HUD AI Strategy
for OMB Memorandum M-25-21

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Executive Summary

The U.S. Department of Housing and Urban Development (HUD) is committed to leveraging emerging technologies to advance its mission of ensuring access to affordable housing and expanding opportunities for sustainable homeownership. As the housing market and economic conditions evolve, Artificial Intelligence (AI) offers a transformative opportunity to deliver measurable value to HUD's programs and to the American taxpayer.

Through responsible and governed AI, HUD can reduce administrative burdens, accelerate program functions, and increase the overall efficiency of housing assistance programs. This creates tremendous opportunity for time and cost savings beneficial to HUD, its employees, its housing partners, and the families it serves.

This Artificial Intelligence (AI) Strategy outlines an integrated approach for responsibly advancing AI at HUD in support of its mission. The strategy highlights key AI use cases that demonstrate high-impact opportunities to improve efficiency, enhance decision-making, and deliver better services to the public. It also outlines HUD's AI maturity objectives across six critical domains, as well as an assessment of HUD's current state of AI maturity and an action plan for advancing HUD's AI maturity.

Guiding Principles

HUD's AI strategy was developed to support the following key principles:

1. **Promote AI Innovation:** Foster a pro-innovation approach to AI adoption, removing barriers to responsible AI use and maximizing value for taxpayers.
2. **Enhance Governance:** Establish clear AI governance frameworks that empower leaders and streamline decision-making processes.
3. **Build Public Trust:** Ensure AI systems uphold public trust by aligning with democratic values, protecting civil liberties, and maintaining transparency.
4. **Strengthen Technical Foundation:** Build data readiness, infrastructure, and workforce skills needed to scale AI HUD-wide, while safeguarding privacy and security

Examples of HUD AI Use Cases

The following are examples of significant AI use cases that HUD currently uses or plans to use:

- The **FHA Resource Center Virtual Assistant** is planned to be deployed to the FHA Resource Center to assist end users find information on public policies, including answering questions based on FHA's available 2,200+ Frequently Asked Questions. This will be accessible via the online chatbot, as well as via phone through the FHA Resource Center Interactive Voice Response System (IVR) voice bot. Virtual Assistant will use natural language processing (NLP) and machine learning (ML) to generate rules-based decisions to answer the user's questions.
- **Microsoft Copilot** has been deployed to a pilot group of users across HUD to help boost efficiency and shift from working on routine, mundane tasks to higher-value work. Microsoft Copilot is integrated into Microsoft 365 applications like Word, Excel, and Outlook, and uses

advanced natural language processing to help with tasks like drafting documents, summarizing content, and generating data insights.

- Ginnie Mae's **Subledger Data Quality Machine Learning** solution has been integrated into key transactional reporting processes. The solution enables preemptive detection of data outliers and anomalies by analyzing historical trends, thereby reducing errors and the need for manual adjustments in downstream processes.

HUD AI Maturity Goals

To drive responsible and effective adoption of AI, HUD's AI strategy is comprised of six critical maturity goals, which are outlined in this section.

AI-Enabling Infrastructure

HUD must build secure, scalable infrastructure to support the full AI lifecycle. The AI-enabled infrastructure must be seamlessly integrated with HUD's overall Information Technology (IT) ecosystem and enterprise architecture, data governance, and security and privacy requirements.

AI Lifecycle Phase	Purpose	Infrastructure Capabilities	Practices & Controls
Development	Enable secure, transparent, and reproducible AI development using HUD data and tools	• AI development environment • Integrated data science and machine learning tools • Secure access to HUD data • Data version control and lineage tracking tools • Tools for bias detection and model explainability • Establish Continuous Integration/Continuous Delivery (CI/CD) Pipeline, including Machine Learning Operations (MLOps) and Development, Security, Operations (DevSecOps)	• Role-based access • Controls on use of production data: properly train models, while protecting data • Document datasets and models
Testing and Validation	Ensure AI system meets performance and compliance	• AI staging environment	• Use test or masked data

	requirements prior to deployment	• Automated model testing and validation tools • Data version control and lineage tracking	• Validate model meets performance, compliance, and audit requirements • Test for bias and adjust model accordingly
Deployment	Move models to production in a secure environment	• Authority to Operate (ATO) granted AI production environment; FedRamp compliant (where applicable)	• Obtain ATO and Privacy approval (e.g., final PIA) • CCMB/TRC approval
Continuous Monitoring	Maintain AI model quality and trustworthiness	• Monitoring and auditing tools and reports • Compliance KPIs (Bias, Drift)	• Escalation process for addressing flagged issues • Change control processes for ongoing model adjustments

Data

HUD's approach to AI depends on a strong data foundation that is AI-ready but AI-safe, enabling responsible innovation while safeguarding the agency's information assets, privacy, and equity.

