

1-1 Purpose

This policy institutes an Enterprise Architecture (EA) practice for the United States Department of Housing and Urban Development (HUD). Facilitated by the Office of the Chief Information Officer (OCIO), HUD's EA practice aligns Information Technology (IT) with the Department's mission, and helps to achieve more effective capital planning and investments for IT. The benefits of HUD's EA are enhanced access to accurate, timely and consistent information; improved productivity of Program Office staff; and, flexible systems that respond quickly to changing needs, so the Departmental mission can be achieved more fully.

HUD's EA practice is a Department-wide initiative that involves the active participation of all program organizations. The EA practice utilizes HUD's strategic plans, goals and objectives to formulate a business vision and target architecture, and executes an EA process in conjunction with the IT Capital Planning Process to attain these goals.

2-1 Background

The Clinger-Cohen Act of 1996 mandates the implementation of an effective Enterprise Architecture policy and an associated Enterprise Architecture practice. This act requires Federal Agency Chief Information Officers to develop, maintain, and facilitate "a sound and integrated information technology architecture for the executive agency". Subsequently, the Office of Management and Budget (OMB), in its Circular A-130, issued explicit guidance that requires agency information system investments to be consistent with the Agency's Enterprise Architecture.

HUD's Enterprise Architecture practice was established to serve the strategic and business needs of the Department, and to comply with requirements set forth by Congress and OMB. *HUD's Enterprise Architecture Framework, (Draft, July 2001)* describes the Department's framework for establishing and maintaining the EA practice. This framework is adapted from guidance published by the Federal Chief Information Officer Council.

3-1 Enterprise Architecture Practice

HUD's Enterprise Architecture (EA) practice utilizes policy and process to define and leverage a Department-wide EA. The EA practice is based on a series of principles in the areas of practice policy and governance.

HUD's EA process defines and documents the Department's EA in three distinct states: target architecture, current architecture, and interim target architecture. *HUD's Enterprise Architecture Framework, (Draft)* provides a detailed description of each enterprise architecture state.

A. Enterprise Architecture Practice Policy

1. The EA at HUD will be developed in a cooperative, managed and coordinated effort facilitated by the Office of the CIO, with the participation of Program Office representatives and experts from individual subject matter domains.
2. All HUD Program Office organizations are expected to participate in and contribute to the development of the EA components relevant to their subject area, and will be given an opportunity to comment on the EA as a whole.
3. All HUD organizations shall comply with the principles, standards and guidelines contained within the EA for systems and infrastructure development, enhancement and maintenance.
4. The EA will be the primary authoritative source for all IT planning.
5. HUD's EA will reflect industry best practice for security management across all levels of the EA model.

6. The EA will be fully integrated with the IT Capital Planning Process at HUD, serving to inform, guide and manage IT investment decisions and the selection of the IT portfolio.
7. The EA will be used to support the assessment of knowledge and skill requirements for HUD's work force in support of the current and future IT environments.
8. HUD will maintain a dynamically updated current architecture to reflect changes in the IT environment and quarterly IT investment management decisions.
9. HUD will develop its target architecture as a comprehensive representation of its business, information, applications and technology goals.
10. HUD will implement its target architecture by defining and maintaining an interim target architecture coordinated with the IT Capital Planning Process.

B. Enterprise Architecture Enforcement Policy

HUD's EA enforcement policy is based upon the following:

1. HUD has a single, unified enterprise architecture.
2. EA compliance is mandatory for all HUD organizations, including contractors, that direct, develop, maintain or operate IT systems in support of the Department.
3. HUD's Technology Investment Board Executive Committee (TIBEC) serves as the EA Review Board. All changes to the target architecture, EA principles, guidelines and standards are subject to TIBEC review and approval.
4. HUD's EA will be updated in conformance with an established EA process aligned with the IT Capital Planning Process.
5. All HUD organizations shall maintain and update applicable EA information in accordance with HUD's EA practice as established by the OCIO.

The EA enforcement policy, including organizational roles and responsibilities, is described in detail in *HUD's Enterprise Architecture Framework (Draft)*.

C. Enterprise Architecture Tools

An Enterprise Architecture Management System (EAMS) serves as the repository for HUD's EA practice. EAMS organizes information and generates reports on the target architecture, current architecture, and interim target architecture.

All HUD organizations shall use EAMS to create and maintain applicable information in accordance with the processes and procedures established by the OCIO. HUD's *Enterprise Architecture Management System User Guide* provides a detailed description of the capabilities of EAMS.

