has experienced an exponential proliferation of data, which powers AI/ML models, in just the past few years. While data quality is a key requirement (and risk), fintechs are uniquely positioned to help solve related challenges given their digitally-native systems that can improve core functions like data standardization and platform interoperability. Fintechs are also leading efforts to empower consumers with respect to use of data, and related data privacy and control.

To this end, open banking -- a broad term that covers data sharing between banks and non-bank payment companies, fintech companies, and other third-party service providers -- "can serve as a catalyst that gives consumers, including those in underserved communities, greater access to their bank data and to additional financial products… [and] allow third-party providers and financial institutions to make more informed decisions about the types of financial products they make available to a wider range of consumers."[4] In other words, open banking facilitates data sharing and utilization that empowers consumers and drives better financial products and outcomes.

AI/ML technologies also have the ability to reduce bias in decision making in financial services by utilizing more diverse data sets and applying them in ways that reduce human bias or subjective judgment. When designed and applied responsibly, they can substantially improve the quality and reach of financial markets and services.

One of the most promising areas of AI/ML-driven innovation is in the context of credit underwriting, where new models are increasing accessibility, accuracy, and fairness. It is well known that traditional approaches to lending have failed to serve many individuals and small businesses, whether because of the way traditional credit scores may embed bias or be too narrow in the information they consider.[5] Historic challenges with overt and subconscious discrimination by subjective human decision-making has also impeded access for many.

Innovative AI/ML approaches to underwriting are now solving for some of these longstanding challenges. For example, some AI/ML models are proving capable of quantifying the relative weighting of underwriting model inputs and reducing reliance on those known to correlate with protected class characteristics, while potentially improving accuracy or holding it constant.[6]

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[4] Ribbit Capital, Letter to the Office of the Comptroller of the Currency, August 2020.
[5] Aaron Klein, *Reducing Bias in AI-Based Financial Services*, BROOKINGS INST. (July 10, 2020), https://www.brookings.edu/research/reducing-bias-in-ai-based-financial-services/.
[6] *See* Bruce Upbin, *Making AI Less Biased is Becoming a Big Deal*, ZEST AI (Nov. 5, 2020), https://www.zest.ai/insights/making-ai-less-biased-is-becoming-a-big-deal; Patrice Alexander Ficklin & Paul Watkins, *An Update on Credit Access and the Bureau's First No-Action Letter*, CONSUMER FIN. PROT. BUREAU (Aug. 6, 2019), https://www.consumerfinance.gov/about-us/blog/update-credit-access-and-no-action-letter/ (noting that Upstart's AI model approves 27% more borrowers than traditional lending models with 16% lower average APRs for approved loans).

In the case of wealth management, robo-advisors have risen in popularity as they give consumers access to globally diversified portfolios of low-cost ETFs at a fraction of the price traditional advisors charge and without the high account minimums.[7] The AI/ML algorithms deployed by these firms can help individuals and families plan for their futures, save for long-term goals like retirement and college, and make smart choices about their money by, among other things, automatically allocating money based on a customer's risk profile. By driving down costs and offering advice previously affordable only to high-wealth individuals, these innovators are facilitating long-term wealth creation opportunities for many and helping to close the persistent wealth gap in America.

When it comes to compliance and "regtech," AI/ML tools are transforming the effectiveness and efficiency of internal processes. For example, AI/ML technology improves financial crime detection through rapid iteration and an ability to identify new suspicious activity typologies. Similarly, AI/ML can assist in fraud detection and market and trade surveillance by sorting large volumes of data and identifying new relationships and data correlations.[8] Finally, when it comes to disparate impact analysis, modern approaches, including adversarial debiasing,[9] can improve on legacy approaches and force models to reduce reliance on inputs known to correlate with protected class characteristics.

