

Enterprise Architecture in the Context of Organizational Strategy

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Introduction

The Presidential Management Agenda (PMA)¹ is geared towards transforming federal agencies into results-oriented, citizen-centered, and market-based entities. It includes five government-wide and nine agency-specific initiatives to improve the overall performance of the federal government. Expanded Electronic Government (E-Gov) is one of the government-wide initiatives to provide significant productivity and performance gains across agencies through effective planning of IT investments. A significant finding during the electronic government (E-Gov) effort was the necessity for a federal enterprise architecture that can provide a comprehensive view into what an agency does, how it performs its business activities; and how the IT systems support those activities.

During the last decade, the role of enterprise architecture has expanded from a mere technical blueprint of IT systems and infrastructure to include other aspects related to business-technology alignment. In fact, enterprise architecture has become an inseparable aspect of an organization's overall strategy. Therefore, it is essential that agency executives, business managers, and architects understand how enterprise architecture fits within the context of overall organizational strategy. This article introduces McKinsey's 7-S framework for evaluating an agency's organizational effectiveness and describes how enterprise architecture integrates with the overall organizational strategy.

Organizational Strategy

Organizational strategy represents the complete set of activities that an agency chooses to perform to meet its mission, goals, and objectives. Organizational strategy has two key dimensions: Conformance and Performance. The conformance dimension is intended to ensure that an agency meets its compliance on accountability and assurance requirements, while the performance dimension is to ensure that value is created and resources are utilized appropriately. Oversight committees have been prevalent for decades that monitor the conformance requirements. However, it is important to recognize that there have been no explicit strategic oversight bodies until recently. Agencies are starting to realize that these two dimensions need to be balanced appropriately (see Figure 1). We will examine how enterprise architecture can be leveraged to contribute to both dimensions.

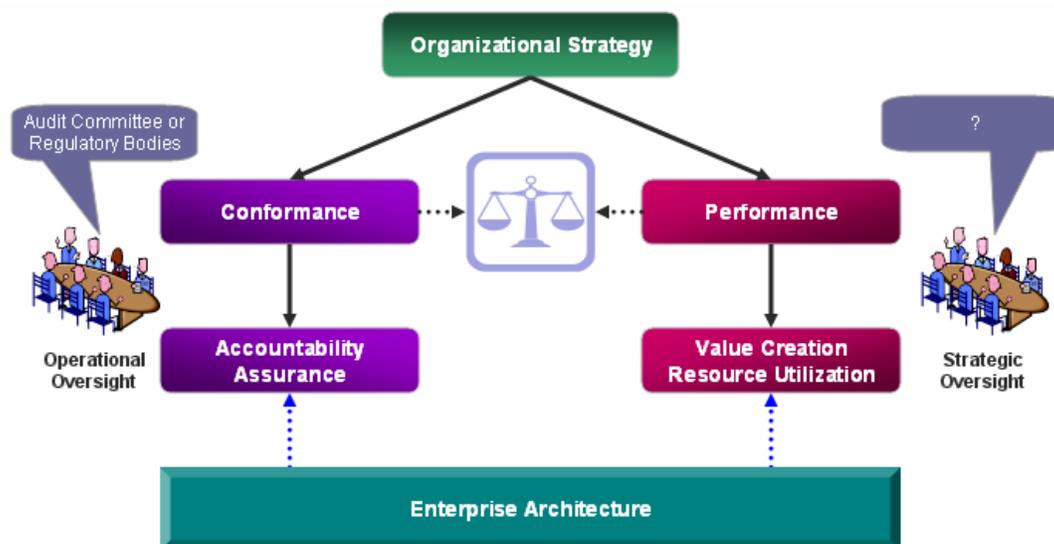


Figure 1. Organizational Strategy

Evolution of Enterprise Governance Controls

Figure 2 illustrates how enterprise governance controls have evolved and improved over the last 50 years. But none of them had more significant impact than Government Performance Results Act (GPRA), enacted in 1993. GPRA caused a major shift in the way agencies operate. This was the first time when accountability and performance were clearly delineated. But GPRA provided only high-level guidance and did not have sufficient details on several issues, including Information Technology (IT) acquisition and management. Given the \$60B spending in IT, Clinger-Cohen Act was enacted in 1996 to streamline the IT investment and management process. This is when Enterprise Architecture started to gain serious traction within the IT community and the upper management at the agencies.