The HUD EAMS Administrator is located within the OCIO, and is a member of the EA Team. The OCIO is the owner of the application.

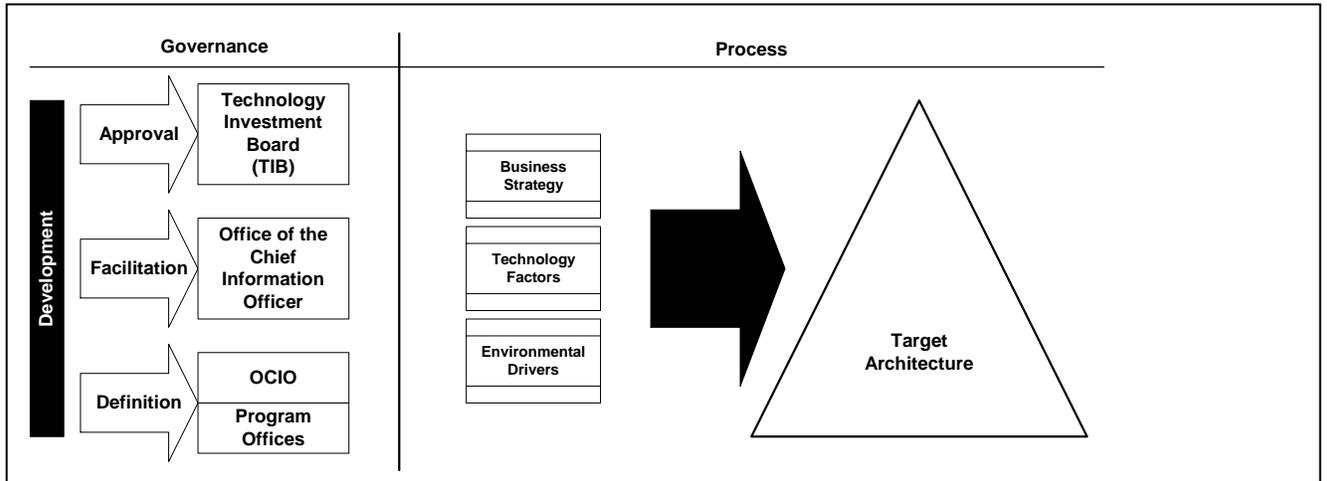
4-1 EA Process Requirements

HUD's EA Process consists of two *iterative* phases: development and implementation.

A. Development Phase

The top-level goal of the development phase is to define HUD's target architecture. Facilitated by the Office of the Chief Information Officer (OCIO) the development phase features a structured process to define and approve the target architecture.

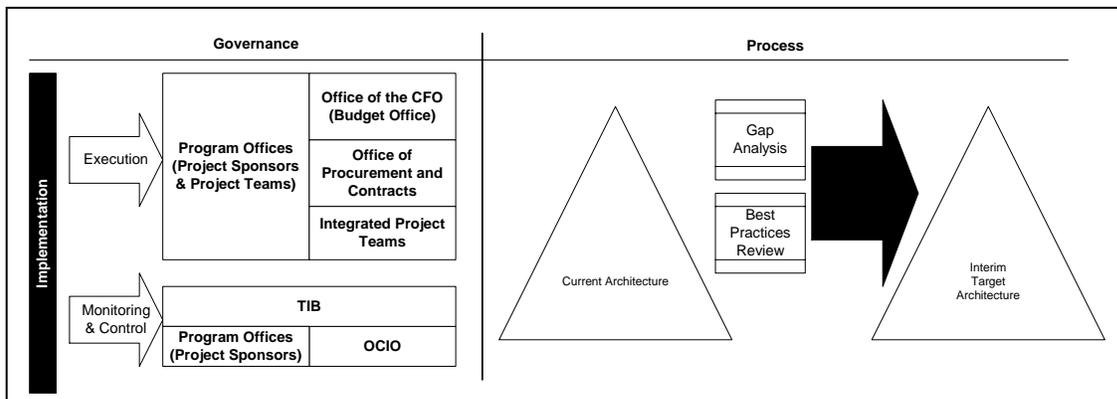
Figure 1: Development Phase



B. Implementation Phase

The top-level goal of the implementation phase is to define and implement the interim target architecture by conducting gap analyses between the current architecture and target architecture. Under the control of the Technology Investment Board Executive Committee (TIBEC), the interim target architecture is implemented on a project-by-project basis by HUD program offices (project teams), in concert with the Office of the Chief Financial Officer and the Office of the Chief Procurement Officer.

