DRAFT

The Nebraska Enterprise Architecture For State Government

Version X.X
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Nebraska Information Technology Commission
State Government Council

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Chapter 1. Introduction

Background

Members of the State Government Council (SGC) adopted a strategy for Enterprise Architecture, Shared Services and Standardization on December 11, 2003 (see Appendix A). As part of this strategy, the State Government Council will serve as a "committee-of-the-whole" to develop the enterprise architecture.

In January 2004, the State Government Council considered several enterprise architecture methodologies. There was consensus to investigate the tools and resources developed by the National Association of State Chief Information Officers (NASCIO), because they were designed for state government and reflect the need for a high level perspective, rather than one that is too detailed. There is also the advantage of assistance from staff at NASCIO and working with other states that are using the NASCIO tools and resources.

Definition

Enterprise Architecture is a structured process for deciding what information technology is needed for the enterprise and how to provide information technology services within the organization.

"Enterprise Architecture Framework can be described as a methodology for developing an organization's IT support functions. Ideally, when governments establish their infrastructures using common enterprise architecture, making systems work together will be simpler because each would have addressed the items that are crucial to interoperability of systems developed for specific business needs." [1]

"Enterprise Architecture supports the business of government, enables information sharing across traditional barriers, enhances government's ability to deliver effective and timely services, and supports agencies in their efforts to improve government functions and thereby services." [2]

([1, 2] From NASCIO Enterprise Architecture Development Tool-Kit v. 2.0, p.8, and NASCIO Enterprise Architecture brochure.)

Benefits of Enterprise Architecture

Organizations develop enterprise architectures for the following reasons:

1. Focusing attention on the strategic use of information technology to support the functions of state government (business needs);
2. Providing quality data to those who need it (data sharing);
3. Achieving compatibility among various systems (interoperability);
4. Improving savings and value from expenditures on information technology (efficiency).

"Adaptive enterprise architecture effectively supports the business of government, enables information sharing across traditional barriers, enhances government's ability to deliver effective and timely services, and supports agencies in their efforts to improve government functions and, thereby, services. Through standards, enterprise architecture narrows the number of products to support and results in reduced complexity. As product numbers and complexity decrease, cost savings emerge.

"Technology architecture provides technology commonality that reduces security risks by providing standards for implementing security. It also promotes staff retention by simplifying training and support requirements. It reduces the total cost of ownership by producing technology savings through component commonality, joint purchases and reuse.

(Source: NASCIO EA Toolkit, p.11)

Concepts

NASCIO has developed a framework for enterprise architecture that includes four major components:

- Architecture Governance Framework
- Business Architecture Framework
- Technical Architecture Framework
- Architecture Blueprint.

Figure 1 shows the relationship of these four components.

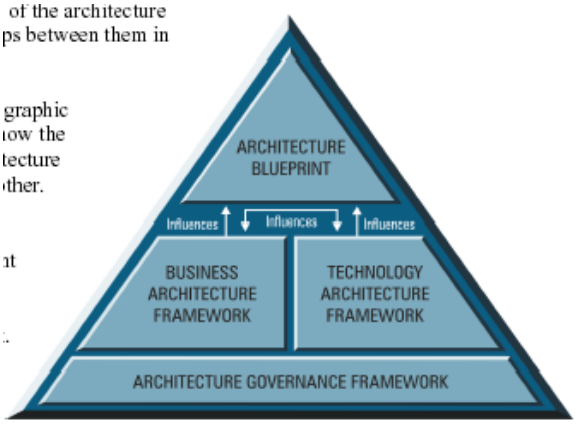


Figure 1. Enterprise Architecture Framework (NASCIO EA Toolkit V2.0, p. 16)

Architecture Governance Framework describes decision rights and responsibilities. It sets forth the roles, responsibilities, structures and processes for making decisions regarding information technology. Communication and involvement of stakeholders are key elements in governance. Achieving compliance and aligning other organizational activities with the enterprise architecture are also part of governance.

Business Architecture Framework identifies the business drivers such as business principles and best practices that should guide technology decisions. The Business Architecture links technology decisions to business goals and objectives. (Further explanation will be added after the chapter on business architecture is written.)

Technology Architecture Framework establishes the technology drivers, such as IT principles and best practices, and the processes for making technology decisions. (Further explanation will be added after the chapter on technology architecture is written.)

Architecture Blueprint documents the enterprise architecture, including technical standards and guidelines. (Further explanation will be added after the chapters on business architecture and technology architecture are written.)

The enterprise architecture lifecycle is an iterative process, with subsequent iterations becoming more complete. Appendix D depicts the enterprise architecture lifecycle. Key elements include:

- Developing the enterprise architecture framework
- Documenting the blueprint (architectural details)
- Communicating the enterprise architecture to stakeholders and users
- Assuring architecture compliance
- Reviewing the enterprise architecture and processes

The enterprise architecture is also part of a broader information investment management effort, which includes project selection, procurement, asset management, project management, change management, and other elements. The relationship of enterprise architecture to these other investment management processes is discussed in the chapter on Governance and Planning, as part of the integration plan.

Successful enterprise architecture will be used to:

- Identify and communicate changes in business drivers
- Implement enterprise-wide goals
- Evaluate emerging technologies
- Make choices about eliminating older technologies
- Reach agreement on shared services to support the enterprise
- Resolve problems that affect multiple entities.

Governance and Planning

Definition

In their book, "IT Governance – How Top Performers Manage IT Decision Rights for Superior Results", Peter Weill and Jeanne W. Ross define IT governance "as specifying the decisions rights and accountability framework to encourage desirable behavior" (p. 2). Based on their experience and collective research, *"Effective IT governance is the single most important predictor of the value an organization generates from IT"* (pp. 3-5, emphasis added).

The NASCIO EA tool kit offers this definition of governance: "Governance consists of the leadership, organizational structures, direction, and processes that ensure Information Technology (IT) sustains and extends the enterprise's mission, strategies and objectives in a planned manner. The purpose of architecture governance is to direct or guide initiatives, to ensure that performance aligns the enterprise business by taking advantage of the associated benefits, to enable the enterprise business by exploiting opportunities, to ensure IT resources are used responsibly and Technology Architecture-related risks are managed appropriately." (Source: NASCIO EA Development Tool-Kit v.2.0, page 26)

Governance refers to the process for making, implementing, and enforcing decisions on issues that affect multiple entities. "Effective governance is a key contributor to successful outcomes, such as innovative services, or greater efficiencies. It needs to be purposefully designed and transparent to nurture necessary trust." (Marianne Broadbent, Gartner Group Vice President, "CIO Futures: Lead with Effective Governance", ICA 36th Conference, Singapore, October 2002., Synopsis, page 1.)