Objective	**Details**
Data Shall Be AI-Ready but AI-Safe	• Prepare high-quality, well-governed data for AI through structured data workflows that automate collection, cleaning, validation, and transformation, while maintaining safeguards to prevent misuse, ensuring privacy and ethics. • Implement robust anonymization, masking, bias mitigation, and compliance checks (per OMB M-25-21) before model ingestion. • Encrypt AI pipelines (TLS 1.3), log and isolate access, integrate security scans, and enforce Zero Trust principles at every stage of the data workflow. • Require true tenant isolation and segmentation for high-value PII data across all data workflows.
Maintain Metadata Transparency and Lineage for AI	• Capture and update metadata describing data quality, usage, and origin. • Support AI by using lineage and metadata to assess data suitability for modeling.
Protect Against Data Scraping & Leakage	• Apply DLP tools, scraping protection, and audit logging to safeguard sensitive datasets used in AI and detect exfiltration or misuse.

Retain Data Ownership and Lifecycle Control	• Maintain full ownership and visibility of AI data assets throughout their lifecycle, with clear data owners, lineage tools, and enforcement of data policies.
Minimize Vendor Lock-In	• Avoid lock-in by favoring open-source or cloud-neutral solutions; ensure AI-related data and logic are portable across platforms.
Implement Continuous Scanning & Audit	• Continuously scan datasets for compliance and quality issues and implement real-time audit logging to ensure AI data meets governance and compliance standards.
Ensure Metadata Transparency & Lineage	• Leverage metadata and lineage for AI readiness (e.g., store data quality scores, update timestamps, and usage statistics as metadata). This allows AI models to automatically assess if data is suitable.

AI-Ready Workforce

HUD is committed to developing an AI-skilled and ready workforce to support the deployment, oversight, and use of AI technologies. HUD's approach focuses on recruiting top talent, building internal capacity, and ensuring broad AI literacy across all relevant roles.

Objective	**Details**
Define AI Workforce Needs	• Identify critical technical roles (e.g., data scientists, machine learning engineers, AI product managers, AI governance specialists). • Map talent needs to mission areas where AI can drive the most value (e.g., housing analytics, fraud detection, document processing).
Recruit and Hire AI Talent	• Develop AI-specific position descriptions. • Leverage applicable hiring authorities. • Partner with various groups (e.g., government entities, including state and local, academia, and professional organizations) to attract talent.
Train, Upskill, and Build AI Literacy Across the Workforce	• Develop tailored training paths for both technical staff and non-practitioners • Connect AI and data literacy training where possible • Identify and leverage AI training programs and resources (e.g., interagency offerings, HUD training and development tools) and incorporate responsible AI principles (e.g., bias mitigation, explainability, data ethics). Develop additional training materials/programs to supplement as needed. • Promote awareness of HUD's AI capabilities and their use in enhancing program delivery and operations, as well as HUD AI policies and processes

Retain and Empower Talent	• Establish an AI community of practice that allows the HUD workforce to share ideas and lessons learned, collaborate and mentor. • Offer flexible career paths and growth opportunities through details, new assignments, and recognition programs. • Ensure AI staff are engaged early in projects and empowered to shape policy and delivery.
Incorporate AI into Workforce Planning	• Align AI hiring and training efforts with HUD's broader Human Capital strategy. • Regularly assess skills gaps and update workforce plans to respond to HUD mission needs and the evolving AI landscape.

Research and Development

HUD must invest in a strong pipeline of emerging technologies to promote AI innovation that supports HUD's mission and aligns with federal guidance.

