

Architecture Principles for The Federal Government

Introduction

The challenges facing the federal government in the 21st Century cut across agency missions. In fact, fiscal viability, security, environmental quality, health care, disaster response, global interdependence cut across governments and sectors, as well. Still, the American public expects from its government highly coordinated, timely responses to these challenges.

Government coordination depends upon consistent decision making across multiple business units, departments and projects. But a natural tension exists whenever more than 100 agencies and thousands of sub-agencies and programs must work together as one. An enterprise-wide architecture tries to create a framework for effective decision making across multiple business units. Otherwise, independent groups decide alone resulting in inconsistency, information islands, isolated business processes, and inefficient technologies. This mixture is a recipe for poor performance.

To get consistent behavior, the federal government must create a framework of guiding principles to define what is most important to the enterprise. Guiding principles define the organization's strategy for certain business and technical functions. They balance department and agency mandates on the one hand and government-wide interests on the other. They filter decision making, eliminating solutions that don't meet the federal government's objectives. This clarity of executive intent takes the guesswork out of lower-level decisions. Clear, well-understood and sanctioned principles, combined with an executive commitment to enforce them, help drive change across disparate departments and programs, and also within agencies.

Each of the architecture principles for the federal government has four parts: a statement of principle, brief description, the rationale for the principle, and implications or consequences of adopting or ignoring the principle. Other managerial and technical principles may exist. Agency program and technical officials are expected to adopt these principles, and identify agency-specific ones that express the same shared focus.

Architecture Principles for the Federal Government

Preamble

These principles support a single Federal Enterprise Architecture to achieve operational excellence for the American public.

The Federal Enterprise Architecture is a mission-focused framework for federal agencies, OMB and Congress to improve government performance. By aligning organizations, business processes, information flows, and technology consistently across and throughout the Federal Government, the FEA builds a blueprint for improving programs.

The federal government focuses on citizens

Citizens' needs determine how government functions are defined and delivered. Functions include direct services and regulating society to serve the public.

Rationale

The federal government exists to serve the American public who want simpler, faster, better and cheaper access to government services and information.

Implications

- Agencies will design and apply their business processes and services to benefit citizens, even when the services cross lines of business and agency missions.
- The federal government offers citizens a single, "unified" face, reducing duplicate, needlessly complex, inconsistent ways of using government services.
- Citizens can access government services through various means.

The federal government is a single, unified enterprise

The federal government operates as a single enterprise with decision-making flexibility at the agency level.

Rationale

A single enterprise with shared strategic objectives, common governance, integrated management processes and consistent policies improves the implementation of government-wide strategies and the coordination of the delivery of agency citizen services.

Implications

- Government optimizes resource allocations across the enterprise to achieve common goals.

- Government optimizes information across the enterprise to support services and processes.
- Architectural designs integrate services for efficiency and keep autonomy of operations for effectiveness.
- Architectural designs identify and accommodate distinctive (non-homogenous) approaches to maintain important policy objectives.

Federal agencies collaborate with other governments and people

Federal government agencies, other government entities, and private companies work together using commonly accepted open standards to improve services' quality, consistency, and cost-effectiveness.

Rationale

The federal government operates within a larger government ecosystem that includes state, local, foreign governments and the private sector. This operation takes advantage of collaboration while reducing duplication.

Implications

- Requires agencies to strengthen collaborative partnerships with other agencies, state, local and foreign governments and the private sector.
- Requires agencies to adopt agreed-on standards and industry's best practices. The standards must be open and voluntary, not proprietary, and must meet the market's needs.

The federal architecture is mission-driven

Government core mission needs and priorities are the primary drivers for architecture.

Rationale

A business-led architecture is more successful in meeting strategic goals, responding to changing mission needs and serving citizens' expectations.

Implications

- Business-approved architecture is a prerequisite for investment, so CIOs and architects must ask program leaders to say how it should look and work. Architecture is driven by program mission needs and enabling technology.
- Agencies will first seek to optimize business processes, and then use performance standards to define automation requirements.
- Systems and processes will use an architecture that responds quickly to events, including a "push" model for delivering information.

- The federal government and agencies will use their enterprise architectures to guide their capital planning, budget and investment decisions.
- Agencies will manage change in government operations with enough security to keep services flowing.
- Government solutions must be agile and flexible to meet business needs.

Security, privacy and protecting information are core government needs

Security, privacy and protecting information are integral to government operations, and are part of the architecture. Government must protect information against unauthorized access, denial of service, and both intentional and accidental modification.

Rationale

Government must protect confidential information to increase public trust and improve the security of its resources.

Implications

- The business context defines security and privacy requirements, which integrate into the entire architecture throughout the business lifecycle.
- Architectures must reflect policies to minimize improper use of data and security violations.
- Government must apply security and privacy consistently and monitor compliance.
- Information security controls need to be clearly defined so cost and risk are balanced and managed.

Information is a national asset

Information is an asset needed by citizens and leveraged across the government to improve performance.

Rationale

A well informed citizenry is necessary to our constitutional democracy. Further, accurate information is critical to effective decision making, improved performance, and accurate reporting.

Implications

- The federal government will improve its information sharing environment to better disseminate information to the public.
- This requires Government to identify authoritative sources of high quality information, and agencies to provide access to specified data and information..

- Authoritative data sources may need to be restructured and catalogued for easy dissemination, access and management.
- To realize this principle requires a federal government strategy to promote cost effective data sharing with other levels of government.

The federal architecture simplifies government operations

Federal Architecture is designed to reduce complexity and enable integration to the maximum extent possible.

Rationale

Complex processes and systems with tightly coupled modules are difficult to manage, risk failure, are inflexible to changing agency mission needs, and are expensive to maintain. Highly modular, loosely coupled systems and processes take advantage of shared services and reusable components within government and available commercially.

Implications

- This requires loosely coupled software components shared as services and compatible application development.
- Agencies must share their best practices and reusable business and technical components.
- Building and integrating reusable components must become a common development method.