Concepts

Weill and Ross list three questions that IT governance must address:

1. What decisions must be made to ensure effective management and use of IT?
2. Who should make these decisions?
3. How will these decisions be made and monitored?

Weill and Ross further categorize the types of decisions into five topics:

1. IT principles – Clarifying the business role of IT
2. IT architecture – Defining integration and standardization requirements
3. IT Infrastructure – Determining shared and enabling services
4. Business application needs – Specifying the business need for purchased or internally developed IT applications
5. IT investment and prioritization – Choosing which initiatives to fund and how much to spend

(IT Governance – How Top Performers Manage IT Decision Rights for Superior Results, by Peter Weill and Jeanne W. Ross, Harvard Business School Press, 2000, p.10.)

There are six critical success factors for effective governance:

1. IT governance must be thoughtfully and actively designed. Executive management must be involved for it to be effective.
2. Without transparency there is not trust. Transparency must be built into IT governance, so there is confidence in the processes.
3. Acknowledge that changing governance can take months. Make changes only when desirable behaviors change markedly.
4. Educating executives and managers about why governance is important is a constant challenge and requirement. Good behaviors must be reinforced and inappropriate behaviors redirected.
5. A sharp focus on a limited number of goals, behaviors and metrics is necessary. Good governance requires choices. You can optimize on multiple options.
6. There must be clear exception handling processes, with transparent and rapid escalation processes. Exceptions are how enterprises learn.

(Marianna Broadbent, Group Vice President for Gartner, "CIO Futures: Lead with Effective Governance", ICA 36th Conference, Singapore, October 2002.)

Another enterprise architect offers a similar list of key factors for a governance process:

1. A formal process is developed and documented.
2. The process includes an exception mechanism.
3. The team is staffed with highly skilled and respected individuals who can ade4quately represent key stakeholders.
4. The team meets on a well-publicized, regularly scheduled basis.
5. Compliance reports listing outcomes are created and distributed regularly.

(Jane A. Carbone, IT Architecture Toolkit, 2004, p. 151)

Scope

Logically, the first step in developing enterprise architecture is to define the boundaries of the enterprise. For purposes of this document, the enterprise consists of all state government agencies, boards and commissions, excluding the University of Nebraska, State Colleges, and community colleges.

As stated in the State Government Council's Strategy for Enterprise Architecture and Shared Services (Appendix A), the enterprise architecture will focus on those areas that provide opportunities for cost sharing, data sharing and initiatives that affect multiple agencies rather than a single entity. *It is not feasible for the enterprise architecture to address every technical detail for every agency.*

Roles and Responsibilities

The current organizational structure, roles and responsibilities are described in the Appendix. Proposed changes include:

1. The State Government Council should have responsibility for developing the enterprise architecture for state government and recommending standards and guidelines to the Technical Panel and the NITC. (NASCIO EA Toolkit: Overseer Role)

2. The Office of the CIO should coordinate and document the enterprise architecture and ensure that enterprise goals and objectives are met. The Office of the CIO will be involved in the compliance / exception process and reviewing the effectiveness of the EA Program. (NASCIO EA Toolkit: Champion, Documenter, Manager, and Reviewer Roles)

3. The GIS Steering Committee, CJIS, and similar functional area coordinating entities will serve an advisory role to the State Government Council and the Office of the CIO. (NASCIO EA Toolkit: Special Interest Groups)

4. DAS (IMServices, DOC, and Materiel) will develop procurement policies and procedures and link them to the enterprise architecture, including standards, and guidelines. DAS will be involved in the compliance / exception process (NASCIO EA Toolkit: Procurement Manager and Reviewer roles)

5. Technical architects of major applications and systems will provide assistance and advice to the State Government Council and Office of the CIO regarding the relationship of those systems to the enterprise architecture. Technical experts will also assist with the compliance / exception process (NASCIO EA Toolkit: Subject Matter Experts, Services Teams, Project Teams, and Reviewer roles)

The following roles described in the NASCIO EA Toolkit have not been identified:

- Communicator – Someone who serves as the conduit for information about the enterprise architecture to everyone who may be involved or affected by it. The absence of this role can lead to a lack of visibility, understanding, and accountability. Compliance is difficult to ascertain without an understanding of the enterprise architecture.
- Advisor – An executive who provides guidance to the Manager from a business and economic perspective. The absence of this role makes it more difficult to get a well-rounded perspective of the enterprise needs and requirements.
- Project / Services Methodology Communicator – Someone who is well versed in how to apply the EA methodology and the EA Program.
- Enterprise Executive – A policy-level official who gives direction, goals, and objectives to the enterprise.

(Insert Proposed Organizational Structure for Governance)

Compliance Plan (Alignment)

NASCIO Maturity Model: "Adherence to published standards, processes and other EA elements, and the processes to document and track variances from those standards. Compliance must be reviewed periodically to be sure the business and IT programs and services are operating effectively."

CURRENT PROCESS

The current compliance process centers around the "1909" review process for IT purchases, which is jointly managed by IMServices and the State Purchasing Bureau. The process involves submission of a form that lists hardware, software, and miscellaneous items. There is also a section for a short description of the application. A copy of the form is available at: http://www.ims.state.ne.us/forms/form1909.htm. Approval by IMServices, State Purchasing, and the Budget Division is required for purchases of hardware, software and services. The process is undergoing some revisions with the implementation of the NIS purchasing module. The 1909 form will no longer exist, but approval by IMServices will still be required prior to any IT-related purchase, except that purchases under $25,000 from an existing commodities contract will be exempt.

The Division of Communications is also involved in the review and approval of telecommunications equipment and services.

The current process does not fully meet the needs for a compliance plan for enterprise architecture. Missing are the following key elements:

- Transparency (including published criteria to guide the approval process);
- Communication (explanation of the process, its purpose and value);
- Exception process;
- The current process does not consider enterprise architecture standards or goals as criteria for approval.

