



## Enterprise Design Patterns: Enterprise Data Analytics

### What are Enterprise Design Patterns?

Reusable templates that guide the enterprise to implement a set of technologies in standard ways

### How do Enterprise Design Patterns relate to the Enterprise?

Enterprise Design Patterns translate OI&T's strategic goals, as documented in the Enterprise Technology Strategic Plan (ETSP), into "real world" direction to guide system design

### How can I learn more?

To learn more about Mobile Enterprise Design Patterns, contact Nicholas Bogden (Nicholas.bogden@va.gov).

To read the full document, see the TS website:  
[www.techstrategies.oit.va.gov](http://www.techstrategies.oit.va.gov)

To ask questions about Enterprise Design Patterns in general, reach out to [AskTS@va.gov](mailto:AskTS@va.gov)

- **Enterprise Design Pattern Scope:** The Department of Veterans Affairs' (VA) patchwork of analytics capabilities does not adequately meet the data needs of its changing operational environment or its burgeoning enterprise-level programs and services. VA's emerging data needs are driven by two trends: Implementation of new technologies that generate novel types of data (e.g., NoSQL data) which are not compatible with traditional SQL-based analytics solutions; and MyVA and VA Enterprise Architecture (EA) initiatives driving a sea change in favor of shared resources, enterprise-level programs, and more centralized management. The goal of this Enterprise Design Pattern (EDP) is to establish the architectural principles, guidelines, and constraints regarding a VA enterprise "big data" capability that will meet this demand and maximize the value of VA's business intelligence.

- **Current State:** VA's traditional approach to analytics is based on the data needs of individual Administrations, offices, projects, and lines of business (LOB) using structured query language (SQL)-based database management systems (DBMS). Most of VA's analytics capabilities and warehouses are artifacts of that approach. Both the approach and environment are at odds with MyVA's emphasis on shared services, standardization, and holistic enterprise management. As a result, VA contends with three interrelated critical gaps in the area of analytics:

1. VA cannot meet its emerging data needs without radically changing its approach to analytics.
2. Absence of enterprise analytics governance creates organizational barriers to data collection and sharing between Administrations, LOBs, and programs.
3. VA's collection of "little data" capabilities are not plugged into the existing enterprise-level "big data" capability (the VA Information and Analytic Ecosystem).

- **Design Pattern Solution:** The enhanced analytics capabilities proposed in this EDP support more efficient and effective service delivery to Veterans and beneficiaries. These capabilities will also support VA organizational goals and missions that rely on cross-cutting data collection and sharing.

Many organizations within VA recognize that meeting their emerging data needs require not only new technologies, but an entirely different approach to managing analytics. They also recognize that they cannot make the necessary changes without leadership and direction from the VA enterprise level. This Enterprise Design Pattern addresses VA's current analytics gaps and anticipated needs by addressing the following considerations:

- VA enterprise roles and responsibilities for analytics governance, policy, standards, training, provisioning, and management
- Policy and governance framework for analytics, particularly data sharing in a "circle of trust" model
- Guidelines for integrating existing analytics silos and operational systems with the VA Analytic Ecosystem
- Evaluating, selecting, and using analytics technologies, to include advanced analytics capabilities (e.g., predictive analytics, machine learning)

These capabilities will align VA's analytic environment with its technological, strategic, and operational landscape, partly by serving as the analytics portion of a future "data backbone." VA will also be better able to respond to changing technological needs and opportunities, and allow everyone in the Department to fully leverage newly deployed analytics capabilities.