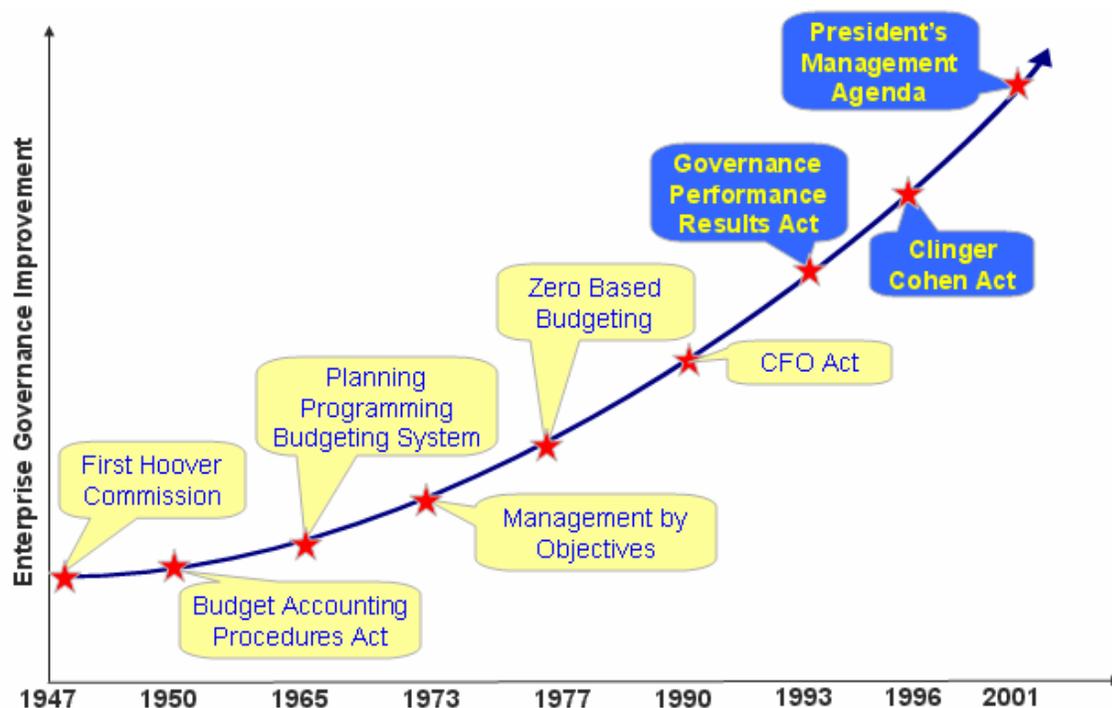


Figure 2. Evolution of Enterprise Governance Controls

Though GPRA provided a solid foundation for achieving better results, the full potential of GPRA is yet to be realized.² There were several operational issues in the implementation, and it lacked adequate focus on issues that span across multiple agencies. These issues were precisely addressed as part of Presidential Management Agenda (PMA) initiated in 2001. PMA included five government-wide initiatives and nine agency-specific initiatives to address only the key deficiencies within the federal agencies. At this juncture, enterprise architecture became even more important for overall strategy planning and implementation for the agencies.

Shift in Organizational Strategies

Pre-1947, the focus of organizational strategies was on resources such as employees, supplies, rent, etc. Then, it got shifted to activities and transactions. Now the focus is on desired outcomes. For example, initially, during the pre-1947 period, the Department of Transportation (DOT) placed an emphasis on the number of patrol officers. Its focus then shifted to the number of inspections performed on the use of safety belts. Finally, after the enactment of GPRA, the focus is now on the number of fatalities prevented, which is one of the desired strategic outcomes. Successful implementation of organizational strategies requires a crucial understanding of the linkages between resources, activities, and the desired outcomes. Table 1 summarizes the above concept.

	Pre 1947	1947-1990	Post 1993
Focus	Salaries Rent Supplies	Activities Transactions	Outcomes Impact
Emphasis	Resources (Inputs)	Work (Outputs)	Purpose (Outcomes)
Example (Dept. of Transportation)	Number of patrol officers	Number of inspections on the use of safety-belts	Number of fatalities prevented