Statutory Authority for Enterprise Architecture and Technical Standards

IMServices: "No state agency shall hire, purchase, lease, or rent any information management item listed in subsection (1) of this section without the written approval of the information management services administrator. All new computer programs developed or acquired for use with information management equipment of any state agency shall be documented according to standards developed or approved by the Information management services administrator." [Section 81-1117 (2) (e)] "He or she shall provide definitions of standards and common data elements, coordinate the collection of data, consolidate data files or data banks, and review and approve or disapprove the establishment of separate data banks." [Section 81-1117 (2) (j)]

The Division of Communications shall "(1) coordinate the purchase, lease, and use of communications services equipment and facilities for state government;" and "(6) assume management responsibility for any consolidated system or service and approve all purchases and contracts for such communications activities;" (Section 81-1120.17)

The NITC shall "Adopt minimum technical standards, guidelines, and architectures upon recommendation by the technical panel." [Section 86-516 (6)]

The CIO shall "Recommend policies and guidelines for acceptable and cost-effective use of information technology in state government" and "Implement a strategic, tactical, and project planning process" (Section 86-520)

FUTURE PROCESS

Weill and Ross discuss compliance in terms of a broader "alignment process" that includes "the IT investment approval process, the architecture exception process, service-

level agreements, chargeback, project tracking, and formal tracking of business value from IT" (p. 97). Some of these processes, such as project tracking and measuring IT value are part of the integration plan.

The "architecture exception process" that Weill and Ross propose is similar to the NASCIO concept of compliance. It is a process for deciding, documenting and tracking variances from adopted EA standards.

The proposed compliance / alignment process would include:

1. Architecture Help Request. IMServices with assistance from the Office of the CIO will develop a process that will allow project leaders to request advice on architectural issues at any stage of a project. The purpose of assistance is to identify and resolve potential architectural problems, before they become barriers. The assistance must be accurate and timely. If necessary, documenters and experts should be involved in responding to architecture help requests. (NASCIO EA Toolkit, p. 101)
2. Architecture Exception Process. The Office of the CIO will manage the exception process. This will include responding to requests by soliciting input from affected entities, documenters, and experts. Decisions must be timely, with fast escalation to senior management (Weill and Ross, page 225). Waivers to formal standards adopted by the NITC may need approval by the NITC, but the State Government Council or CIO should be empowered to handle most exceptions. The goal is to reach consensus on a request, before submitting it for consideration. Successful exceptions should be considered for adoption into the enterprise architecture.
3. Purchasing Review. DAS (IMServices. Materiel, and Communications) will continue to manage the review and approval of purchases for hardware, software, and services. The revised process should solicit information regarding compliance with architecture standards and potential impact and opportunities on implementing enterprise goals.

Benefits of an Exception Process (Weill and Ross, p. 99)

"Few enterprises can afford to support every technical platform that the business might find useful. Technology standards are critical to IT – and business – efficiency. But occasional exceptions are not only appropriate; they are necessary. The question is how you can identify the occasional exception. The answer is the architectural exception process."

"Exceptions are how enterprises learn. Enterprises use the exception process to meet unique business needs and to gauge when existing standards are becoming obsolete. Exceptions act as a release valve for reducing organizational pressures. … Without a viable exception process, business units ignore the enterprise wide standards and implement exceptions with no approval."

As the enterprise architecture goes through revisions in the future, additional strategies for alignment should be considered. One option is to use the Government Technology Collaboration Fund as seed money for enterprise projects. This strategy is consistent with a case study cited by Weill and Ross in which the office of the CIO and operating groups shared funding for enterprise architecture projects (p. 113). A second option is refinement of the catalog for enterprise services. Combined with Service Level Agreements and proper charge-back fees, the service catalog can reinforce enterprise goals. (Weill and Ross, pp. 101-102 and 112) Another practitioner of enterprise architecture suggests several options for aligning architecture with systems development,

including "Architects and [system] designers [should] collaborate to determine the minimum set of outputs (content and format) to be submitted for architecture communication/review." (Jane A. Carbone, IT Architecture Toolkit, 2004, p. 157)

Several states offer additional examples of alignment strategies. The State of Kansas provides training and certification on project management methods. Having a large number of people trained in project management creates a common language and is credited with a 20% reduction in implementation costs of large projects. The State of Washington created the Digital Government Applications Academy to help agencies put services for citizens and businesses on the Internet at an accelerated pace. The Academy is a learning center where agencies work together in a classroom setting to build those services. The result has been much greater synergy in developing online applications. The State of Washington also provides a master template for building digital government applications.

Integration Plan

NASCIO Maturity Model: "Integration addresses the ability of the various entities (internal or external to the organization) to coordinate their efforts to the greatest benefit of the organization. This is a key factor, as great efficiencies are gained by identifying similar functions or operations, both inside and outside of an organization."

Enterprise architecture is one of many disciples and processes for managing information technology investments. Figure 3 depicts a model developed by the State of North Carolina that shows five major components in the life cycle of IT investments. Developing the enterprise architecture is part of the Strategic Business and IT Planning component, but enterprise architecture is essential to many other components, as well. The Integration Plan explains how enterprise architecture relates to other important management processes.