Figure 2: Implementation Phase



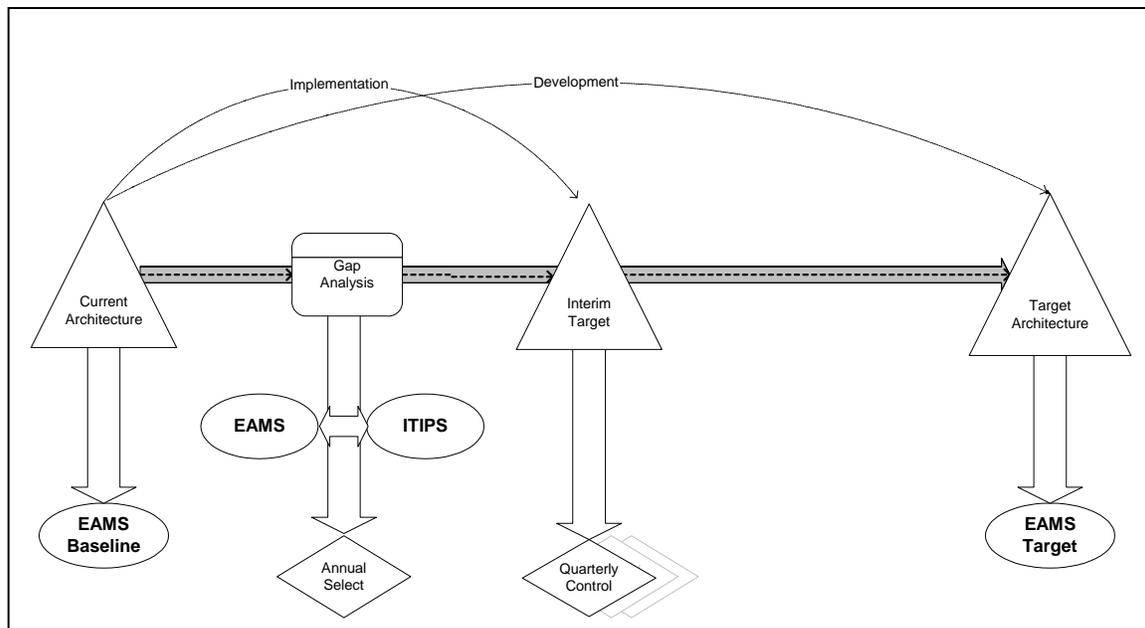
C. Integration with IT Capital Planning

The EA process at HUD is a *continuous, iterative* succession of development and implementation actions, closely tied to HUD's IT Capital Planning Process.

HUD's current architecture and target architecture are continuously updated throughout the annual planning period. Official versions of the current architecture (EAMS Baseline) and target architecture (EAMS Target) are captured prior to the annual select.

The results of gap analyses between the current architecture and target architecture provide valuable input to the annual select and help to define the interim target architecture. Quarterly control actions monitor progress toward the interim target architecture and represent the control component of the EA implementation life cycle. Together these actions represent a holistic process that ensures the tight integration of EA planning and IT investment at HUD.

Figure 3: Annual Cycle



5-1 Enterprise Architecture Organization

HUD's Enterprise Architecture practice is a Department-wide initiative that involves the active participation of all program organizations. HUD's EA is developed in a cooperative, managed and coordinated effort facilitated by the Office of the Chief Information Officer, with the participation of HUD Program Offices and technical experts from subject domains.

The benefits of HUD's enterprise architecture are realized through the execution of IT projects that conform to the principles, guidelines and standards established by HUD's EA practice. The following sections describe the roles and responsibilities for organizational entities that contribute to the development and implementation of HUD's EA, and the selection, execution, monitoring and review of IT projects.

A. Technology Investment Board Executive Committee (TIBEC)

1.Role

Chaired by the Secretary and Deputy Secretary, and comprised of HUD Assistant Secretaries and Principals, HUD's Technology Investment Board Executive Committee (TIBEC) manages the Department's IT Capital Planning Process. The TIBEC selects projects for HUD's IT investment portfolio and is responsible for funding decisions on all major IT investments.

HUD's EA process is closely tied to the IT Capital Planning Process. The TIBEC provides executive-level policy for the Department's EA, and supports HUD's enterprise architecture practice through the selection and funding of projects that conform to EA guidelines and standards.

The TIBEC also serves as the EA Review Board. In this role, the TIBEC reviews all components of HUD's enterprise architecture, and monitors and reviews IT projects to ensure conformance with EA guidelines and standards.