Table 1. Shift in Organizational Strategies

Congressional and Legislative Framework

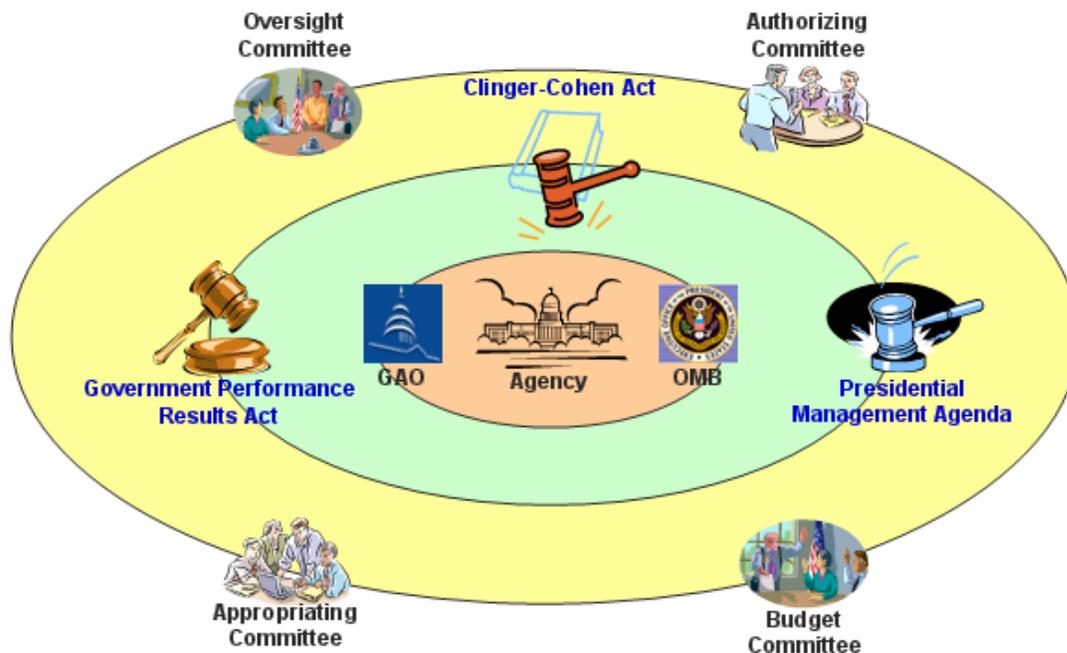


Figure 3. Congressional and Legislative Framework

To understand what drives organizational strategies, one needs to examine the congressional and legislative framework within which agencies operate today. Figure 3 provides a simplified illustration of the congressional and legislative framework. At the outset, congressional committees have broad oversight over the agencies³. They manage the lifecycle of agencies in terms of agency creation and policy enforcement. Their controls are often translated into laws. In fact, there are more than 90 management laws that reach across all federal agencies. OMB and GAO are the two important entities that closely work with agencies as follows: OMB ensures that agencies comply with legislative mandates by crafting policy guidelines, while GAO ensures that agencies comply with their accountability requirements by conducting periodic audits and reporting to Congress. It is critical to recognize that each agency often has multiple masters, resulting in conflicting priorities on goals, programs, and resources. Understanding this

aspect is essential in articulating and communicating any issues to the multiple stakeholders and also in negotiating a speedy resolution during the planning and implementation of organizational strategies.

We have looked at the definition of organizational strategies and how they have evolved in the past. We have also examined the congressional and legislative context within which agencies must operate. Now, the key question is how one can evaluate whether an agency or organization is functioning effectively or not. This is where McKinsey's 7-S framework comes into the picture, and we will explore in detail next.

Organizational Effectiveness – McKinsey's 7-S Framework

McKinsey has created a qualitative framework a.k.a. "McKinsey's 7-S Model"⁴ (see Figure 4) to analyze seven different aspects of an organization to determine if it is functioning effectively or not.

