

STATE of ARIZONA

Government  
Information  
Technology  
Agency

Statewide  
**POLICY**  
P750

**TITLE: Service Oriented  
Architecture (SOA)**

**Effective Date: August 17, 2007**

**1. AUTHORITY**

The Government Information Technology Agency (GITA) shall develop, implement and maintain a coordinated statewide plan for information technology (A.R.S. § 41-3504(A (1))), including, the formulation of policies to effectuate the purposes of the agency (A.R.S. § 41-3504(A (13))).

**2. PURPOSE**

In cooperation with the leadership of Executive Branch Agencies, the state shall continuously evolve and optimize existing state services through information technology for the benefits of its citizens. The purpose is to streamline state services as well as services for reuse by other organizations where overlapping business processes and redundancy can be reduced and/or eliminated. Such improvements can be achieved through the implementation of Service Oriented Architecture (SOA) for agency business applications.

**3. SCOPE**

A Budget Unit is defined as a department, commission, board, institution or other agency of the state organization receiving, expending, or disbursing state funds or incurring obligations of the state including the Arizona Board of Regents but excluding the universities under the jurisdiction of the Arizona Board of Regents, the community college districts and the legislative and judicial branches (A.R.S. § 41-3501(2)).

The Budget Unit Chief Executive Officer (CEO), working in conjunction with the Budget Unit Chief Information Officer (CIO), shall be responsible for ensuring the effective implementation of Statewide Information Technology Policies, Standards, and Procedures (PSPs) within each budget unit.

**4. POLICY**

While Information Technology (IT) has provided great strides for greater efficiencies in state government, IT has been an impediment for the most part in providing greater flexibility and creativity in crossing other agency application boundaries for common services and service reuse, which is the next step of automation delivery. Therefore, the following statewide policies shall be followed in support of SOA implementation for greater effectiveness and added benefits and value for the state.

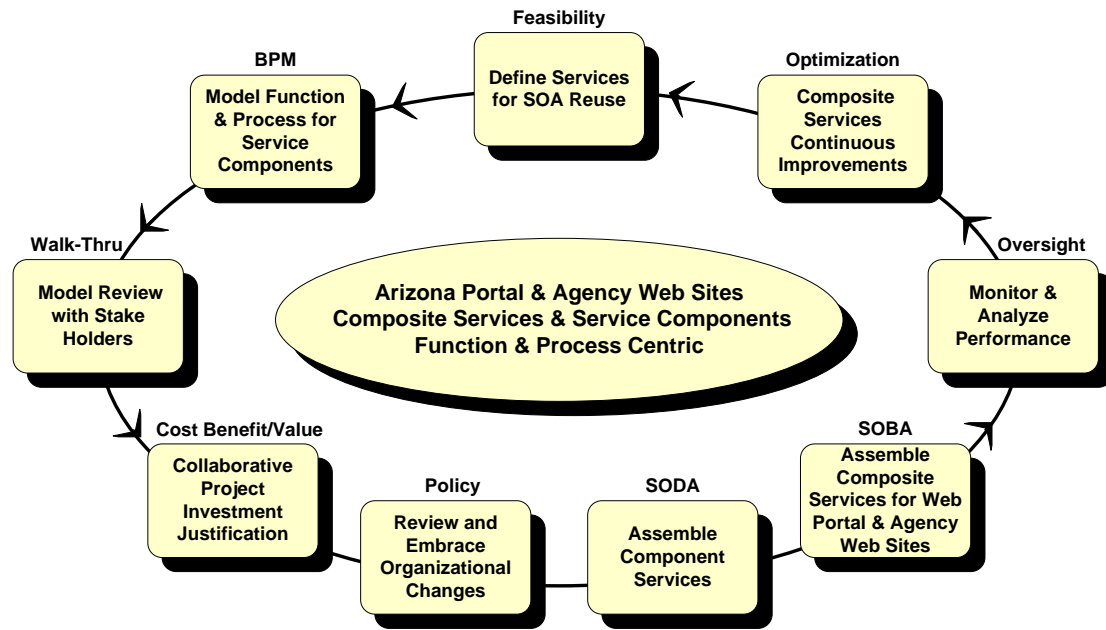
**4.1. Arizona @ Your Service Portal and Agency Web Services**

With the implementation of Arizona @ Your Service portal and agency web services, the state is positioned now, more than ever before, for architectural creativity and the development and implementation of new/reuse enterprise services for its citizens, communities of interest, other third party organizations. All budget units shall make a good faith effort to implement SOA for streamlining program services and service reuse for the betterment of the state.

