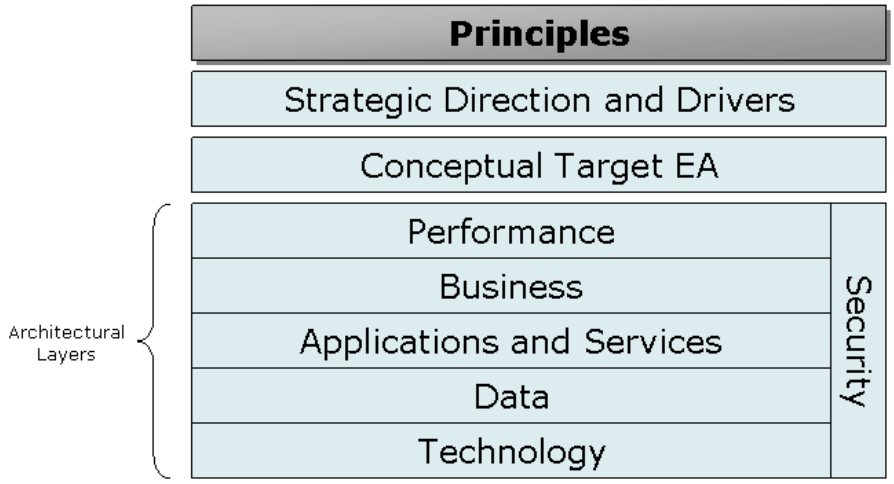
2 PRINCIPLES

2.1 INTRODUCTION

HUD has adopted a set of architecture principles to ensure that EA supports HUD's business and technology requirements. Architecture principles are succinct statements of preferred direction or practice. They help establish a common vision to ensure that strategic objectives are not compromised by tactical decision-making.
HUD's architecture principles are key to the development and implementation of the Target EA. They provide context for making decisions and guide the development of programmatic and enterprise solutions. They will also help in prioritizing and sequencing transition projects that will move the Department from its current environment toward the target environment. Exhibit 2-1 below shows how the principles fit into the overall HUD Target EA framework.

Exhibit 2-1 – Target EA Framework: Principles



This section first presents a summary of HUD's 10 principles, and then provides a more in-depth articulation of the rationale and implications of each principle.

2.2 PRINCIPLES SUMMARY

The following 10 principles guide the development and implementation of the HUD's EA:

1. HUD maintains a single Department-wide EA.
2. HUD's mission, strategies, goals and objectives guide the design of HUD's EA.
3. Compliance with HUD's EA is a prerequisite for IT investment.
4. HUD participates in efforts to define and implement government-wide solutions.
5. HUD's EA promotes sharing, reuse and common solutions.
6. HUD's EA reduces complexity through the use of enterprise standards.
7. Information and data are managed as enterprise assets.
8. Security and privacy are integrated into all architectural layers.
9. HUD's EA is implemented through segment architectures.
10. HUD's EA seeks to employ current technologies in creating solutions for its stakeholders.

2.3 PRINCIPLES DETAIL

2.3.1 HUD maintains a single Department-wide EA.

Rationale:

- HUD's EA identifies economies of scale, streamlines interactions and communication with stakeholders and reduces stovepipes and unnecessary duplication.
- HUD is mandated by the Clinger-Cohen Act and OMB Circular A-130 to develop and enforce a single EA.

Implications:

- Strategic planning, resource allocation and IT investments are optimized at the Department level.
- HUD respects unique program-specific mandates, roles and functions.
- Data, applications, and infrastructure are assets and resources of the entire enterprise.
- Individual HUD offices or programs may have to concede their own preferences for the greater benefit of the entire enterprise.
- All HUD organizations and business lines "own" EA. All HUD organizations and business lines have a stake in the definition and implementation of EA.

2.3.2 HUD's mission, strategies, goals and objectives guide the design of HUD's EA.

Rationale:

- Integration of business and IT planning and strategy ensures that IT effectively enables and supports HUD's mission.

Implications:

- HUD's EA supports the Department's mission, vision and strategy by streamlining business processes and information flows and effectively applying enabling technologies.

- HUD's business and IT leaders must engage in strategy development and planning together.

- Program staff must actively participate in the definition and implementation of HUD's EA.

- Major new or replacement information system investments will be approved only after work processes have been examined for modernization or reengineering opportunities.

- New systems will be designed to be flexible enough to evolve with changing business, functional, and technological requirements.

2.3.3 Compliance with HUD's EA is a prerequisite for IT investment.

Rationale:

- ITIM Lifecycle ensures that IT investments support the Department's objectives.

- HUD's EA fulfills business and information requirements while reducing duplicative investments.

Implications:

- All HUD offices have a stake in defining EA as it affects their funding for IT investments.

- IT investments must align with HUD's EA.

- Governance mechanisms are required to ensure investments conform to the architecture. Sound business justification is required for exceptions and/or waivers.