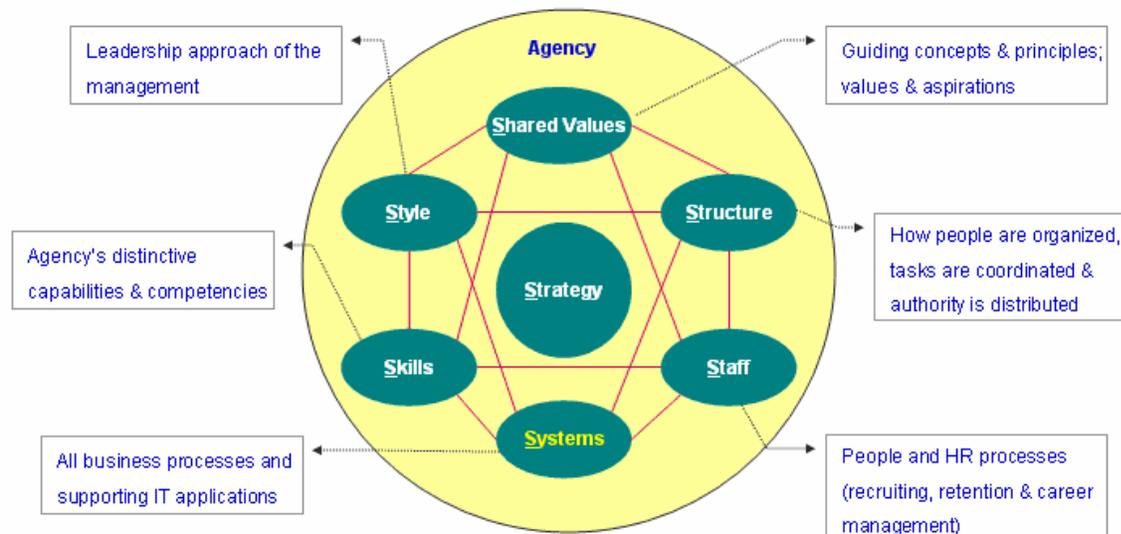


Figure 4. McKinsey's 7-S Framework

The seven critical aspects of an organization are as follows:

- **Strategy:** The central integrated concept of how to achieve the firm's objectives. The essence of strategy is choosing a set of core business activities to create value for the customers, and performing those business activities in the most optimal manner.
- **Structure:** The ways in which people are organized, tasks are coordinated, and authority is distributed within an agency.
- **Systems:** This includes (a) IT systems to support internal business processes (b) Performance measurement and reward systems to manage human capital (c) Knowledge management systems to disseminate best practices (d) Other planning, budgeting and resource allocation systems.
- **Style:** The leadership approach of top management and the organization's overall operating approach; also, the way in which the organization's employees present themselves to the outside world, to suppliers and customers.
- **Skills:** What an agency does best, its distinctive capabilities and competencies that reside in the organization.
- **Staff:** The organization's human resources; refers to how people are developed, trained, socialized, integrated, motivated, and how their carriers are managed.
- **Shared values:** The guiding concepts and principles of the organization - values and aspirations, often unwritten - that go beyond the conventional statements of corporate objectives.

Each “S” constitutes a critical viewpoint into the organizational architecture. For an organization to be effective, each “S” should reinforce other “S”s. It is crucial to understand that “**Systems**” is **just** one of the seven dimensions to have an impact on organizational effectiveness, and an agency must ensure a high degree of “fit” or internal alignment among these seven elements to maximize its performance. The 7-S model provides an appropriate context to evaluate how enterprise architecture fits within the overall organizational strategy.

Enterprise Architecture – Fit within 7-S Model

In order to understand how enterprise architecture fits within the 7-S model, we must first uncover the hidden mapping between PMA initiatives and the 7S model. As mentioned previously, the five agency-wide initiatives within PMA are designed to address key deficiencies in one or more “S”s of the agencies, as follows (see Figure 5):