- 4.2. **Business Process Modeling (BPM)**  
Business Process Modeling shall be performed by Budget Units to collectively define business processes/services and application resources to achieve business objectives and services for the state. While the state acknowledges that no single agency can internally amass all intellectual processes and assets for the state as an enterprise, BPM efforts should be developed incrementally and discretely when developing modeling strategies and controls over business processes/services.
- 4.3. **Service Oriented Development Applications (SODA)**  
SODAs are loosely integrated modular processes known as service components that are “Assembled First” processes, rather than the “Code First” processes normally used in traditional software development and considered an Integrated Service Environment (ISE).
  - 4.1.1. Budget Units shall develop their ISE with integrated development tools and technologies (application suites, workbenches, tool/sets) that are non-proprietary, interoperable, and scaleable. Such tools can economically and efficiently deliver more robust software for building service components and composite applications that bridge business processes and programming.
  - 4.1.2. Service components shall be built on existing application and information systems and loosely coupled without dependency on other services/programs/ modules that provide the most flexibility at the lowest cost.
- 4.4. **Service Oriented Business Applications (SOBA)**  
SOBAs are business applications that provide discrete units of business-level functionality through well-defined services utilizing web service standards for web based messaging application access and interfaces. SOBAs shall be deployed as composite services via the state’s Web Portal and/or agency web sites within the SOA Blueprint (SOA Blueprint in section 4.7 below). Budget Units shall share SOBA applications with other agencies and third party organizations to promote reuse of services and information assets for the benefit of its citizens and the state.
- 4.5. **Enterprise Service Bus (ESB)**  
All Budget Units shall use the State’s Enterprise Service Bus (ESB) for SOA applications that cross inter-agency and other third party organization application boundaries. It is at the discretion of the agency CIO to use the state’s ESB for crossing intra-agency application boundaries.
- 4.6. **Service Oriented Architecture Lifecycle**  
The SOA Lifecycle indicates how the various components and processes interact and portrays the vitality and continuous renewal of SOA services for the State as an enterprise. SOA can be regarded as a style of information systems architecture that enables the creation of applications that are built by combining loosely coupled and interoperable services. SOA based systems can therefore be independent of development technologies and platforms (such as J2EE, .NET,

etc.) and support integration and consolidation activities within complex enterprise systems and applications. This lifecycle process should be followed explicitly for successful SOA implementations.