Objective	Details
Conduct AI Proofs of Concept and Pilots	• Launch time-boxed, low-risk AI proofs or concepts and pilots to solve mission-aligned challenges • Use an agile, iterative approach to evaluate effectiveness, scalability, and risks before operationalizing AI solutions.
Partner with Other Entities in Innovation Efforts	• Explore collaborations with other entities (e.g., universities, national labs, and interagency partners) to access AI R&D expertise and resources. • Participate in federal AI initiatives (e.g., CAIO Council) to stay aligned with emerging techniques and tools and contribute to government-wide innovation efforts. • Adopt reusable AI tools, frameworks, and shared services developed by other agencies.
Establish a Centralized AI Testbed Environment	• Provide a secure, scalable environment where teams can safely test and experiment with new AI models, datasets, and tools using standardized governance guardrails.
Enable Mission-Centric AI Innovation	• Integrate with the Business Needs process to conduct proofs of concept for mission-aligned use cases • Develop a roadmap for future AI capabilities based on HUD's mission needs and emerging AI trends
Monitor Emerging AI Trends and Capabilities	• Stay informed of AI advancements through federal research publications, external conferences, and private sector innovation. • Develop a catalog of assessments of new approaches for HUD use cases.

Governance and Risk Management

To ensure responsible AI innovation, HUD is building enterprise readiness through an integrated AI governance framework and risk management approach.

Objective	Description
Enable AI innovation through streamlined governance and risk management	• Establish a centralized AI Governance Body led by the Chief AI Officer (CAIO), with representation from program offices and key stakeholders • Develop and publish an AI Governance Framework with processes, procedures, and guidelines spanning the entire AI lifecycle, from ideation and intake through deployment & change management and post deployment monitoring. Include roles and responsibilities. • Create a streamlined structure aligned to federal mandates and agency priorities. • Align with and augment other HUD governance frameworks (e.g., business needs intake, Project Planning and Management (PPM), data, privacy, cybersecurity, procurement, etc.) • Develop criteria for evaluating business needs to determine fit and feasibility of using AI
Integrate Risk Management into the AI Lifecycle	• Implement an AI risk management framework based on NIST AI RMF and OMB guidance to evaluate AI use cases for fairness, privacy, and security. Include high-impact AI assessment and risk mitigation guidelines. • Incorporate IT security, privacy, and legal into the AI risk assessment • Integrate AI risk management with HUD's established and evolving IT security and privacy processes • Couple risk management practices with AI-enabling infrastructure to ensure AI use is consistently reviewed and risks are quickly identified and addressed • Embed compliance requirements for LLMs throughout the AI lifecycle, including model version control, prompt/input protections, and output monitoring, to ensure safe, auditable, and accountable AI use.

Resource Tracking and Planning

To support responsible AI adoption and scale efforts across the enterprise, HUD is establishing processes to identify, track, and prioritize AI-related investments. This includes improving visibility into AI activities, aligning spending to mission needs, and enabling efficient, compliant procurement.

Objective	Description
Track AI Investments	• Track all existing and planned AI use cases and investments across HUD programs and offices – including key performance indicators and metrics to measure effectiveness and alignment with HUD strategic goals • Integrate AI inventory tracking into HUD's broader IT investment processes. • Update the HUD IT Standards to include a catalog of AI solutions and technologies to reduce duplication and identify opportunities for enterprise-wide reuse
Align AI Investments with Strategic and Mission Priorities	• Update the HUD Annual Strategic Acquisition Planning process to consider how AI investments support strategic and mission goals
Support Future-Focused AI Planning	• Incorporate the AI capabilities roadmap into budget and acquisition planning to ensure timely resourcing and funding • Assess future AI resource needs, including infrastructure, data, workforce, and plan accordingly
Standardize and Streamline AI Procurement	• Develop a streamlined AI acquisition process that adheres to federal mandates and guidance. • Update standard contract language to address data privacy, IP rights, and minimize vendor lock-in. • Develop the Software Bill of Materials (SBOM) delivery pipeline
Enable Visibility and Reporting	• Establish reporting mechanisms to provide insight into AI investment performance, maturity, and alignment with agency priorities

HUD AI Maturity Assessment

HUD conducted its first maturity assessment in September 2025 using three maturity levels. Results are summarized below. Going forward, HUD will reassess annually and update its roadmap to continue to advance maturity across all six AI maturity areas.