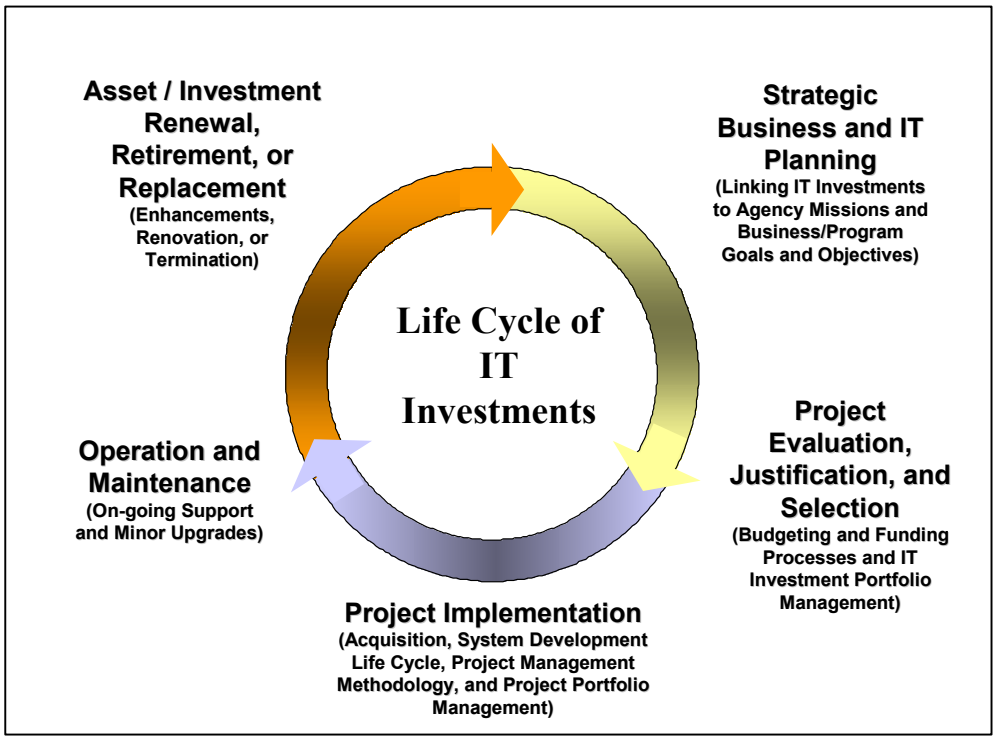


Figure xx. North Carolina Life Cycle of IT Investments. (Permission to reprint is pending.)

Existing management practices in Nebraska that should be integrated with enterprise architecture include the biennial budget process, project management methods, and procurement. Certain aspects of human resources, such as training and retention strategies also impact enterprise architecture.

Involvement

NASCIO Maturity Model: "Involvement must be part of an EA Program. Without the support of managers and employees who are expected to utilize and follow the defined process, the program is sure to fail."

(NOTE: This section will initially document how the EA program will involve a wide range of people from many different agencies, but the content will eventually be reflected in other sections, rather than remain as a separate topic.)

Communication Plan

NASCIO Maturity Model: "Communication (education and distribution of EA and Blueprint detail) is the element that ensures standards and processes are established and readily available to team members for reference and use. As an organization changes and programs evolve the continued communication ensures the EA program remains vital and operates optimally."

Options:

- Website
- NITC.news
- Presentations

[NOTE: Jane A. Carbone, "IT Architecture Toolkit", 2004, Chapter 12 "Presenting the Plan for Buy-In" has suggestions relevant to the communication plan. In Chapter 13, Carbone also discusses the importance of a repository for publishing the results of the EA: "What is most important is that the outputs are consistent, maintained, and published (sharable). If you have a working repository, then that would be an excellent place to store, maintain, and share the architecture. And in many cases we have seen that developing an architecture website or taking advantage of in-place collaborative software allows for effective storage, maintenance, and sharing of architecture outputs." (p. 155)]

Measuring Vitality of the EA Process

(NOTE: This section will borrow from the NASCIO EA Toolkit, which recommends an "Architecture Review Process" (p. 86), "Architecture Framework Vitality Process" (p. 107), and an "Architecture Blueprint Vitality Process" (p. 112). Weill and Ross focus considerable attention on the importance of "IT metrics and accountability" as a means of gauging the effectiveness of the enterprise architecture. This section will summarize some of the IT metrics that might be applicable to state government. Carbone, Chapter 11, "Establishing Metrics" has some good suggestions.)

Chapter 2. Business Architecture / Management Principles

The purpose of information technology is to support the business functions of the enterprise, which in this case is state government. Individual state agencies must meet requirements set in state statute, federal regulations, or other sources. In addition, agencies must respond to demands that cut across organizational boundaries. These cross-jurisdictional demands become the business drivers for the enterprise architecture. Current business drivers and related management principles include:

A. Cost-Savings
   Successive budget cuts over the past several years and the prospect of tight budgets in the near future places a premium on strategies for reducing the cost of government operations. This includes finding ways to:
   1. Reduce the cost of information technology goods and services (although total expenditures for IT may grow as the use of IT expands);
   2. Increase revenues through the use of information technology;
   3. Improve the efficiency of government through the use of information technology.

B. E-Government Directive
   In a memo (http://www.cio.state.ne.us/e-gov/) dated November 19, 2003, the Governor requested state agencies to make a renewed effort to provide information and services easily available online. The memo listed four management principles for agencies to follow:
   1. It should be easy for citizens and businesses to find information regarding government;
   2. The administrative burden of complying with government requirements should be as minimal as possible;
   3. Self-service should be an option, if at all feasible; and
   4. Government should present an integrated view of government information and services.

C. Collaboration
   State agencies have demonstrated a long history of working together to solve common problems. Examples include the GIS Steering Committee, the Criminal Justice Information Systems Advisory Committee, and implementing the Nebraska Information System. The State Government Council has sponsored several collaborative efforts, including the Online Business Registration System, Juvenile Data Sharing Study, e-mail standard, and directory services. Implicit in this history is the following management principle for enterprise architecture.
   1. Where feasible and appropriate, governmental entities should consider an enterprise approach for sharing resources, promoting teamwork, and minimizing the cost of government.

D. Security

In March 2004, the NITC adopted eight strategic initiatives, including Security and Business Resumption. Several constitutional and statutory provisions underscore the importance of protecting the continuity of government and the safety and integrity of public records. Federal laws and regulations impose specific requirements regarding privacy, security, and business resumption. A management principle for security would be to:

1. Protect the safety and integrity of public records and insure the continuity of government.

Chapter 3. Technology Architecture

"The Technology Architecture includes the actual standards and specifications that define how the IT Portfolios are and will be built. The Technology Architecture will structure technology direction and existing IT services.

Definitions

"By Architecture, we mean the complete set of plans which guide the selection, construction, modification, and use of the enterprise information infrastructure to enable the desired business state." (Carbone, p. 45)

"By infrastructure we mean all the products and services IT constructs, purchases, or uses to support the business." (Carbone, p. 46)

(NOTE: are these definitions too broad for our purposes? Should the enterprise technology architecture try to be comprehensive in scope or focus on certain key areas of interest?)

Concepts

The NASCIO EA Toolkit categorizes existing standards and legacy system components into one of the following four technology categories: emerging, current, twilight, or sunset standards.