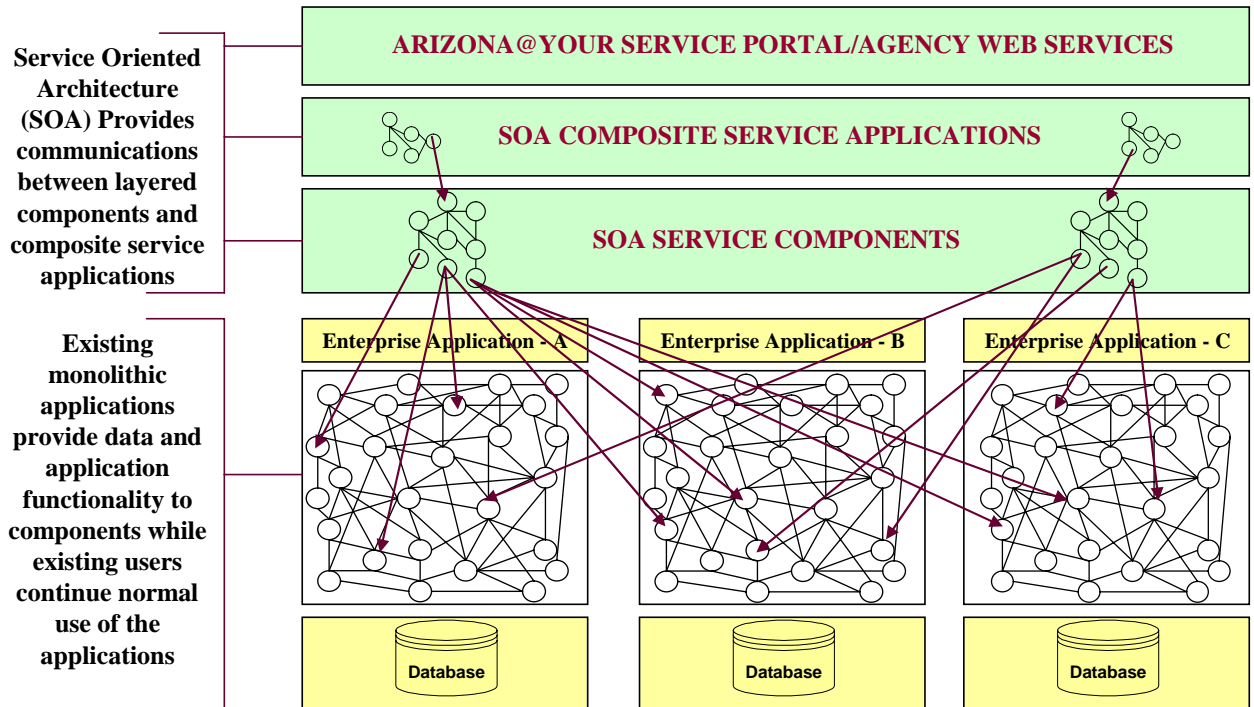
## SOA Lifecycle



- 4.6.1. Feasibility - Determine reasonableness, practicality, and viability for reuse of services by others as feasible; review with agency management and participating agencies/third party organizations.
- 4.6.2. BPM – Business Process Modeling and map services, functions and processes for technical and business management review; include participating agencies/third party organizations.
- 4.6.3. Walk-Thru - Conduct a formal review with all stakeholders participating in the service; include users/customers and participating agencies/third party organizations.
- 4.6.4. Cost Benefit/Value - Develop a PIJ with input from participating agencies.
- 4.6.5. Policy – Have business management review all business processes and policy changes as a result of SOA services. Review with business users/customers.
- 4.6.6. SODA - Service Oriented Development Application – the process of assembling and developing service components for composite services.
- 4.6.7. SOBA - Service Oriented Business Application – contains composite services as an application for the delivery of like services and services reuse.

- 4.6.8. Oversight - Monitor and analyze SOA application and service performance and its impact on business process and delivery with participating agencies and business management.
- 4.6.9. Optimization - Continuous technical and business improvements should be made as a result of any oversight and performance issues.

4.7. Service Oriented Architecture Blueprint



The goal is to generate Service Oriented Architecture (SOA) by breaking and assembling monolithic applications into service components to create composite service applications for improved functionality and business value by extending automation further into the enterprise.

4.8. Budget Unit Leadership for SOA Projects

A Budget Unit developing and implementing SOA projects for delivery of program services and service reuse shall be considered the “Anchor” agency and perform in a fiduciary manner for leading, planning, directing, and collaborating the development and implementation of SOA activities with other participating agencies and third party organizations.

- 4.8.1. The Project and Investment Justification (PIJ) in accordance with A.R.S. § 41-2553, 41-3504, 41-3521, and the P340 Project Investment Justification policy and related standards, are not excluded from SOA projects. It is the “Anchor” agency’s responsibility to submit a PIJ that meets the funding threshold requirements for SOA projects. It is also the responsibility of participating agencies to provide all justification and reciprocal information requested by the “Anchor” agency to complete the PIJ.

