



**2022-10-30**

**FEDERAL HOUSING FINANCE AGENCY  
OFFICE OF FINANCIAL TECHNOLOGY**

400 7TH STREET SW, WASHINGTON, DC 20219

Re: Fintech in Housing Finance: Request for Information

To Whom it May Concern,

Thank you for the opportunity to provide our comments on your request for industry input concerning the landscape of fintech in housing finance. Cielway is a fintech company aiming to provide all members of the housing finance communities with intelligent solutions empowered by the efficiency and capacity from our technology innovation. The scalability of our solution allows us to cater to enterprises of all sizes with a focus on small and medium size companies in order to create a level playing field for the industry. Our value proposition to the industry is to do more with less. And we are committed to serving the needs and improving the financial situation of all American homeowners.

As the president of the company, I entered my career during the tectonic shift of the industry back from 2007. I am deeply aware of the issues embedded at the time and can fully appreciate the important interplay between the primary and secondary mortgage markets. It is with this understanding and the experience of participating in the advancement of information technology that we have come to this stage of offering our innovative solutions. It is our honor to present to the FHFA Office of Technology our humble opinions on a few issues presented in this RFI. We are in full support of the responsible use of fintech in our industry.



**Question A.3 What factors currently inhibit the adoption of fintech and innovation in the primary and secondary housing finance sector? Are there specific challenges related to privacy laws, industry standards, or current practices?**

From fintech solution providers' point of view, dealing with legacy vendor systems is one of the major factors inhibiting the adoption of technology innovation. Existing solutions are fully ingrained in the mortgage life cycle and switching between different technology vendors can be very costly to customers in terms of time and money not to mention additional compliance risk. It is documented in the industrial report that it can take up to 18 months for major banks to switch software vendors. For institutions buying and selling portfolio of loans, the service data transfer can normally take 3-4 months. Achieving a mortgage lingua franca will certainly help smoothing this process. On the other hand, making more data available and more rapidly to the public without sacrificing the consumer privacy law can also help the industry tremendously with adopting new technologies. On this note, I should praise FHFA for having the GSEs starting to release the loan level data since 2013 as a result of the Dodd-Frank Act. The broad investor communities have been benefited greatly by the availability of such data. The unifying release of the data allows industry participants to bypass the inconvenience of extracting information from legacy vendor systems and build solutions on top. FHFA and the regulated enterprises should encourage data standardization like MISMO and the sharing of their data subject to appropriate limitation. With that, many new innovations can be built around these data without waiting for a "big bang" technology revolution. The changes will be incremental with specked technology bursts. The industry will not be constraint to only a few vendor solutions while the broader lending market is fragmented and diverse.

**Question B.1 What kind of fintech activities have the greatest potential to positively impact the housing finance sector? Describe several situations in which a product or service has been or could be used, the factors considered in determining importance, and associated impacts.**

Data is the new oil of the industry, and it also can be the lubricant of the industry. However, mortgage industry often lives with corrupted data, missing data and data with different formats,



schemas, and glossary by different institutions. Therefore “big data” solutions with scalability in terms of efficiency and capacity will have the biggest impact. 1. The industry need to cleanse and normalize data that can encourage innovative competition, avoid tech silos and facilitate industry standardization. The scalability of such solution is aimed at creating a level playing field for the industry to make technology more affordable to smaller size institutions and adopt better technology faster. 2. Such solution can fill the need of “checkers checking the checkers” in the industry. Big data can run sanity check on data consistency every step of the way owing to massive data processing power. The diagnostic application is not limited to data quality control but also to validation of ‘black box’ artificial intelligence algorithms for better fair lending practices for example. 3. Do more with less – less time and less cost. Modern day mortgage analytics can’t live in the silo of housing data alone. More and better intelligence often come with mashing up mortgage data with economic data, demographic data and many other alternative data all at a very granular level. Expedient descriptive and predictive analytics needs to be built on massive amount of information without sacrificing time and cost. For example, during the pandemic, we can use the Covid cases and the lockdown policy to gauge the impact on homeowners, help servicers predict and prepare for forbearance assistance. On the day when hurricane land, we can use data from NOAA (National Oceanic and Atmospheric Administration) to pin down the impacted area and identify the associated loan IDs in the GSE dataset. This not only can help secondary market to assess the loss impact but also can empower servicers to reach out and initiate immediate loss mitigation process.