"Emerging technologies identify those developing or recently released technologies that are projected to become industry standards. Though the items listed may seem to be the latest and greatest, they will generally take some time to be tested and accepted by the industry as standards. It is generally understood that these items should be considered carefully before implementing them within the enterprise architecture.

"Current technologies represent items that are current standards for use within the enterprise. They have been tested and are generally accepted as standard by the industry. These are the preferred technologies of the day. These items comply with or support the Technology Drivers listed for the discipline.

"Twilight technologies identify technologies that may still be in use, but are not the optimum. They may be a deterrent to reaching the goals of the enterprise and are being phased out.

"Sunset technologies identify technologies that are in use but do not conform to the stated technology architecture direction. The sunset component will have a date of discontinuance.

"Future technology investment and new projects adhere to the adaptive enterprise architecture standards. Over time, the enterprise infrastructure will migrate to the new technology architecture standards." [3]

[3] (Source: NASCIO Enterprise Architecture Development Tool-Kit v. 2.0, pp.11 – 12)

"The main components of the Technology Architecture are:

- Templates and processes that aid in providing the technology architecture information.
- Technology Drivers – Internal business processes and needs and external innovation that influence technology. These are captured in three stages of technology drivers:
    - *Technology Trends* – Emerging trends within the technology world that are impacting how services and the IT Portfolio will be provided.
    - *IT Best Practices* – Those trends and approaches that over time have proven to be the most successful at providing the services and IT Portfolio.
    - *IT Principles* – Those practices and approaches that the organization chooses to institutionalize to better all services and IT Portfolio pieces provided.
- Architecture Blueprint – The term Architecture Blueprint refers to the dynamic information that is documented for the enterprise, showing exactly how the services, information and Business/IT Portfolio in the organization will be delivered."

(From NASCIO Enterprise Architecture Development Tool-Kit v. 2.0, pp. 20-21)

Scope

Technology Drivers

"Information technology architecture is a set of policies and rules that governs the use of information technology and plots a path to the way business will be done in the future. Each architecture decision needs a sound business base, to encourage voluntary agreement and compliance across the business." (From: Leveraging the New Infrastructure – How Market Leaders Capitalize on Information Technology, by Peter Weill and Marianne Broadbent, Harvard Business School Press, 1998, p. 15)

A. IT Principles
   1. Purchases of information technology goods and services should be aggregated, if it saves money (e.g., enterprise licensing.
   2. Decisions to purchase or support new technologies or to drop support for "twilight" technologies should be communicated broadly in order to determine enterprise opportunities and impact.
   3. The eGovernment Strategic Plan will guide decisions about online access to information and services.
   4. Other principles

   (NOTE: "Principles translate the business target state into more generalized statements of direction for IT. For example, if business direction describes a need for more flexibility or faster time to market, we can translate that into a principle about the strong preference for reusable pieces of IT infrastructure." (Carbone, p. 47) See Carbone, p. 48 for a list of guidelines for forming IT principles.) In Appendix B (p. 181-182, Carbone offers a sample list of enterprise IT principles, including:
      - "Information will be managed as a corporate resource.
      - "Functions will be reusable and reused.
      - "A single system development life cycle methodology will be employed for all systems' development efforts.
      - "Application tools will be consolidated and versions standardized to reduce rework.
      - "A bias to buy application functions and tools will exist where competitive differentiation is not a primary driver.
      - "Purchasing decisions will be aligned with the architecture for network, hardware, training, and software."

B. IT Best Practices

C. IT Trends

   - (refer to Weill and Ross, page 110)

Inventory

(NOTE: Refer to Carbone, Chapter 8, "The Toolkit IT Framework – Inventory" p. 83, for a discussion on the importance of IT inventory to enterprise architecture.

- Provide summary data from agency comprehensive IT plans
- Provide a link to a detailed tabulation of data from agency comprehensive IT plans.

Shared Services

Framework

Issues to Resolve (NASCIO EA Assessment Summary)

A. Establish a repeatable program (Level 2)
   1. Document the basic EA Program Processes and templates
   2. Track EA Program plan processes
   3. Track EA processes, actual against planned
   4. Encourage reuse of basic EA Program templates

B. Establish a well-defined program (Level 3)
   1. Formally document Architecture Lifecycle Processes.
   2. Formally document EA Program Tools (Architecture Lifecycle Templates, Migration Strategy Templates, Classification Criteria Decision Tools)
   3. Produce Education Materials for the Architecture Lifecycle Processes and Tools
   4. Conduct Education Sessions for the Architecture Lifecycle Processes and Tools

Blueprint

Issues to Resolve (NASCIO EA Assessment Summary)

A. Establish an informal program (Level 1)
   1. Research how other organizations capture business drivers and technology standards
   2. Informally begin to document Business Drivers
   3. Informally begin to document Technology Standards
B. Establish a repeatable program (Level 2)
   1. Identify documented Business Drivers and strategic information
   2. Identify documented Technology Standards
   3. Determine ways to capture various pieces of EA information in a consistent format and storage medium
C. Establish a well-defined program (Level 3)
   1. Consistently document Technology Standards and Guidelines using the EA Program Tools provided
   2. Consistently document Business Drivers and Strategic Information using the EA Program Tools provided.

Technology Architecture Blueprint (Standards)

NITC Standards: (http://www.nitc.state.ne.us/standards/index.html)

"Setting standards is one of the most detailed (and last) tasks performed by the architect in terms of setting direction for development. The Toolkit definition of a standard is the agreed-to or corporate set of key data entities, functions, technologies, or processes – their names, definition, or description." Carbone, p. 91

Chapter 4. Enterprise Initiatives

Definition: Activities sponsored or recognized by the State Government Council to promote enterprise goals.

Concepts

Data Sharing Strategy

- CJIS
- GIS
- Juvenile Data Sharing
- Other Functional Areas?