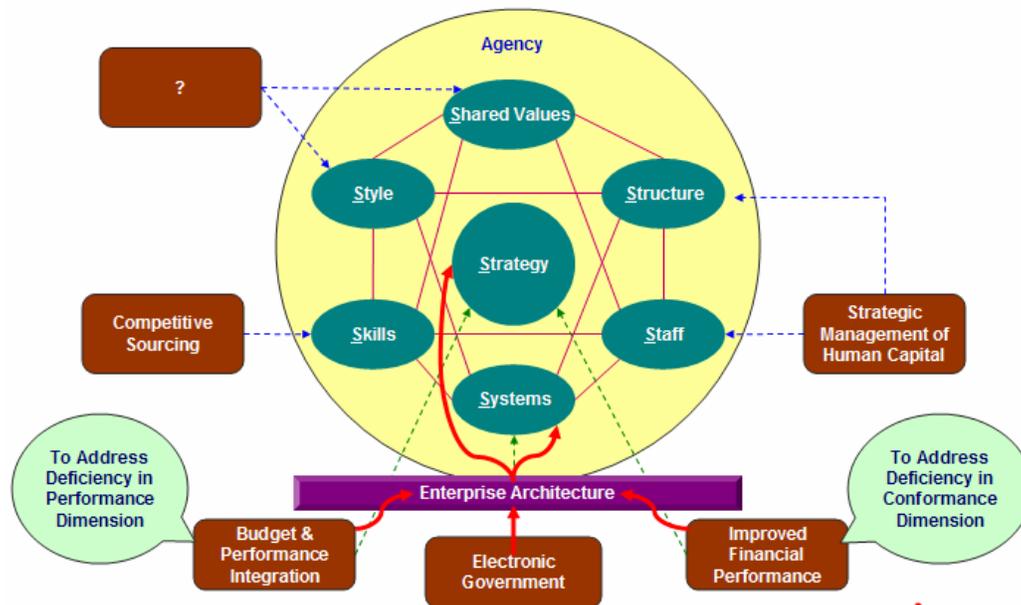


Figure 5. Enterprise Architecture Fit within 7-S Model

For example, *Strategic Management of Human Capital* addresses deficiencies in “**Staff**” and “**Structure**.” While *Budget and Performance Integration* addresses key deficiencies in the performance dimension, *Improved Financial Performance* addresses deficiencies in the conformance dimension of overall “**Strategy**.” “*E-Gov*” is intended to address deficiencies in the “**Systems**” aspect (i.e., business processes, supporting IT applications, and misalignment between the business processes and IT). *Competitive Sourcing* addresses deficiencies in “**Skills**” dimension. It is important to observe the lack of specific initiatives within PMA to address deficiencies within “**Style**” and “**Shared Values**” dimensions.

To implement the PMA initiatives, agencies need to understand where they stand currently on the various “S”s and also identify their overall target vision along with a transition plan to reach the target state. This is where Enterprise Architecture evolved into a strategic discipline to help with the implementation of the changes required, particularly in the “**Systems**” and “**Strategy**” aspects of the organizational architecture.

Enterprise Architecture – Multiple Perspectives and Reality

Enterprise architecture has become a loaded –term, and it means different things to different people. Zachman had an IT centric view of enterprise architecture, and he defined enterprise architecture to be “*A blueprint for the organization's information infrastructure*” in his framework, a.k.a. Zachman Framework.⁵

According to the Institute for Enterprise Architecture Developments, “Enterprise Architecture is about understanding all of the different elements that make up an enterprise and how those elements inter-relate”.⁶

Gartner Consulting says, “Enterprise architecture provides a decision framework, in the context of the business strategy, for the use of technology in the enterprise. In other words, the architecture is responsible for defining how technology will be used to support the business strategy and benefit the business.”⁷

CIO council defines enterprise architecture as “a strategic information asset base which defines the mission, the information necessary to perform the mission and the technologies necessary to perform the mission, and the transitional processes for implementing new technologies in response to the changing mission needs. Enterprise architecture includes baseline architecture, target architecture, and a sequencing plan.”⁸

In reality, enterprise architecture did have an IT-centric view depicting technical blueprints of information systems. Subsequently, it was positioned as a business technology alignment tool addressing misalignment of IT applications while supporting business processes. Recently, enterprise architecture has become a strategic management process to eliminate redundancy, improve efficiency, and tie budget with outcomes for agencies. We need to be careful not to get hung up on the various definitions of enterprise architecture. What is more important is the fact that the scope of enterprise architecture is highly context dependent, and we only need to make sure that all aspects of improving organizational effectiveness are addressed in one form or another.

Strategic Management Processes

Currently, agencies have other strategic management processes such as Budget, IT-Capital Planning Investment Control (IT-CPIC), Program Assessment Rating (PAR), and GPRA process, in addition to Enterprise Architecture. What provides a key linkage between Enterprise Architecture and other strategic management processes is Performance Reference Model (PRM). The PRM provides inputs to various phases within other strategic management process, as illustrated in Figure 6. The PRM is the top-most reference model within the Federal Enterprise Architecture Framework (FEAF), which is created by OMB to institutionalize business-technology alignment for federal agencies.

