



Denyette DePiero
denyette@amazon.com

Tuesday, October 31, 2022

Federal Housing Finance Agency
Office of the Director
400 7th Street, S.W., 10th Floor
Washington, D.C., 20219

Office of Financial Technology
400 7th Street SW, 5th Floor
Washington, D.C. 20219

Submitted electronically via www.fhfa.gov/AboutUs/Contact/Pages/Request-for-Information-Form.aspx

Dear Director Thompson and Deputy Director Cave;

Amazon Web Services (AWS) appreciates the opportunity to respond to the Federal Housing Finance Agency's (FHFA) July 18 Request for Information (RFI), [Fintech in Housing Finance](#). Released in conjunction with the creation of the Office of Financial Technology (OFT), the RFI's focus on the role of technology in housing finance and the current landscape of innovation is important and timely. We welcome the invitation to engage with the FHFA, Chief Fintech Officer Cave, and the new OFT in exploring the mortgage lifecycle and related processes, risks, and opportunities from a cloud technology perspective.

Through continuous innovation, AWS delivers the most stringent security requirements in the world, the greatest breadth and depth of services, deep industry expertise, and an expansive partner network.¹ In 2006, AWS began offering IT infrastructure services to businesses as web services—now commonly known as cloud computing.² Millions of customers, including the fastest-growing startups, largest enterprises, and leading government agencies, are using AWS to lower costs, become more agile, and innovate faster. Today, AWS provides a highly reliable, scalable, low-cost infrastructure platform in the cloud³ and has been continually expanding its services to support virtually any cloud workload. AWS now has more than 200 fully featured services for compute, storage, databases, networking, analytics,

¹ AWS revenue was \$18.44 billion in Q1 2022, which grew by 37% year-over-year. AWS annualized revenue run rate was \$74 billion in Q1 2022.

² Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, customers can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider. Federal Financial Institutions Examination Council (FFIEC), [Joint Statement Security in a Cloud Computing Environment](#) (April 2020) citing [NIST SP 800-145, The NIST Definition of Cloud Computing: Recommendations of the National Institute of Standards and Technology](#), defines cloud computing as a "model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or third-party service provider interaction."

³ Case studies of government agencies and educational institutions migrating to the AWS Cloud can be found on the AWS [website](#). AWS case studies of global financial services companies can be found [here](#).

machine learning and artificial intelligence (AI), Internet of Things (IoT), mobile, security, hybrid, virtual and augmented reality (VR and AR), media, and application development, deployment, and management.⁴ AWS provides governments and financial services institutions across banking, payments, and housing the secure, resilient global cloud infrastructure and services they need to differentiate themselves today and adapt to the needs of tomorrow.

Organization of Response

In preparing this response, AWS convened a cross functional team of technology, compliance, and policy experts to draft a comment letter outlining how cloud technology could foster responsible innovation and modernization across the housing finance industry. The result is a two-part response composed of this initial summary letter, and the attached appendices offering detailed responses and resources.⁵

The AWS working group elected to respond to those RFI questions most pertinent to cloud technology:

1. *A.2 How could FHFA facilitate adoption of “responsible innovation”?*
2. *B.4 What are the existing data challenges that most prevent data-driven decision-making in the mortgage lifecycle?*
3. *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?*
4. *D.2 – What risk management practices do industry participants use to address the risks posed by fintech and innovation in housing finance?*

Summary of Recommendations

As detailed in the attached appendices, the AWS team identified 4 recommendations:

1. Responsible innovation integrates efficiency and speed with security, transparency, and equitable decision making.
2. The existing data challenges preventing data-driven decision making are the inherent organizational challenges to manage, process, analyze, and store vast and increasing amounts of data.
3. Equitable access to credit could leverage Artificial Intelligence/Machine Learning coupled with alternative data sets to produce tailored credit decisions for individual borrowers.
4. Building fintech solutions in a secure cloud environment can support innovative companies in meeting their legal and compliance requirements while helping to protect sensitive customer information.

⁴ Please review the full list of services at the AWS [website](#).

⁵ Appendix A is the substantive AWS response to the RFI. Appendix B and C are provided as reference materials in support of the AWS response. Appendix B is the AWS *Customer Guide: Responsible Use of Machine Learning*. Appendix C is an AWS study, *Fairness Measures for Machine Learning in Finance (Fall 2021)*.

AWS appreciates FHFA's sustained interest in consulting industry and inviting feedback on innovative technology solutions. I welcome the opportunity to discuss this response and coordinate within AWS to support FHFA's fintech journey. Thank you for your consideration of these recommendations.

Respectfully,

A handwritten signature in black ink, appearing to read "Denyette DePierro". The signature is fluid and cursive, with the first name being the most prominent.

Denyette DePierro
US Regulatory Policy Lead, Financial Services
denyette@amazon.com