It is worth noting that these same AI/ML tools can also help regulators monitor risks and ensure compliance with regulatory requirements. FTA encourages regulatory adoption of AI/ML technologies that can improve oversight and advance safer markets and financial services.[10]

Explainability in the Use of AI/ML Technologies (Questions 1-3)

While AI/ML technologies hold substantial promise in advancing financial services, regulatory compliance, and consumer outcomes, there are also risks that can derive from irresponsible use of such tools. One potential risk is that a firm deploying an AI/ML tool does not understand or is unable to explain how a model reaches the result or conclusion it does from analyzing certain sets of data. This topic is often referred to as "explainability," and FTA agrees that it is critical that firms have an ability to monitor, understand, and explain the operations of an AI/ML model.

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[7] James Royal, *Best Robo-Advisors in June 2021*, BANK RATE (June 1, 2021), https://www.bankrate.com/investing/best-robo-advisors/.
[8] LABCFTC, CFTC, A PRIMER ON ARTIFICIAL INTELLIGENCE IN FINANCIAL MARKETS (2019), https://www.cftc.gov/media/2846/LabCFTC_PrimerArtificialIntelligence102119/download.
[9] Upbin, *supra* note 6, at 4.
[10] FSB, THE USE OF SUPERVISORY AND REGULATORY TECHNOLOGY BY AUTHORITIES AND REGULATED INSTITUTIONS (2020), https://www.fsb.org/wp-content/uploads/P091020.pdf.

The type or depth of explainability required, however, may vary based on the application of the AI/ML model, the related regulatory requirements, safety and soundness considerations, and the sensitivity of outcomes.[11] More specifically, in the context of consumer lending, concerns around explainability may be at their height given the risk of discrimination or amplification of bias embedded within the data. Additionally, regulatory requirements impose an obligation on a lender to understand and report to a borrower the reason for a denial of credit or an "adverse action."

Fortunately, there are a number of methodologies and techniques that should meet any reasonable explainability standard. For example, there are AI/ML solutions that quantify the relative weighting of underwriting model inputs and reduce reliance on those known to correlate with protected class characteristics while improving or holding accuracy constant.[12] These AI/ML models may also be designed to discover less discriminatory alternatives to an original model, and through quantitative outputs fully explain the rationale underpinning a scoring decision.

In the context of financial crime detection, fraud prevention, and trade monitoring and surveillance, the degree and type of explainability required may differ.[13] Here, subsequent investigation of alerts (sometimes manually) can help train and calibrate a model, and a number of explainability techniques can give both firms and regulators sufficient comfort in the valid operation of the model.

Given the highly technical nature and rapidly developing field of AI/ML explainability, the following recommendations could advance the safe adoption and sound regulation of these promising technologies:

- Federal financial regulators should further train specialized staff and examiners in AI/ML modeling and explainability techniques. The successful implementation of AI/ML models requires that regulators and examiners have a sophisticated understanding of the technology;
- Financial regulators should jointly engage the industry to develop guidance and enhanced certainty regarding explainability expectations for the application of AI/ML to particular

[11] Lael Brainard, Governor, Bd. of Governors of the Fed. Reserve Sys., Address at the AI Academic Symposium: Supporting Responsible Use of AI and Equitable Outcomes in Financial Services (Jan. 12, 2021), https://www.federalreserve.gov/newsevents/speech/brainard20210112a.htm ("Not all contexts require the same level of understanding of how machine learning models work.").
[12] Ken Garcia, *Automating the Search for the Fairest Model*, ZEST AI (Feb. 8, 2021), https://www.zest.ai/insights/automating-the-search-for-the-fairest-model.
[13] INST. OF INT'L FIN., EXPLAINABILITY IN PREDICTIVE MODELING (2018), https://www.iif.com/portals/0/Files/private/32370132_machine_learning_explainability_nov_2018.pdf.

use-cases.[14] For example, regulators could work with technical and industry experts to develop guidelines for evaluating whether Shapley, LIME, drop-one, or an alternative explainability approach is appropriate for a given use of AI/ML models; and

- Financial regulators should leverage innovation offices and programs, including testing environments and tech sprints, to engage with industry in developing and understanding evolving explainability methodologies and techniques.