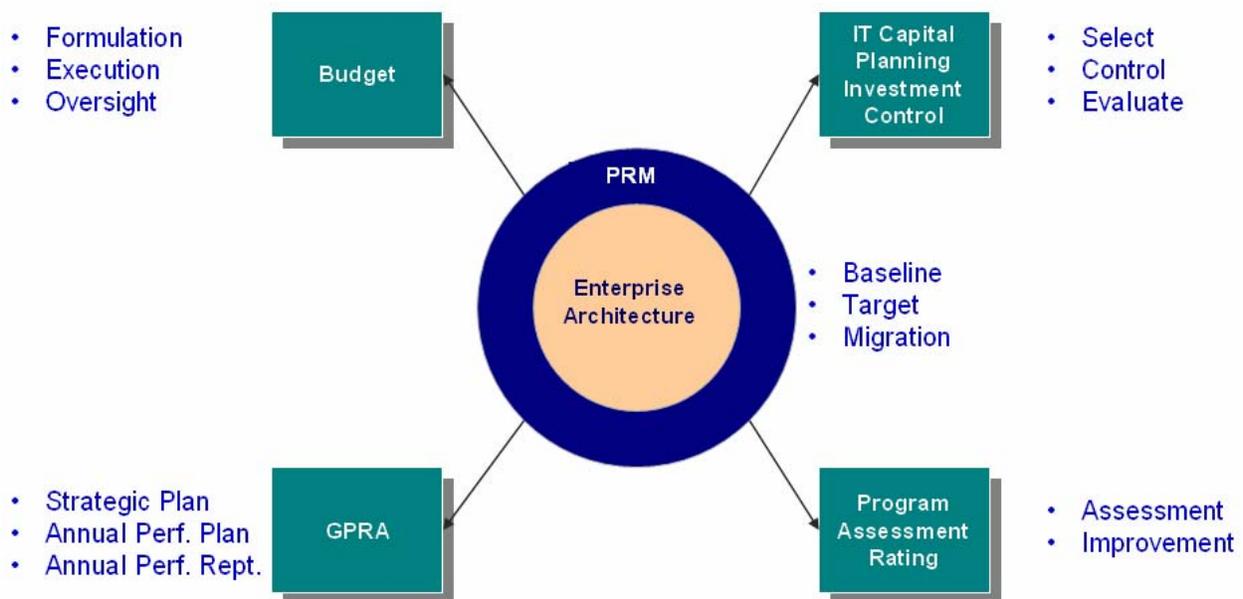


Figure 6. Strategic Management Processes

PRM is designed to clearly articulate the cause and effect relationships between inputs, outputs, and outcomes. It is structured around Measurement Areas, Measurement Categories, and Generic/Individualized Measurement Indicators. In order to be effective, agencies need to ensure a clear line of sight from inputs to outputs, then to outcomes, as illustrated in Figure 7.

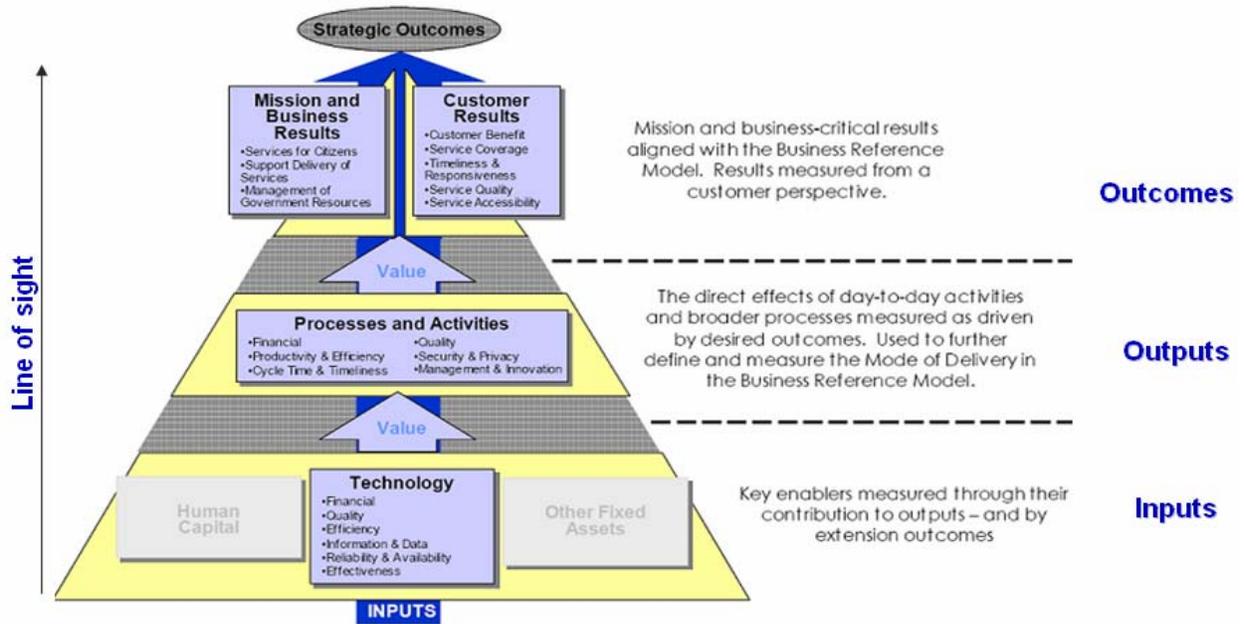


Figure 7. Performance Reference Model Version 1.0, FEAPMO

Comprehensive Line of Sight – An Example

One of the comprehensive mechanisms to establish the line of sight is to create relevant artifacts and models on strategy, business architecture, and technology architecture, and interlink them to create end-to-end traceability. Unisys has created an innovative business blueprinting process a.k.a. “**3-Dimensional Visible Enterprise (3DVE)**™” to establish an end-to-end traceability linking holistically across all dimensions of the enterprise (refer to Figure 8).

