

Citizant's Approach to SOA Helps You Bridge the Gap Between Business and Technology

This paper is intended to provide a senior executive-level overview of the business value of Service-Oriented Architecture (SOA), the challenges in implementing SOA, and Citizant's approach to SOA. A more detailed description of our technical approach will be addressed in subsequent SOA papers.

What is a Service-Oriented Architecture?

A Service Oriented Architecture (SOA) is an approach to building enterprise systems using loosely-coupled business applications that interoperate using standardized, technology-neutral interfaces. In the context of SOA, these applications are called services. We say "loosely-coupled" because unlike legacy applications that are typically integrated by using "point-to-point" interfaces or Enterprise Application Integration (EAI) software, both of which limit agility, the standards-based approach to building services in an SOA environment provides the agility and speed to market needed for the fast pace of the twenty-first century.

SOA enables new and existing systems within federal agencies to share services and information across program offices and technical platforms without "point-to-point" contact. To achieve the benefits of SOA, an agency must transition from a technical system-centric view to an enterprise business-driven view of IT. This transition requires agencies' to break down the barriers between business and technical organizations that have prevented sharing information and IT solutions in the past.

Some solution providers present SOA as a "technology" in which packaged services and existing web services can be tied together with XML to achieve quick gains in information accessibility and interoperability. This opportunistic approach may provide short term results but will not deliver on the promise of SOA.

Citizant views SOA as a planned and architected approach that provides agile IT solutions aligned with programmatic and legislative requirements. Our approach to achieve and sustain the promise of SOA is based on understanding the business and information requirements and aligning services – whether harvested (from legacy applications), acquired (COTS/GOTS), or built from scratch – with these business drivers. Although the approach may appear to be simple, it must be supported by architecture, planning, business models, standards and governance to deliver reusable, interoperable, secure and trusted business services to internal and external consumers. This architected approach can help you achieve your goals for SOA by bridging these gaps between business requirements and technology solutions.

"A strong architecture can help an organization maintain SOA's promised agility while adapting to meet changing requirements."

AMR Research

The Business Value of SOA

At the heart of SOA are loosely-coupled services aligned with business processes. The approach for designing loosely-coupled services focuses on minimizing the interdependencies between services, and standardizing the interfaces to be technology-neutral. These services are used as building blocks to rapidly assemble "composite" applications. As requirements change, services can be easily added and replaced ("plug and play"). The value this architecture provides to the business includes:

The SOA Promise:

- *Faster*
- *Better Information Interoperability, Quality and Trust*
- *Aligned to the Mission*
- *Reduced Cost of Ownership*

Faster Delivery of Solutions	Government agencies can be held captive by IT systems if they can not adapt quickly to changes in their environments. Using SOA, agencies can respond faster to changes in requirements, threats, and other environmental factors.
Improved Information Interoperability, Quality and Trust	Transitioning to enterprise services which employ open, standard interfaces and encapsulate authoritative data sources promotes interoperability, and improves data quality and security.
Alignment with Business Needs	Designing services from the perspective of the business, rather than that of technology, allows stakeholders to define IT solutions based on business missions and goals.
Reduced Cost of Ownership	Reusing pre-built services to integrate duplicative systems, and rapidly assemble new applications reduces the time and cost to build and maintain IT systems.

IT Implementation Challenges for SOA

The failure of SOA is typically not attributed to the technology but due to the organizational challenges associated with designing and managing reusable enterprise services. Services are easily created in development tools, harvested from legacy systems, and exposed through a variety of interfaces including COTS solutions, intranets, extranets and other web portals. The challenge is not in building a service “inventory”, but ensuring those services are aligned to business functions and are trusted, secure and interoperable. To address these challenges, an agency must establish an enterprise-wide infrastructure for their SOA implementation that includes:

“SOA built opportunistically ...will prove to be a disaster for enterprises’ software infrastructures.”

Gartner Group

Business and Information Architecture	Services, new or acquired, need to be aligned to an agency’s target architecture. Establishing an architecture that provides the framework for business and information requirements, and integrates processes and data from literally hundreds of systems is big effort but one that needs to be done to effectively implement SOA.
Information Quality, Privacy and Security	Establishing an environment of trust is critical to the successful adoption of SOA. As an agency integrates disparate data sources into enterprise services, data quality, privacy and security all need to be addressed as part of the service design.
Metadata Management	Services must be understandable by the consumer to achieve SOA adoption and service reuse. Metadata is used to describe the service, data exchanged, messages, and governing policies including service contracts to the consumer. Effective metadata management is critical to application assembly and service orchestration.
Governance	Managing IT from an enterprise perspective coupled with an inventory of services in constant motion makes governance

	more challenging and integral to the success of SOA. New tools, standards, management processes, and life cycles need to be established and governed to ensure the sustained and effective use of SOA across the agency.
Performance Measures	Service performance needs to be measured and monitored in terms of business requirements and expressed within contracts between service providers and consumers. Translating these requirements into policies that can be configured and monitored for numerous services is critical to maintaining a reliable and trusted SOA environment.