Advancing Fairness and Inclusion in Lending (Questions 11-15)

As noted above, traditional approaches to consumer and small business lending have resulted in well-documented credit gaps and have disproportionately impacted already underserved populations.[15] Legacy credit scoring systems are known to heavily correlate with race and other protected class characteristics,[16] and often exclude many minority and immigrant groups who have limited or no traditional credit footprint. Regulation should accordingly evaluate the merits of AI/ML technologies relative to legacy approaches and assess their ability to enhance outcomes, while reducing risks of bias.

It is within this context that fintech lenders are using online and mobile platforms, and, at times, automated underwriting and unique or nontraditional data to provide funding to businesses and individuals in a more streamlined and inclusive way. Using these services, borrowers can request loans online and receive credit decisions that are faster and more consistent with their actual creditworthiness.

While AI/ML technology is not necessary for more inclusive underwriting and responsible uses of alternative data, these capabilities make it easier for companies to serve people with needs that may not be addressed by conventional underwriting, including unbanked and underbanked individuals with thin credit files. Traditional lending models often shy away from these customers because the cost of underwriting them exceeds expected returns or the legacy modeling tools used to underwrite can only utilize traditional data, such as a credit score.

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[14] While the CFPB has acknowledged that AI/ML models can be used consistent with existing regulations, it has also acknowledged that its related commentary could more clearly explain the standards applicable to AI/ML explainability requirements. *See* Patrice Alexander Ficklin, Tom Paul, & Paul Watkins, *Innovation Spotlight: Providing Adverse Action Notices When Using AI/ML Models*, CONSUMER FIN. PROT. BUREAU (Jul. 7, 2020), https://www.consumerfinance.gov/about-us/blog/innovation-spotlight-providing-adverse-action-notices-when-using-ai-ml-models/ (referencing 12 C.F.R. part 1002, Supp. I, ¶ 9(b)(2)-5; 47 FR 46074, 46075 (Oct. 15, 1982) (promulgating comment 5)).

[15] Karen Gordon Mills & Brayden McCarthy, *The State of Small Business Lending: Innovation and Technology and the Implications for Regulation*, (Harv. Bus. Sch., Working Paper No. 17-042, 2016), https://www.hbs.edu/ris/Publication%20Files/17-042_30393d52-3c61-41cb-a78a-ebbe3e040e55.pdf; KENNETH P. BREVOORT, PHILIPP GRIMM & MICHELLE KAMBARA, CONSUMER FIN. PROT. BUREAU, DATA POINT: CREDIT INVISIBLES (2015), https://files.consumerfinance.gov/f/201505_cfpb_data-point-credit-invisibles.pdf.

[16] Klein, *supra* note 5, at 3.

Fortunately, AI/ML models can efficiently analyze a multitude of data, including appropriate new data sources, in determining whether to extend credit to borrowers who may have difficulty getting a traditional loan. Information such as cash flow analysis, credit card usage, and payment patterns on utility bills -- commonly referred to as alternative data -- can help accurately predict default risk and creditworthiness.[17] At the same time, as previously noted, AI/ML underwriting can also improve outcomes for women and people of color, by increasing approvals and enhancing fairness, and reduce or eliminate reliance on traditional credit scores that have traditionally adversely impacted these same underrepresented groups.

Alternative data can also help forecast income prospects, assess a borrower's prior track record and appraise collateral value in an automated way. A recent study by FinRegLab found that cash flow underwriting holds particular promise in small business lending, as businesses owned by minorities, immigrants, and women still face higher obstacles in obtaining traditional credit.[18] Using automated cash flow data may allow fintech lenders to engage in "faster, more sophisticated, and more consistent analysis" and can be especially valuable for startups and young businesses that have not built a strong credit history.[19]

Both providers and borrowers benefit from the ability to optimize these processes through AI/ML. With lower default rates and more automated underwriting processes, fintech lenders can reduce costs and pass on those savings directly to consumers. They are also incentivized to provide credit to individuals and businesses that are normally overlooked.