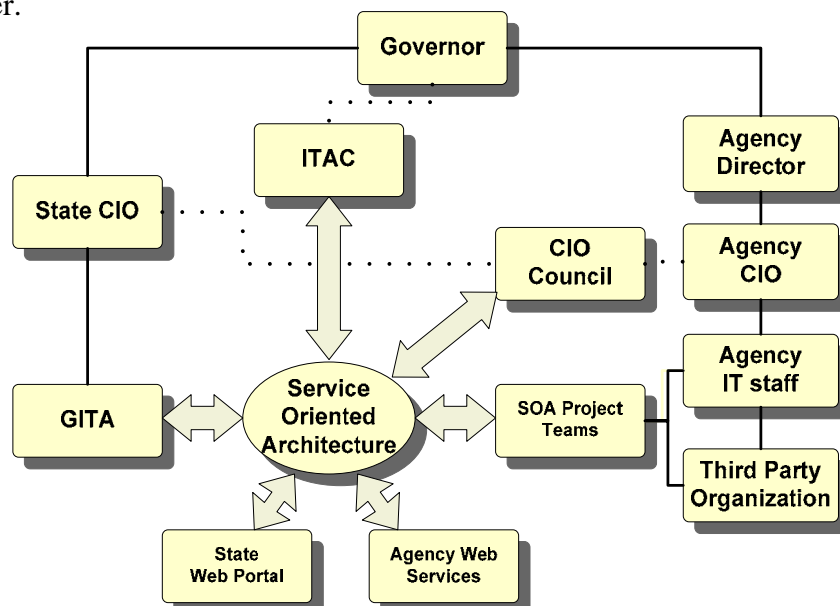
- 4.8.2. When budget units are participants (not an “Anchor” agency) in an SOA project with third party organizations outside state government, a PIJ shall be submitted identifying their portion of investments and justification should the participating agency meet the PIJ threshold requirements.
  - 4.8.3. The “Anchor” agency shall provide project management reporting for participating agencies/organizations as a discipline for planning and achieving project activities and events, milestones, critical path, and deliverables for SOA projects. Participating agency/organizations shall perform due diligence in providing required project management information and deliverables as requested by the “Anchor” agency.
  - 4.8.4. Under the direction of each CIO, both “Anchor” and participating agency/organizations shall provide an IT Project Manager and other designated IT/User personnel to meet the requirements of the SOA Lifecycle and project management schedule. This collaboration of resources shall be considered the “SOA PROJECT TEAM” for enterprise services.
  - 4.8.5. Both “Anchor” and participating agencies shall comply with target technologies as identified in Statewide IT Policies and Standards located at [http://www.azgita.gov/policies\\_standards/](http://www.azgita.gov/policies_standards/) for enterprise services and internal operation improvements.
- 4.9. Service Oriented Architecture Principles
- 4.9.1. SOA must be designed based on a thorough understanding of existing business strategies/initiatives and IT systems;
  - 4.9.2. SOA must be built on existing application and information systems;
  - 4.9.3. SOA must be built on existing common data repositories, whenever and wherever possible, to improve the verification and validation of public and private information.
  - 4.9.4. SOA must be based on loosely coupled service components that provide the most flexibility at the lowest cost;
  - 4.9.5. IT infrastructure must speak the same language and applications must present themselves to each other for sharing and reuse of information assets for a more efficient and effective government;
  - 4.9.6. SOA is a powerful enabler of business value because of reuse services.

4.10. Service Oriented Architecture Values

- 4.10.1. SOA, at its core, is based on successful service designs applied to IT architecture and infrastructure that will provide the maximum benefits and value for the state as an enterprise.
- 4.10.2. The second core value of SOA is multi-use modularity; taking large complex systems and breaking them into a number of small parts where each part contains enough functionality to do some meaningful work for the enterprise.
- 4.10.3. The third core value is to connect modular parts into service components that perform a specific function that satisfies the customer and/or citizen.
- 4.10.4. The fourth core value is to connect service components into a composite service application that crosses traditional boundaries of applications, function, and process in providing enterprise services.
- 4.10.5. The fifth core value of SOA is loose coupling, meaning that there are minimal dependencies among services which allow quick assembly of different business solutions that do not affect each other and can be reused independently. This reduces to a minimum the unnecessary dependencies that make traditional monolithic architecture hard to change.
- 4.10.6. The ultimate core value of SOA is an emphasis on design that is incrementally and constantly improved to increase business value for the state.