2.3.4 HUD participates in efforts to define and implement government-wide solutions.

Rationale:

- Government-wide solutions, such as the Presidential E-Gov and LOB initiatives, provide cost savings for the Federal government.

- Identified opportunities to integrate with other levels of government can yield cost savings and streamline interactions with HUD business partners.

Implications:

- HUD's EA and ITIM processes ensure investments are not duplicative of E-Gov and LOB initiatives.
- HUD's EA leverages government-wide services and solutions when it makes practical business sense to do so.
- HUD's segment architectures and individual initiatives explore opportunities to better integrate solutions with HUD's business partners.

2.3.5 HUD's EA promotes sharing, reuse and common solutions.

Rationale:

- Sharing, reuse and common solutions provide economies of scale for the Department and reduce duplication.

Implications:

- Reusable components and common solutions provide opportunities to reduce IT development costs and development time.
- Reuse must be a design consideration for all EA components.
- Common solutions can address any architectural layer.
- Investment, design and implementation decisions favor reusable components and common solutions.
- Requirements reflect the needs of all affected business elements and build in flexibility to address unique business requirements.

2.3.6 HUD's EA reduces complexity through the use of enterprise standards.

Rationale:

- Standardization reduces costs and time for meeting current and future business requirements.

- Enterprise standards provide an important mechanism for streamlining the technology landscape, ensuring the interoperability of systems and improving the stability of the environment.

Implications:

- EA governance (or EA and enterprise configuration management) reduces the number of technologies, products, and configurations in the environment.

- EA governance ensures that technical standards are approved, enforced, and refreshed as necessary. Governance mechanisms allow for exceptions and/or waivers in cases where there is a sound business justification.

- Emerging standards change required IT skill sets and generate requirements for staff training.

2.3.7 Information and data are managed as enterprise assets.

Rationale:

- Information leveraged across the value chain improves performance, supports decision-making and enables accurate reporting.

Implications:

- Data standardization is critical for all information and data types that are common to or shared across more than one HUD office or program.

- Data stewards are assigned for all enterprise data. Stewards have the authority and means to manage the data for which they are accountable.

- Data are captured once.

- Enterprise-wide access to data, based on users' business needs for and rights to that information, is the rule rather than the exception. Program areas provide corporate access to their data and information, barring restrictions due to data confidentiality, privacy, or "need to know" concerns.

- Geographic location does not constrain access to information and applications. Key enterprise information assets are accessible from all business locations.

- The way information is accessed and displayed is sufficiently adaptable to meet a wide range of enterprise users and their corresponding methods of access.

2.3.8 Security and privacy are integrated into all architectural layers.

Rationale:

- HUD safeguards confidential information to enhance public trust.

- HUD must comply with established security requirements, such as the Privacy Act of 1974, FISMA, and OMB A-130 Security of Federal Automated Information Resources (App.III).

- Considering security implications at the outset improves cost management and reduces risk.

Implications:

- Information and data must be protected from unauthorized access, use and disclosure.

- Security planning and management is integrated with all aspects of business and IT planning and governance, including: business, IT and E-Gov strategic planning; ITIM, capital planning and budget; data management; and, system development, engineering and integration.

- Data and information are clearly categorized based on security, privacy and sensitivity considerations, and rules are clearly defined and universally understood by data users.

- Audit and monitoring mechanisms are used to secure information resources.

- Public access systems are isolated from mission critical resources.

2.3.9 HUD's EA is implemented through segment architectures.

Rationale:

- HUD mitigates risk and demonstrates the value of EA to HUD programs by breaking the work into achievable segments (i.e., core HUD LOBs or cross-cutting service components).

Implications:

- Segment architectures are encompassed within the overarching HUD EA.
- HUD's EA reconciles and approves segment architectures.
- Segment architectures can span multiple offices and programs. HUD organizations and business lines have a stake in and should participate in the definition and implementation of relevant segment architectures.
- Approved segment architectures are a pre-requisite for IT investment.
- Segments incorporate government-wide solutions, where appropriate.

2.3.10 HUD's EA seeks to employ current technologies in creating solutions for its stakeholders.

Rationale:

- Current technology eliminates obsolete, non-serviceable systems and improves the overall quality and efficiency of information processing and delivery. Current technology improves the ability of information systems to respond quickly to changing business needs.

Implications:

- HUD continually monitors and researches new technologies and trends that may have direct applicability on the way it delivers its mission.
- In accordance with the Clinger-Cohen Act, business and information requirements should be met using commercial off-

the-shelf (COTS) or government off-the-shelf (GOTS) technologies rather than customized or in-house solutions, whenever practical. To the extent practical, COTS and GOTS solutions should be used without modification or redesign. In cases where COTS or GOTS solutions must be modified to meet the business needs of the users, requirements should be defined to encompass all potential users across the enterprise, and the design should maximize component sharing and reuse across the enterprise.

- HUD maximizes the use of electronic commerce and Internet technologies aligned with government-wide initiatives to meet stakeholder expectations, whenever practical.