The use of AI/ML tools in underwriting must, of course, be subject to appropriate safeguards. As noted in the prior section, lenders must be able to explain how a model is reaching a particular conclusion, and must be able to identify the principal reasons why a borrower might be declined to the extent required by Regulation B. Consistent with the prior set of recommendations, it would be prudent for regulators to:

- Explore and publish findings on well-accepted explainability techniques and to encourage lenders to use available technologies that are proven to expand access and fairness in lending; as part of this, regulators and policymaker should provide for longer-term data collection and studies showing the impact of AI/ML decision making on underrepresented groups;
- Expand sandbox and safe harbor environments to allow for more robust testing of new methodologies. While such environments should not be a prerequisite to deploying new models, their availability can help foster further understanding of new technologies and

[17] FINREGLAB, THE USE OF CASH-FLOW DATA IN UNDERWRITING CREDIT: SMALL BUSINESS SPOTLIGHT (2019), https://finreglab.org/wp-content/uploads/2019/09/FinRegLab-Small-Business-Spotlight-Report.pdf.
[18] *Id.*
[19] *Id.*

the development of consumer-centric models; and

- Regulators themselves should be encouraged to adopt leading AI/ML technologies that can enhance their capacity to monitor fair lending compliance.

<u>The Centrality of Data</u> (Questions 4-5)

The quality and integrity of data ingested by AI/ML models is key to generating sound outputs. Fortunately, as noted above, fintech is well-positioned to help solve challenges around data quality given its reliance on data standardization and interoperability. Indeed, data aggregators have built their core businesses to facilitate the interoperable transfer of clean data between and across financial services firms and related data repositories.

Much of the credit and AI/ML driven innovation seen today is focused on efficiently moving and analyzing known financial variables, including cash flow data, deposit data, payments data, and traditional credit bureau data. In other cases, new sources of data, such as utility and telecom payments, can be incorporated to drive more inclusive finance, especially for those with thin or no credit files.

Given the importance of allowing safe and open access to financial data that can unlock improved financial products and outcomes for consumers, FTA recommends that regulators aim to ensure the benefits of and provide clarity on open finance by implementing regulations on Dodd-Frank 1033, the single section of U.S. law that gives consumers rights to their data since its passage in 2010.

To this end, policymakers should work to encourage the free flow of data from other institutions that touch a consumer's financial life, including payroll companies, telecom and utilities providers, government data such as Social Security, and more.

By enabling free-flowing information, subject to privacy and security guardrails, and consumer-directed collaboration among financial and fintech entities, open finance can give consumers total ownership of their financial data -- including transaction history, real-time account balances and loan payment history -- so that they can access the services best suited towards their individual needs. Consumers can then rely on their ability to authorize third party access to their financial information in order to unlock digital finance products and services that help them conduct their financial lives.

When it comes to ensuring that data is not further embedding bias or driving disparate impact, FTA believes that industry and regulators can leverage AI/ML tools and techniques. As noted above, technologies exist today to help determine whether less discriminatory alternatives to a model exist. Additionally, fair lending testing of models requires accurate estimations of protected class membership status so that a lender can determine whether its models cause

disparities. Currently, the CFPB and many lenders use a method called Bayesian Improved Surname Geocoding (BISG) to estimate race and ethnicity. That method can be improved, and regulators should explore ways of improving it to ensure disparities are not obscured by inaccurate estimation methods. The FTA and its members would welcome engagement on this topic and the potential for improvement.

Finally, the FTA further recommends that financial regulators consider ways to expand consumer-directed access through secure API channels to government-held data that can drive improved financial products and outcomes. Current initiatives are underway with respect to creating efficient access to tax data,[20] but more can be done to unlock broader sets of government-held data. To this end, financial regulators should consider how to further unlock appropriate data that can enhance regulatory compliance -- for example, in terms of BSA reporting -- and improve credit underwriting models.