E-Government Strategy

- Business Portal Initiative (Forms Automation, Business Forms Search Upgrade, Online Business Registration, Site Selection Tools)
- Citizen Portal Initiative (Legislative Bill Tracking, Campaign Finance Information, Enhanced Public Meeting Calendar)
- Education Portal Initiative
- Interactive License Renewals
- Marketing Strategy
- Search Tools

Enterprise Licensing Strategy

Security Strategy

Shared Services Strategy

- Directory Services (also serves security strategy)
- Payment Portal (including electronic checks)
- Unified e-mail
-

Chapter 5. Enterprise Architecture Work Plan (September 1, 2004 through January 31, 2005)

The NASCIO methodology recognizes that developing Enterprise Architecture is a gradual, iterative process. Each version of the Enterprise Architecture builds on previous work. This section sets forth the detailed work plan for the next 6 months. Timeframes reflect high-level estimates without perfect knowledge of the tasks to be accomplished or the resources that will be available. The overall goal is to publish version 1.0 of the Nebraska Enterprise Architecture by January 31, 2005)

1. Governance and Planning – Roles and Responsibilities
    a. Lead Person: Steve Schafer
    b. Tasks and Timeframes:
        i. Prepare draft roles and responsibilities for EA (September 9, 2004) – DRAFT VERSION IS COMPLETED, 9/13/2004
        ii. Prepare draft changes to SGC Charter, if necessary (October 31,2004)
        iii. Prepare draft EA Program Plan (pending release of NASCIO EA Toolkit, version 3.0 in October 2004)
        iv. Summarize the opportunities for involving agencies in the EA Program Map (pending release of NASCIO EA Toolkit, version 3.0 in October 2004)

2. Governance and Planning – Compliance Plan
    a. Lead Person:
    b. Tasks and Timeframes:
        i. Document current compliance process (September 9, 2004) -- DRAFT VERSION IS COMPLETED, 9/13/2004
        ii. Prepare draft of proposed changes to compliance process (October 2004) -- DRAFT VERSION IS COMPLETED, 9/13/2004
        iii. Prepare draft of process and criteria for justifying a variance to the EA (October 2004)

3. Governance and Planning – Integration Plan
    a. Lead Person: Steve Schafer
        i. Prepare draft documentation of relationship of EA to project management (November 2004)
        ii. Prepare draft documentation of relationship of EA to strategic planning and budgeting (December 2004)
        iii. Prepare Section on Measuring Vitality of the EA Process

4. Governance and Planning – Communication Plan
    a. Lead Person:
        i. Develop initial communication plan (January 31, 2005)
        ii. Prepare materials for presentations (January 31, 2005

5. Business Architecture

6. Technology Architecture Framework
    a. Lead Person: Steve Schafer
    b. Tasks and Timeframes:
        i. Document EA program process and templates (December 31, 2004)
        ii. Document Architecture Lifecycle Process (December 31, 2004)

7. Technical Architecture Blueprint
    a. Lead Person: Steve Schafer
    b. Tasks and Timeframes:
        i. Research and document business drivers (December 31, 2004)
        ii. Research and document existing technical standards (target date?)

8. Enterprise licensing
    a. Lead Person:
    b. Tasks and Timeframes:
        i. Solicit enterprise pricing for anti-virus software (September 30, 2004)
        ii. Prepare strategy, work plan, and timetable for enterprise licensing (September 30, 2004)

9. Shared services
    a. Lead Person:
    b. Tasks and Timeframes:
        i. Research opportunities for shared services, including criteria for deciding whether a service should be centralized or distributed (target date?)
        ii. Prepare an inventory of existing shared services (target date?)

10. Juvenile Data Sharing Study
    a. Lead Person: Mike Overton
    b. Tasks and Timeframes:
        i. Phase I – Data Collection (12/1/04)
        ii. Phase II – Data Diagnosis (9/2/04)
        iii. Phase III – Strategy Formulation (11/2/04)
        iv. Phase IV – Implementation Planning (12/7/04)

Appendix A

State Government Council
Action Item SGC 2.1 – Recommend Technical Standards, Guidelines and Enterprise Solutions

Task: Develop a Strategy for Enterprise Architecture, Shared Services, and Standardization

Management Principles

1. It should be easy for citizens and businesses to find information regarding government.
2. The administrative burden of complying with government requirements should be as minimal as possible, for internal agency operations and for external customers.
3. Self-service should be an option, if at all possible.
4. Government should present an integrated view of government information and services.
5. Where feasible and appropriate, governmental entities should consider an enterprise approach for sharing resources, promoting teamwork, and minimizing the cost of government.
6. Government services should emphasize quality, not the quantity of programs.

Governance

Governance refers to the process for making, implementing, and enforcing decisions on issues that affect multiple entities. "Effective governance is a key contributor to successful outcomes, such as innovative services, or greater efficiencies. It needs to be purposefully designed and transparent to nurture necessary trust." (Marianne Broadbent, October 2002.)

Any governance structure for decisions on information technology must be consistent with existing statutory authority, which the Legislature has assigned to multiple entities, including:

- The NITC shall "Adopt minimum technical standards, guidelines, and architectures upon recommendation by the technical panel." [Section 86-516 (6)] Section 86-524 directs the Appropriations Committee and the Transportation Committee to evaluate the NITC in part on whether "(d) Policies, standards, guidelines, and architecture have been developed and observed."
- IMServices: "No state agency shall hire, purchase, lease, or rent any information management item listed in subsection (1) of this section without the written approval of the information management services administrator. All new computer programs developed or acquired for use with information management equipment of any state agency shall be documented according to standards developed or approved by the Information management services administrator." [Section 81-1117 (2) (e)] "He or she shall provide definitions of standards and common data elements, coordinate the collection of data, consolidate data files or data banks, and review and approve or disapprove the establishment of separate data banks." [Section 81-1117 (2) (j)]
- The Division of Communications shall "(1) coordinate the purchase, lease, and use of communications services equipment and facilities for state government;" and "(6) assume management responsibility for any consolidated system or service and approve all purchases and contracts for such communications activities;" (Section 81-1120.17)

- The State Records Board has responsibility to "employ or contract with a network manager … (to) direct and supervise the day-to-day operations and expansion of a gateway or electronic network to make public records available electronically…." (Section 84-1205)
- State agencies have responsibility over programs and budgets, including decisions about many aspects of information technology used in support of each agency's mission.

The State Government Council will develop the enterprise architecture for state government. This effort will expand upon the activities begun three years ago by the "E-Government Architecture Work Group of the Technical Panel." The enterprise architecture will focus on those areas that provide opportunities for cost sharing, data sharing and enhancements that affect multiple agencies rather than a single entity. It is not feasible for an enterprise architecture to address every technical detail for every agency. All agencies should have an opportunity to review and comment on the enterprise architecture as it evolves.