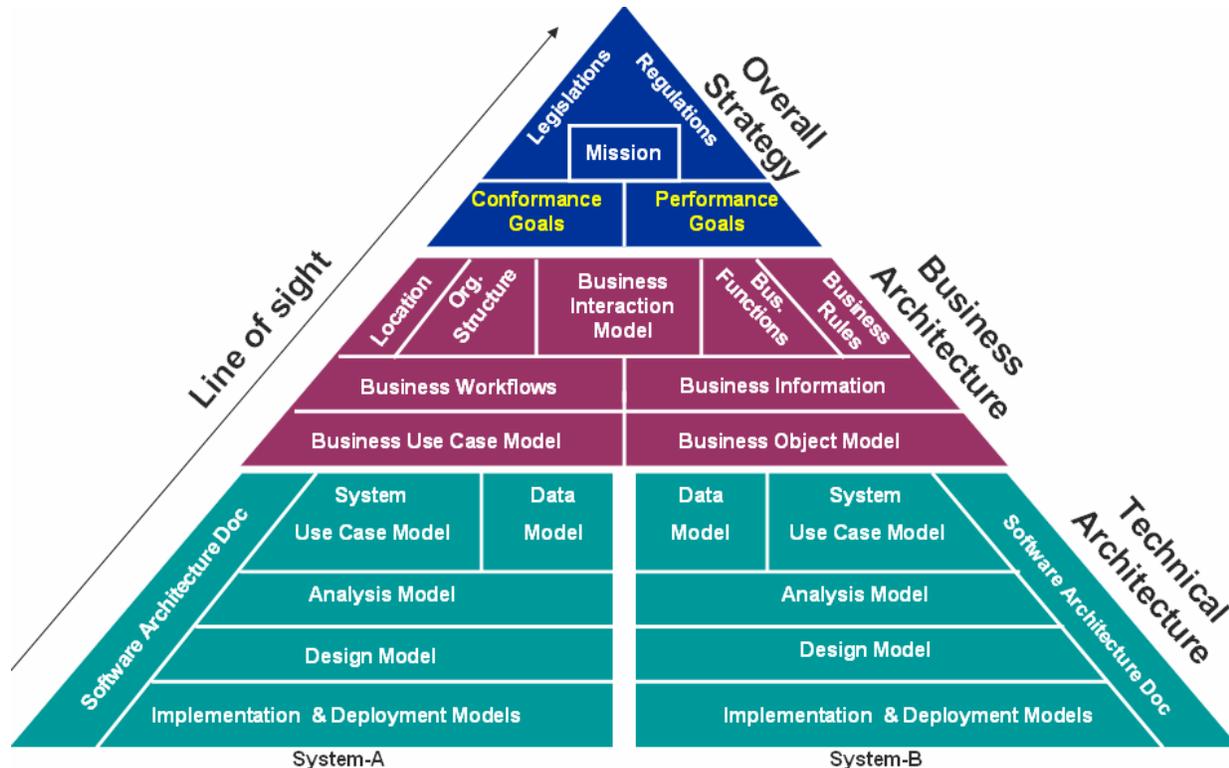


Figure 8. 3D Visible Enterprise – An example of Comprehensive Line of Sight

The 3DVE process advocates the following steps to establish a comprehensive line of sight:

1. Create strategy models that are fully integrated with the PRM requirements. This includes clearly documented legislative and regulatory constraints that determine an agency's overall mission. The mission will then be well articulated, with clear conformance and performance goals.
2. Create business architecture models and artifacts that are driven by the overall strategy. This includes identifying a business interaction model (interaction with customers, suppliers, and other stakeholders), organizational structure, business functions, geographic locations, other business rules, business workflows, and domain model.
3. Decompose business architecture into a set of systems or applications that provide automation to as many workflow tasks and business rules as possible. The system artifacts or models will include software engineering artifacts or models created as part of the software development process.
4. The technical architecture will include the implementation and deployment models that accurately reflect the actual hardware and infrastructure needs for the software applications.

The Enterprise Architecture process can be enhanced with **3DVE** approach to enable an on-going alignment between “**Systems**” and “**Strategy**” dimensions and to some extent the “**Skills**” dimension (especially when identifying roles and organizational structure). Essentially, **3DVE**-based Enterprise Architecture process can be of immense help to agencies during strategic planning and implementation. In other words, Enterprise Architecture can be leveraged to facilitate the continual alignment of People, Processes, and Technologies with organizational strategy (see Figure 9).