**Question B.2 What are the typical time requirements of each process within the mortgage lifecycle? What are the “critical path” activities that drive the mortgage timeline and borrower expense? How could fintech be applied to improve efficiency, reduce costs, reduce time requirements, or facilitate equitable outcomes for borrowers?**

Data capture, collection, and validation are the most labor-intensive parts embedded in the mortgage industry. Even though we can’t envision a fully automated process soon, but augmented processing or assisted intelligence is achievable. Scalability is the key here in technology. Fintech with scalable technology will bring up efficiency and bring down cost.



Computing power is cheap these days, but skills are rare. When technology is scalable, the time to process data validation for one loan is the same as one thousand loans. Modern day technology can complete a sophisticated job calculating large portfolio risk within an hour that used to be an overnight process in the big financial institutions. With scalability multiple technologies can be used for the same task in order to perform double check, triple check, quadruple check, etc. With scalability, multiple statical analyses can be performed on large sample population to validate black box algorithms and provide guidance on fair lending practice.

**Question B.4 What are the existing data challenges that most prevent data-driven decision-making in the mortgage lifecycle?**

As mentioned above the industry has challenges of data accessibility, quality, and interoperability. In terms of accessibility, GSEs should be able release more data more rapidly. For example, compared with the government loan release on a monthly basis, GSEs data are released quarterly with a 6-month delay. In crisis mode, data recency can be vitally important for the public and the industry to properly assess the severity of the impact and bring in control.

For data quality and interoperability, the industry needs massive computing power to quickly cleanse data and transform them from one format to another, and hopefully all to one industry standard like MISMO. For many institutions, data are buried in different systems and scattered around at different places. They lack the proper skills to handle the challenges, like system migration. Such big wave of migration can be coordinated at the industry level to lift and shift them onto the information highway – cloud computing infrastructure. This can open the door to many creative solutions.

**Question C.1 What new fintech tools and techniques are emerging that could further equitable access to mortgage credit and sustainable homeownership? Which offer the most promise? What risks do the new technologies present?**



The assisted intelligent application that can help educate borrowers with the lending products and process can be the most promising, especially for minority groups of which many are often hesitant or afraid to apply for mortgage credits. However predatory lending can be the risk for such kind of technology.

**Question C.2 What emerging techniques are available to facilitate or evaluate fintech compliance with fair lending laws? What documentation, archiving, and explainability requirements are needed to monitor compliance and to facilitate understanding of algorithmic decision-making?**

Careful data curation at every step of the lending process will lend itself to evaluate fintech compliance with fair lending. Backtesting black-box algorithms using sample data of large quantities and varieties coupled with standard statistical analysis such as analysis of variance can be used to quantify the difference in lending practice and shed light on any potential risk of discrimination.

**Question C.3 Are there effective ways to identify and reduce the risk of discrimination, whether during development, validation, revision, and/or use fintech models or algorithms? Please provide examples if available.**

See answer to Question C.2.

**Question D.2 What risk management practices do industry participants use to address the risks posed by fintech and innovation in housing finance?**

Having skin in the game is always a good general practice on risk control.

**Question E.1 What are the most promising areas for applying technology to regulatory and compliance functions? Please describe opportunities for “regtech” to simplify or improve compliance with FHFA, Enterprise, or FHLBank requirements.**



The automation of compliance rules in doing diagnostics and producing exception reports will play to the strength of big data technology. This all rests with the big data processing power inside business rule engine that can quickly run through all loans at the national level. In capital market, nationwide regulatory surveillance reports by FINRA for more than 1 billion securities transactions daily can be readily produced within an hour. Similar technology can also be used for regulatory and compliance purpose in mortgage industry. The automation of compliance report generation can significantly streamline the supervisory functions to improve compliance and risk management. The bottom line is automation can largely alleviate the compliance cost burden on lenders and servicers.

**Question F.2 What are some topics for a housing finance-focused “tech sprint” and how could FHFA encourage participation?**

- How would alternative data like rent payment be used as a predictive indicator for homeowner delinquency behavior?
- What would be the best way and protocol to exchange servicing data among different institutions?

We appreciate the opportunity to provide feedback on this RFI and would be happy to discuss further if you have any questions.

SINCERELY,

A handwritten signature in black ink, appearing to read "Howard Lin".

HOWARD LIN  
HOWARD.LIN@CIELWAY.COM  
PRESIDENT

CIELWAY