2. Responsibilities

- Establishes EA as a Department-wide priority.
- Issues policy governing the development, implementation, and maintenance of HUD's EA.
- Provides strategic direction to the development of HUD's EA.
- Reviews all EA components including current architecture, target architecture, and interim target architecture, and EA principles, guidelines and standards.
- Evaluates major technology investments and makes final funding decisions on HUD's IT investment portfolio.
- Monitors progress toward stated IT project goals and evaluates project results to support future funding decisions.

B. Office of the Chief Information Officer (OCIO)

1. Role

The Office of the Chief Information Officer (OCIO) establishes HUD's EA practice and manages the development, implementation, and maintenance of HUD's enterprise architecture. HUD's EA practice is established through the development of EA policy, an EA process, and overarching principles for IT development.

OCIO develops HUD's enterprise architecture through close collaboration with program office staff and other domain experts. This work develops guidelines for the definition and maintenance of HUD's current architecture, target architecture and interim target architecture, and includes the definition of data, application, and technology standards.

OCIO staff support the annual select by conducting gap analysis on the current architecture and target architecture, and review selected IT projects with the TIBEC to monitor conformance with HUD's EA.

2. Responsibilities

- Establish Enterprise Architecture Program Management Office (EAPMO), EA Core Team, and appoint Chief Architect to lead the development of HUD's EA practice.
- Review industry best practice for the development and implementation of an EA practice.
- Develop policy governing the development, implementation, and maintenance of HUD's EA.

- Facilitate the definition of HUD's current architecture, target architecture, and interim target architecture.
- Develop EA guidelines and standards in concert with HUD Program Office staff, EA domain teams, and communities of practice.
- Provide guidance to program offices to support the implementation of HUD's EA practice at the project level.
- Release an official version of the current architecture prior to the annual select of HUD IT Portfolio.
- Release an official version of EAMS Baseline on an annual basis.
- Release an official version of the target architecture prior to the annual select.
- Conduct gap analysis on the current architecture and target architecture prior to annual select.
- Release an updated version of the interim target architecture subsequent to quarterly control actions.
- Submit EA components to the TIBEC for review and approval.
- Develop and maintain an on-line, web accessible EAMS to manage and access HUD's EA information.
- Ensure HUD's EA practice complies with OMB published guidelines.
- Submit a current and target architecture to OMB when significant changes occur.
- Evaluate current and proposed IT projects for compliance with HUD's EA and designate a point of contact for review and approval of proposed procurement statements of work involving information technology products or services to assure compliance with HUD's EA practice.
- Conduct periodic technical review and IT project management oversight.
- Sponsor and execute enterprise-level projects aimed at system redundancy and obsolete technology.

C. Office of Chief Procurement Officer (OCPO)

1. Role

The Office of the Chief Procurement Officer supports HUD's EA practice through the management of procurement activities for systems and infrastructure development, enhancement and maintenance. OCPO works with OCIO staff to ensure that Statements of Work (SOW) and Requests for Proposal (RFP) for IT projects reflect the guidelines and technology standards defined by HUD's EA practice.

2. Responsibilities

- Assist OCIO in developing procurement strategies that are consistent with HUD's EA practice and contribute to the transition from the current architecture to the target architecture.
- Assure standard language provided by the OCIO is incorporated in procurement documents for information technology products or services. The standard language will describe HUD's EA practice including EA principles, guidelines and standards.
- Assure contract work statements for information technology products or services are approved by the OCIO for compliance with HUD's EA practice prior to the initiation of the procurement process.
- Award and administer contracts to support HUD's EA practice.

D. Program Offices

1. Role

HUD's Program Offices collaborate with OCIO to develop HUD's enterprise architecture. Program office staff members participate on domain teams and collaborate with communities of practice to define EA principles, and to define guidelines and standards for IT development projects.

Program Offices implement HUD's EA through the execution of IT projects. In conformance with the guidelines and standards established by HUD's EA practice, project statements of work (SOW) include the definition of a target architecture, and the definition and maintenance of a current architecture and transition plan (interim target architecture). All EA work products created by a project team are submitted to the EAMS and are updated throughout the project lifecycle.

2. Responsibilities

- Assign domain experts to participate with OCIO to develop components of HUD's EA.
- Create project teams to execute IT development projects.
- Collaborate with HUD's EA Team to implement standard operating procedures to support the implementation of HUD's EA policy.
- Comply with the principles, guidelines and standards contained within the EA for systems and infrastructure development, enhancement and maintenance.
- Consult with OCIO staff on the design and development of EA components related to a specific project statement of work.
- Conduct regular project reviews to monitor on-going IT project compliance with HUD's EA. Provide evidence of compliance with EA technical standards and conformance to HUD's target architecture.
- Establish internal procedures to maintain EAMS in conformance with HUD's EA practice and IT Capital Planning Process.