Responsibilities of this work effort will include:

1. Recommend a methodology for developing and maintaining an enterprise architecture.
2. Identify strengths and weaknesses in the state's existing technology infrastructure and technical capabilities in terms of meeting the management principles for information technology.
3. Recommend shared services.
4. Establish subcommittees to assist with implementation of shared services.
5. Recommend standards and guidelines to the State Government Council and Technical Panel.
6. Recommend changes to the Agency Comprehensive Information Technology Plans that will assist in developing and implementing an enterprise architecture for the state.
7. Recommend changes to the project review process (including the "1909" form used by IMServices) that will assist in developing and implementing a technical architecture for the state.
8. Recommend a formal process to justify deviations from the enterprise architecture.

Information Technology Principles

(Translate Management Principles into high-level statements that provide direction for information technology decisions.)

1. Nebraska Information Technology Commission Goals:
   a. Support the development of a robust statewide telecommunications infrastructure that is scalable, reliable, and efficient;
   b. Support the use of information technology to enhance community and economic development;
   c. Promote the use of information technology to improve the efficiency and delivery of governmental and educational services;
   d. Promote effective planning, management, and accountability regarding the state's investments in information technology.
2. State Government Council Priorities and Action Items
   a. Develop guidelines for electronic records retention;
   b. Improve planning process and project management;
   c. Develop and implement privacy and security policies;
   d. Improve collaboration and efficiency through technical standards, guidelines and enterprise solutions;

3. Implement recommendations and action items of the E-Government Strategic Plan, including:
    a. Citizen Portal Enhancements;
    b. Business Portal Enhancements;
    c. Employee Portal Enhancements;
    d. Government-to-Government data sharing and collaboration;
    e. Improvements for internal operations.

Agency Comprehensive Information Technology Plans

These agency-level plans should provide the type of data that will allow identification of:

1. Common customers across agencies and jurisdictions;
2. Common technology needs (such as e-mail, imaging, and document management);
3. Common processes (such as licensing);
4. Common interests among sectors for sharing data, knowledge, and other resources.

The State Government Council should use these data in recommending shared services and developing standards and guidelines.

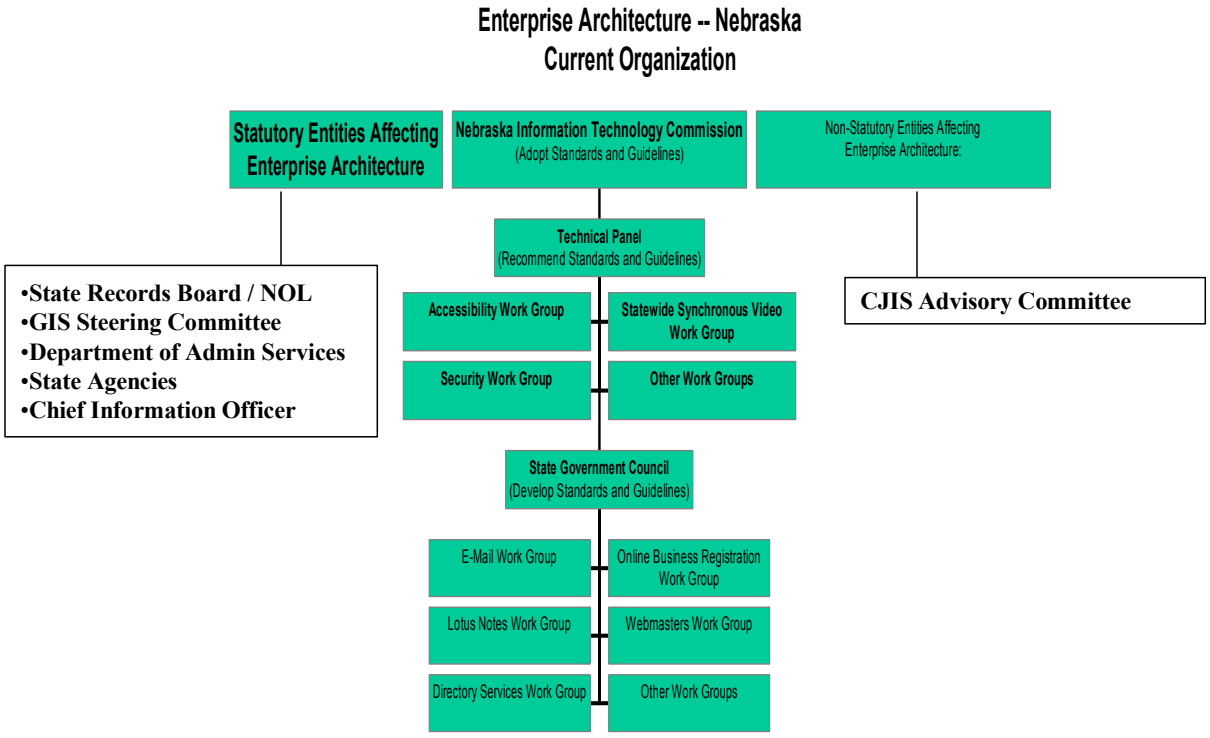
Project Review Process

The project review process should reinforce decisions regarding shared services and standards and guidelines.

Approved by the State Government Council on December 11, 2003.
(Date of Last Revision: December 11, 2003)

Appendix B

Enterprise Architecture For Nebraska State Government
Current Organization, Roles and Responsibilities
(July 2004)



Appendix C

Enterprise Architecture For Nebraska State Government
Current Roles and Responsibilities
(July 2004)

A. Nebraska Information Technology Commission
   - Annually update a statewide technology plan [Section 86-516 (1)]
   - Adopt guidelines regarding project planning and management, information sharing, and administrative and technical review procedures [Section 86-516 (5)]
   - Adopt minimum technical standards, guidelines, and architectures upon recommendation by the technical panel." [Section 86-516 (6)]
   - Make recommendations on technology investments to the Governor and Legislature, including a prioritized list of projects [Section 86-516 (7)]
   - Develop procedures regarding the review, approval, and monitoring of enterprise projects that benefit from the Information Technology Infrastructure Fund (Section 86-529)

B. Technical Panel and Work Groups (Section 86-521and NITC Charter, http://www.nitc.state.ne.us/tp/)
   - Recommend technical standards and guidelines to be considered for adoption by the NITC
   - Review any technology project or request for additional funding recommended to the NITC