Citizant’s SOA Approach

Citizant’s architected approach is based on the premise that services must align with business and information requirements, and they must be discoverable, accessible, interoperable, and trusted in order to deliver on the promise of SOA. Our architected approach leverages best practices and avoids the pitfalls of the technology-driven opportunistic approach. At the same time, we understand that “quick wins” are important to sustain the momentum and support for SOA. This is the reason that Citizant’s approach provides an evolutionary transition to SOA that delivers measurable results along the way. Our approach enables you to leverage existing IT assets and identifies requirements to acquire or build new services. It can be integrated into existing EA blueprint and modernization initiatives to begin the transition of IT systems to a business-driven SOA.

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Citizant’s architected approach consists of four iterative phases to support the evolutionary transition to a SOA environment that are held together by a robust governance process. These phases include: Architect and Plan, Model, Assemble, and Deploy and Manage.



Citizant’s architected approach to SOA consists of four iterative phases held together with governance and oversight:

- *Architect and Plan*
- *Model*
- *Assemble*
- *Deploy and Manage*

Our approach, described below, mitigates the risks of implementing an SOA and provides a roadmap to design, acquire, orchestrate and govern services that fit the needs of your business modernization and integration efforts.

Architect and Plan	The Architect and Plan phase focuses on architectural alignment, gap analysis and transition planning. Architectural alignment identifies how the scope of the SOA efforts fit into the target architecture, and categorizes current systems and data stores into that framework to identify opportunities for reuse and consolidation. The architectural alignment is also used for gap analysis, identifying high-level requirements to build or acquire services, and planning the transition from the current to the target SOA environment.
Model	The Model phase focuses on adding more depth to the target architecture using a top-down and bottom-up approach. From the top-down perspective, more detailed requirements are gathered and business, data and interaction and documented in model diagrams. From the bottom-up perspective, existing systems and data sources are harmonized into the context of the architecture to establish standard business rules, data structures and semantics for the enterprise. Model diagrams are the basis for building the code, either manually or using automation, for the data sources, services and communications.
Assemble	The Assemble phase focuses on using the detailed requirements for the services and their interfaces documented during the Model phase to assess the “fit” of current IT assets to identify services that should be reused, harvested from existing systems, created or acquired for the target SOA solution. The detailed requirements are also used to define the orchestration of services to support target business processes, and the assembly of services to build applications.
Deploy and Manage	The Deploy and Manage phase focuses on registering metadata for service consumers, establishing policies and measures for service contracts with consumers, and supporting the maintenance and release management processes. The actual deployment and monitoring of services in a SOA environment is typically handled by a centralized operations group.
Govern	Governing an SOA implementation is conducted at each phase by establishing milestones for compliance reviews. Before governance can be executed, it must be defined, approved and communicated. Effective governance requires participation from subject matter experts to define components such as standards for services, processes for monitoring and managing service performance, methods to assure information quality and security, and policies for change and release management. Governance also requires executive sponsorship, investment control, business stakeholders, and inter-agency working groups to institutionalize and ensure the effectiveness of SOA.

Conclusion: The Value of Citizant's Approach to SOA

Citizant's approach is designed to help you deliver on the promise of SOA in which services are business applications aligned with business goals, and are discoverable, accessible, interoperable and trusted. We leverage our expertise and best practices in areas such as enterprise architecture, legacy modernization, data quality, and metadata management to mitigate challenges federal agencies face when implementing SOA.

For example, Citizant's efforts with the Dept. of Housing and Urban Development in the areas of data quality and segment data architecture have been vetted as federal best practices and are now published on www.core.gov, a site for federal best practices. Furthermore, the data quality work done there was recognized at the MIT International Conference on Information Quality in November, 2005 as a best practice. Citizant has leveraged these data-management and data-quality best practices – as well as those of other federal agencies – to design a best-practices approach to help agencies infuse an authoritative data sources approach into their programs.

Furthermore, our technologists have full-lifecycle expertise in delivering large, business-driven IT solutions using a variety of model-based tools and structured methodologies. We leverage the culmination of this experience to bring the best aspects of each approach to bear on the task at hand. Using an evolutionary transition to SOA, we can help you achieve “quick wins” that deliver sustainable and measurable results to the agency, while at the same time proceeding down the path of an architected approach that will deliver fully on the promise of SOA. Our approach can be integrated into your existing EA blueprint and system integration initiatives to begin the transition of IT systems to a SOA environment.

For More Information:

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