Advancing Community Institution AI Adoption, Partnerships and Broader Regtech Innovation (Questions 9-10; 16)

AI/ML tools can enhance the operations, efficiency, and compliance of all financial institutions, including small and community banks. Sound policy can provide these institutions with greater regulatory clarity beyond existing model risk management guidance, as needed, regarding their ability to adopt and incorporate these promising technologies provided by third-party partners and vendors. This can be accomplished with further regulatory guidance that defines expectations and provides clear guideposts for adopting new technology, including with respect to explainability requirements, as noted above.

This approach would recognize the benefits of harnessing leading-edge AI/ML technologies and actively seek to facilitate adoption. One notable model was recently proposed by the FDIC. In 2020, the FDIC issued a request for information to promote the adoption of promising technologies, and included a proposal regarding the establishment of standard setting organizations and the creation of voluntary standards certification programs.[21] These efforts should be advanced and done so through multi-agency coordination to ensure that resulting standards are applicable to meet all relevant regulatory requirements.

Broader industry efforts focused on establishing standards and consistent regulatory oversight expectations, including around cybersecurity as it relates to AI/ML, are also worth promoting, as is further leveraging the capabilities of the National Institute of Standards and Technology

[20] Peter Renton, *Congress Passes New Law to Mandate IRS Modernization*, LEND ACADEMY (Jun. 17, 2019), https://www.lendacademy.com/congress-passes-new-law-to-mandate-irs-modernization/.
[21] FDIC, Request for Information on Standard Setting and Voluntary Certification for Models and Third-Party Providers of Technology and Other Services, 85 Fed. Reg. 44890 (requested Jul. 24, 2020).

(NIST). We strongly encourage further exploration of these approaches and related concepts that can increase certainty and speed up the safe adoption of AI/ML and other technologies in financial services.

We also encourage additional regulatory innovation efforts that can foster the adoption of AI/ML tools capable of solving key regulatory compliance challenges. For example, specific to financial crime, in December 2018, FinCEN, the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the National Credit Union Administration, and the Office of the Comptroller of the Currency issued a joint statement not only encouraging financial institutions to take innovative approaches in their AML compliance programs, but also providing regulatory leeway for them to do so.[22] This can be a powerful signal to market participants and can drive further technology adoption.

Building on encouragement, there is further opportunity for regulators to advance AI/ML innovation in the context of AML and financial crimes compliance. If financial regulators, including FinCEN, clearly define objectives and provide guideposts for enhancing compliance, fintech and regtech companies will further develop and implement "smart" machine learning-based technologies that help identify patterns and behaviors that current rules-based systems, built on static monitoring rules, are incapable of detecting.

Additionally, financial regulators should consider how to expand the parameters in which payment services providers can explore AI/ML with the goal of eventually replacing those static rules. This would better support financial companies using AI/ML to quickly detect advanced and constantly evolving criminal efforts. Ultimately, greater latitude for regtech innovation can optimize compliance efficiency without further complicating legacy systems and processes.

Conclusion

The FTA welcomes the opportunity to share feedback and recommendations on this multi-agency RFI. Breakthroughs in the development of AI/ML tools hold substantial promise in further automating and advancing financial markets and services in the United States. As with all technological innovation, we must be prepared to foster the positives and mitigate novel risks or challenges. Sound policy, however, must recognize that the future of finance will inevitably be underpinned by new technologies, including AI/ML, and should accordingly develop forward-leaning and proactive frameworks to accommodate these developments. The FTA stands ready

[22] Press Release, Bd. of Governors of the Fed. Reserve Sys., Joint Statement on Innovative Efforts to Combat Money Laundering and Terrorist Financing (Dec. 3, 2018), https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20181203a1.pdf.

to serve both as a resource to regulators and a responsible stakeholder committed to building a system of finance that best serves America's consumers and small businesses.

Sincerely,

Financial Technology Association