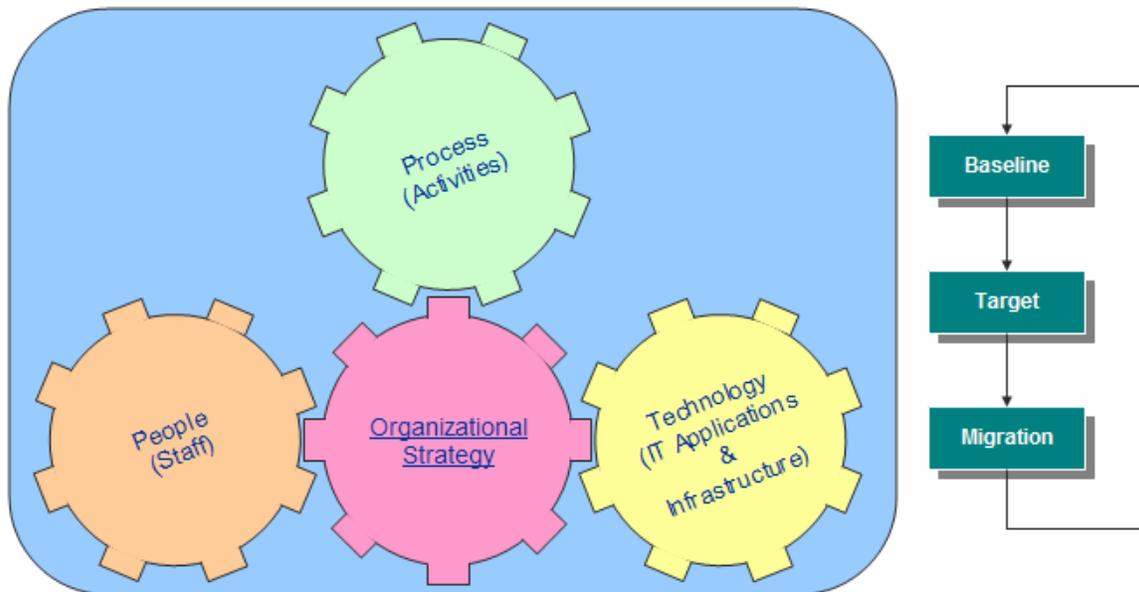


Figure 9. Role of Enterprise Architecture in Strategic Planning & Implementation

Conclusion

In order to understand how Enterprise Architecture fits within the overall organizational strategy, we must first gain insight into what is organizational strategy and how it has evolved in the past. We must also examine the current legislative and congressional framework within which agencies operate today and the key management laws that have had significant impact in shaping the organizational strategies. It is also crucial to understand the key organizational aspects that determine whether an agency is functioning effectively or not. Qualitative frameworks such as McKinsey's 7-S model must be exploited to analyze organizational effectiveness. A closer investigation of PMA initiatives through McKinsey's 7-S model revealed how they addressed the deficiencies in key organizational aspects of an agency.

A broader understanding of organizational strategies provides a foundation upon which one can evaluate the role of Enterprise Architecture within organizational strategies. Initially, Enterprise Architecture did have an IT-centric view depicting technical blueprints of information systems. Subsequently, it was positioned as a business technology alignment tool addressing misalignment of IT applications with supporting business processes. Recently, enterprise architecture has become a strategic management process by itself. The PRM provided the crucial linkage between the various strategic management processes such as Budget, IT-CPIC, PAR, and GPRA. Agencies must leverage the PRM to ensure a clear line of sight from inputs to outputs then to outcomes and establishing line of sight is crucial for agencies to improve their organizational effectiveness. Agencies should enhance their existing Enterprise Architecture process with business blueprinting techniques such as **3DVE** from Unisys to establish a comprehensive and end-to-end traceability among inputs, outputs, and outcomes for the organization.

End Notes

¹ President's Management Agenda, <http://www.whitehouse.gov/omb/budget/fy2002/mgmt.pdf>

² Testimony before the House Committee on Government Reform Subcommittee on Government Efficiency and Financial Management. http://www.performanceweb.org/NEWS/04-0331_hgrc_testimony.htm

³ Getting Results, A Guide for Federal Leaders and Managers, Barry White, Kathryn E. Newcomer

⁴ Organizational Alignment: The 7-S Model, Harvard Business School Note, Bradach Jeffrey, 1996

⁵ Zachman Framework. <http://www.zifa.com/>

⁶ Another view at Extended Enterprise Architecture Viewpoints. http://www.enterprise-architecture.info/Images/Extended%20Enterprise/E2A-Viewpoints_IFEAD.PDF

⁷ Enterprise Architecture Research Agenda Set for 2005, http://www.gartner.com/resources/127000/127039/enterprise_arch.pdf

⁸ Practical Guide to Enterprise Architecture. <http://www.cio.gov/archive/bpeaguide.pdf>