C. State Government Council and Work Groups (NITC Charter, http://www.nitc.state.ne.us/sgc/)
   - Establish, coordinate, and prioritize technology needs for state agencies;
   - Review and make recommendations to the Commission on agency technology projects requesting new or additional funding as part of the state budget process;
   - Assist the Commission in developing, reviewing and updating the statewide technology plan;
   - Recommend planning and project management procedures for state information technology investments;
   - Evaluate and act upon opportunities to more efficiently and effectively deliver government services through the use of information technology;
   - Recommend policies, guidelines, and standards for information technology within state government;

D. Chief Information Officer (Section 86-520)
   - Maintain an inventory of state government technology assets
   - Recommend policies and guidelines for acceptable and cost-effective use of information technology in state government
   - Implement a strategic, tactical, and project planning process
   - Recommend methods for improving the organization and management of data

- Monitor the status of major technology projects
- Report the status of enterprise projects to the NITC, Governor and Legislature (Section 86-528)

E. Department of Administrative Services
   1. Budget Division
      - Assist the Governor in developing budget recommendations to the Legislature
      - Approve spending requests for information technology (1909 Form)
   2. Communications Division (Section 81-1120.17)
      - Coordinate the purchase, lease, and use of communications services equipment and facilities for state government;"
      - Assume management responsibility for any consolidated system or service and approve all purchases and contracts for such communications activities;
   3. Information Management Services Division [Section 81-1117 (2) (e) and (j)]
      - Approve the hire, purchase, lease, or rental of any information management item listed in subsection (1909 Form)
      - Establish standards for documenting all new computer programs developed or acquired for use with information management equipment of any state agency
      - Provide definitions of standards and common data elements, coordinate the collection of data, consolidate data files or data banks, and review and approve or disapprove the establishment of separate data banks.
   4. Materiel Division
      - Establish purchasing requirements

F. State Records Board / Nebraska Online
   - The State Records Board has responsibility to "employ or contract with a network manager … (to) direct and supervise the day-to-day operations and expansion of a gateway or electronic network to make public records available electronically…." (Section 84-1205)

G. GIS Steering Committee

H. CJIS Advisory Committee

I. State Agencies
   - State agencies have responsibility over programs and budgets, including decisions about many aspects of information technology used in support of each agency's mission.

Appendix E

Architecture Lifecycle Processes

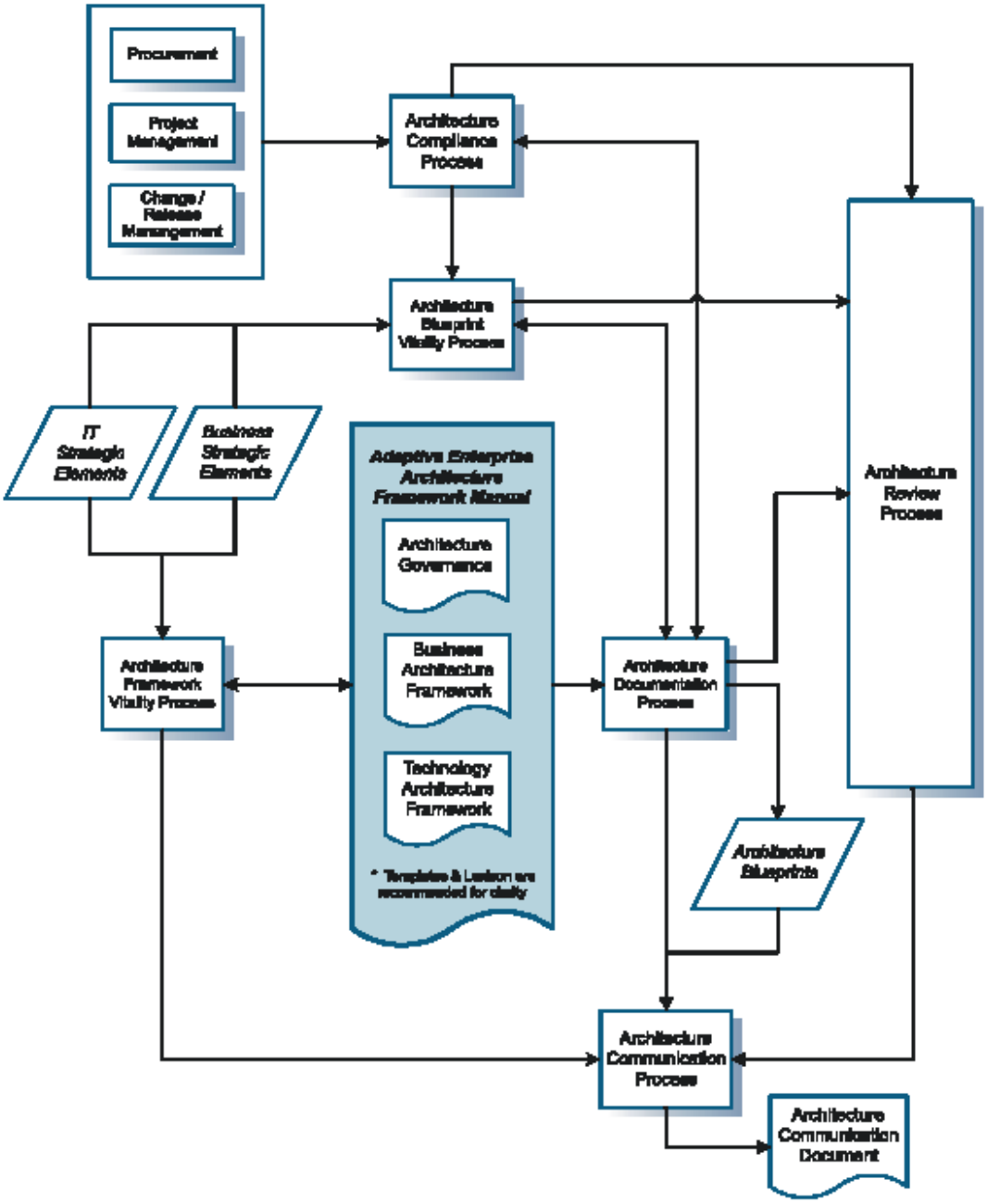


Figure 9. Architecture Lifecycle Processes

Source: NASCIO EA Toolkit Version 2.0, p. 79