4.11. SERVICE ORIENTED ARCHITECTURE GOVERNANCE

Governance provides the structure, commitment, and support for the development, implementation and management of SOA, as necessary, to ensure it achieves its objectives. Governance consists of the following leadership, organizational structures, and processes to enhance the services of the executive branch of state government through SOA implementation in a planned efficient manner.



The Governor shall be briefed by both the Agency Director and the State CIO, as necessary, on the business value and benefits to the state and its citizens as a result of SOA projects. The following roles are vital for all SOA projects.

- **ITAC:** Reviews and approves SOA projects submitted through the PIJ process equal to or greater than \$1.0 million in total development costs.
- **Agency Director:** In collaboration with the State CIO and the agency CIO, agree upon the direction for enterprise services based on a proposed portfolio of SOA projects for the state.
- **State CIO:** Shall approve SOA projects through the PIJ process as defined in P340 PIJ Policy, S340 PIJ Standard, and S340-P340 PIJ Procedure.
- **GITA:** Continues to review and approve SOA projects submitted through the PIJ process less than \$1.0 million in total development costs. Shall also continue to provide planning and oversight responsibilities for SOA projects submitted through the PIJ process.
- **CIO Council:** Shall review the SOA project portfolio and provide consensus on the selection and direction for SOA projects.
- **Agency CIO:** Shall provide an IT project manager and IT resources having the necessary project management and technical skills required for the development and implementation of an SOA project affecting their agency.
- **Agency IT Staff:** At the direction of the Agency CIO, shall participate in the development of SOA projects as well as project management activities and events, when appropriate.
- **Third Party Organizations:** Involvement may include cities, counties, local and other governments in addition to Federal government and private sector organizations.
- **SOA Project Teams:** Shall consist of more than one agency/organization in their efforts to provide enterprise services, or more than one division for improvement to internal operations. Each agency or division shall provide an IT Project Manager and staff accordingly based on the development cycle of the SOA project.

## 5. DEFINITIONS AND ABBREVIATIONS

- 5.1. Service Oriented Architecture: The process of SOA is a collaboration of Budget Units and organizations demonstrating effective IT leadership by influencing the activities of others or groups toward achieving goals for SOA projects. It is active, exerts influence, requires effort, and is related to project management goals and deliverables.
- 5.2. Refer to the Glossary of Terms located on the GITA website at [http://www.azgita.gov/policies\\_standards](http://www.azgita.gov/policies_standards) for definitions and abbreviations.

**6. REFERENCES**

- 6.1. A. R. S. § 41-1335 ((A (6 & 7))), “Budget Unit Information.”
- 6.2. A. R. S. § 41-1346 (A), “Records Management Program.”
- 6.3. A. R. S. § 41-1461, “Definitions.”
- 6.4. A. R. S. § 41-2501 et seq., “Arizona Procurement Codes, Applicability.”
- 6.5. A. R. S. § 41-3501, “Definitions.”
- 6.6. A. R. S. § 41-3504, “Powers and Duties of the Agency.”
- 6.7. A. R. S. § 41-3521, “Information Technology Authorization Committee; members; terms; duties; compensation; definition.”
- 6.8. A. R. S. § 44-7041, “Governmental Electronic Records.”
- 6.9. Arizona Administrative Code, Title 2, Chapter 18, “Government Information Technology Agency.”
- 6.10. Statewide Policy P100, Information Technology.
- 6.11. Statewide Policy P136, IT Planning.
- 6.12. Statewide Policy P340, Project Investment Justification (PIJ).
- 6.13. Statewide Policy P710, Network Architecture.
- 6.14. Statewide Policy P720, Platform Architecture.
- 6.15. Statewide Policy P730, Software Architecture.
- 6.16. Statewide Policy P740, Data/Information Architecture.
- 6.17. Statewide Policy P800, IT Security.

**7. ATTACHMENTS**

None.