6-1 Glossary

Term	Definition
Annual Select	The decision-making process within which all new, ongoing, and operational IT projects are considered for inclusion in the HUD IT investment portfolio. The select process combines rigorous technical reviews of project proposals and performance with the application of uniform portfolio selection criteria.
Community of Practice	A group of individuals who communicate because they share work practices, interests or aims. Communication within the community of practice is facilitated through regular systems of interchange such as e-mail, meetings, and working sessions. This process of collaboration raises the level of knowledge within the community of practice, and raises the level of related resources and services across the enterprise.
Current Architecture	A dynamically updated representation of the "as-is" business, data and IT environment.
Domain Team	Applies the collective knowledge and experience of its individual members, industry best practice, and other knowledge sources to define and document a specific component of HUD's enterprise architecture.
EA Core Team	The technical component of the EAPMO. Develops formal standards and manages architectural processes. The EA Core Team includes technical architects, architecture consultants and technical writers.
EA Practice	A framework of policy and process to define, implement and leverage the enterprise architecture for IT planning and investment. Established by the OCIO, HUD's EA practice facilitates the definition and approval of the enterprise architecture, and the execution and monitoring and control of the principles, guidelines and standards defined by the EA.
EAMS (Enterprise Architecture Management System)	A web-based repository used to store and access architectural information and the relationships between architectural elements.
EAMS Baseline	An official, static version of the current architecture that is established each year prior to the annual select.

Term	Definition
EAMS Target	An official, static version of the target architecture that is established each year prior to the annual select.
Enterprise Architecture (EA)	A strategic asset base that defines the business, the information necessary to operate the business, the technologies necessary to support business operations, and the transitional processes necessary for implementing new technologies in response to the changing business needs.
Enterprise Architecture Program Management Office (EAPMO)	A dedicated team within the Office of the Chief Information Officer (OCIO) with the principal responsibility for establishing HUD's EA practice and defining the Department's enterprise architecture. The EAPMO is led by the Chief Architect.
Gap Analysis	A structured process to define the differences between the current architecture and target architecture. The results of a gap analysis provide valuable input to the prioritization of IT projects and the definition of the interim target architecture.
ITIPS (Information Technology Investment Portfolio)	HUD's web-based IT Investment Management System.
Information Technology (IT)	Hardware, software, and services operated by an organization that processes information to accomplish a business function, regardless of the technology involved, whether computers, telecommunications, or others.
IT Project	The defined set of activities and resources surrounding or supporting the use of information technology to address HUD's strategic and programmatic objectives, and to support managerial and administrative functions. An IT project should be described in a project plan, with articulated goals and performance objectives; cost, schedule, and technical baselines; and a clear discussion of project risks, likely impacts, and risk management and mitigation measures.
Interim Target Architecture	A representation of one instance of progression towards the "to be" (target) business, data and IT environment. Official interim targets are established annually subsequent to the annual select and are updated following quarterly control review actions.

Term	Definition
Quarterly Control	The management of IT projects that are not yet operational, including the on-going monitoring of project performance against cost, schedule and technical baselines, and the continuous identification, management and mitigation of project risk. Lessons learned from the control phase are fed back into the selection phase to further refine and improve the formulation and maintenance of the HUD IT Investment Portfolio.
Target Architecture	A dynamically updated representation of the "to-be" business, data, and IT environment achieved at a future time. An official, static version of the target architecture (EAMS Target) is established annually prior to the annual select.
Technology Investment Board Executive Committee (TIBEC)	Chaired by the Secretary, co-chaired by the Deputy Secretary, and comprised of HUD Assistant Secretaries and Principals. The TIBEC makes management decisions regarding the effective use of HUD information technology investments and resources, including systems development, infrastructure, maintenance and IT consulting.

7-1 References

Clinger Cohen Act (CCA) of 1996 also known as the Information Technology Management Reform Act (ITMRA).

Enterprise Architecture Framework (Draft). United States Department of Housing and Urban Development, July 2001

Enterprise Architecture Management System, Version 2.1: User Guide. United States Department of Housing and Urban Development, May 2001.

Federal Enterprise Architecture Framework, Version 1.1, Chief Information Officers Council, September 1999.

Management of Federal Information Resources, Circular A-130 Office of Management and Budget, Executive Office of the President, November 2000.