Maturity Level Definitions

Maturity Level	Description
Foundational	• Exploring AI concepts and capabilities. • Efforts are ad hoc or isolated, with limited tools, coordination, or policy. • Governance and infrastructure are minimal or emerging.
Developing	• Implementing AI-enabling capabilities with some structure and oversight. • Processes are becoming repeatable, basic governance is in place. • Select tools or proofs of concepts / pilots are underway.
Advanced	• Integrated AI across mission areas with secure, scalable infrastructure and enterprise governance. • Capabilities are mature, coordinated, and aligned with federal policy and agency strategy.

Assessment Results

Maturity Area	Assessment	Details
AI-Enabling Infrastructure	Foundational	• Currently uses AI on an individual basis; no enterprise AI offerings available • Active planning to standardize the overall DevSecOps pipeline; will be the basis for enhancing into an AI/MLOps-enabled pipeline • Exploring secure cloud and on-prem AI solutions and capabilities
Data	Foundational	• Organizational realignment of the HUD Chief Data Officer under the OCIO, so that it is now in the same office as the Chief AI Officer. This will help improve data / AI integration • Efforts underway to develop an enterprise data management system and develop an enterprise data management framework and governance. This will provide the foundation for AI-ready and AI-safe data. • Data traceability, explainability, and interpretability practices is limited
AI-Ready Workforce	Foundational	• AI training available in the Department's learning management system, as well as on an internal AI resource center, but used on a limited basis.

		• Limited participation in AI training offerings; no formal program to build role-specific AI skills • Planning underway to develop tailored AI training for different workforce segments
Research and Development	Developing	• Exploring new technologies with limited proofs of concept. • Proofs of concepts are conducted as part of the business needs process to determine fit of AI and result in limited operationalization of AI capabilities • Increasing partnerships with other government agencies and industry partners to explore new and/or expanded AI capabilities
Governance and Risk Management	Developing	• Reconvened the AI governance body, leveraging an existing governance body to streamline coordination • Standardized review process to assess impact of AI use case • Developed risk mitigation guidance for high-impact AI and incorporated into the overall AI lifecycle process
Resource Tracking and Planning	Foundational	• Developing a streamlined AI acquisition process that aligns with M-25-22 • Updating standard contract terms for AI procurements, as well as other contracts where vendors may use AI in the delivery of its services or products • AI investments currently are not explicitly called out in IT planning cycles

6-12 Month Action Plan

Based on the current state assessment, HUD will take the following actions to increase its maturity across all the key areas in the next year with a target completion of 9/30/26. This action plan will also be updated yearly in alignment with the current state assessment, with the goal of achieving advanced maturity across all areas.

Maturity Area	**6-12 Months Action Plan**
AI-Enabling Infrastructure	• Define and implement an MVP for a CI/CD to AI/MLOps-enabled pipeline • Partnering with Emerging Technology team, operationalize selected proofs of concept
Data	• Develop HUD's enterprise data strategy • Develop and roll out the MVP of the Enterprise Data Management System o Moves towards establishing AI-ready and AI-safe data
AI-Ready Workforce	• Develop and roll out the updated AI@HUD Resource Center with new training opportunities • Develop the baseline AI Workforce Development Plan

	• Increase general awareness of AI: Broadly communicate information across the Department, including training opportunities, AI workforce development, AI@HUD initiatives, etc.
Research and Development	• Develop Baseline AI Capability catalog to include: business needs / use cases; corresponding AI capability type to meet the need; and potential technologies to conduct R&D • Based on Baseline AI Capability Set, create roadmap for R&D proofs of concept and potential partners (e.g., government, industry, etc.) • Work with the technology and infrastructure team to operationalize selected proofs of concept
Governance and Risk Management	• Implement and iterate on risk mitigation guidelines for high-impact AI • Continue to integrate the AI governance with other HUD governance frameworks
Resource Tracking and Planning	• Implement streamlined AI acquisition process and gather lessons learned for improvement opportunities • Update the Annual Strategic Acquisition Planning process to consider AI investments for meeting agency goals and track AI investments • Implement process for budgeting and resourcing for future AI resource needs. Includes enhancing the procurement pipeline.

Conclusion

HUD is committed to accelerating the innovation and widespread use and adoption of AI across the agency, responsibly and with the appropriate guardrails that encourage, not stifle, AI. The strategy and action plan outlined in this document will provide a glide path for helping HUD achieve this goal. With the constantly evolving AI landscape, HUD will continually review and iterate on its strategy.