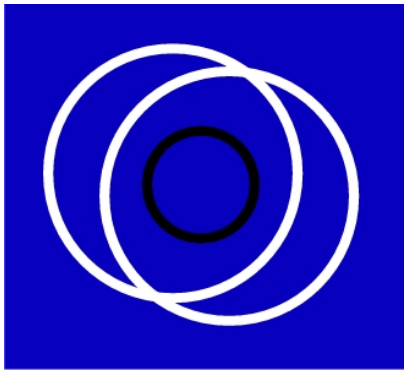
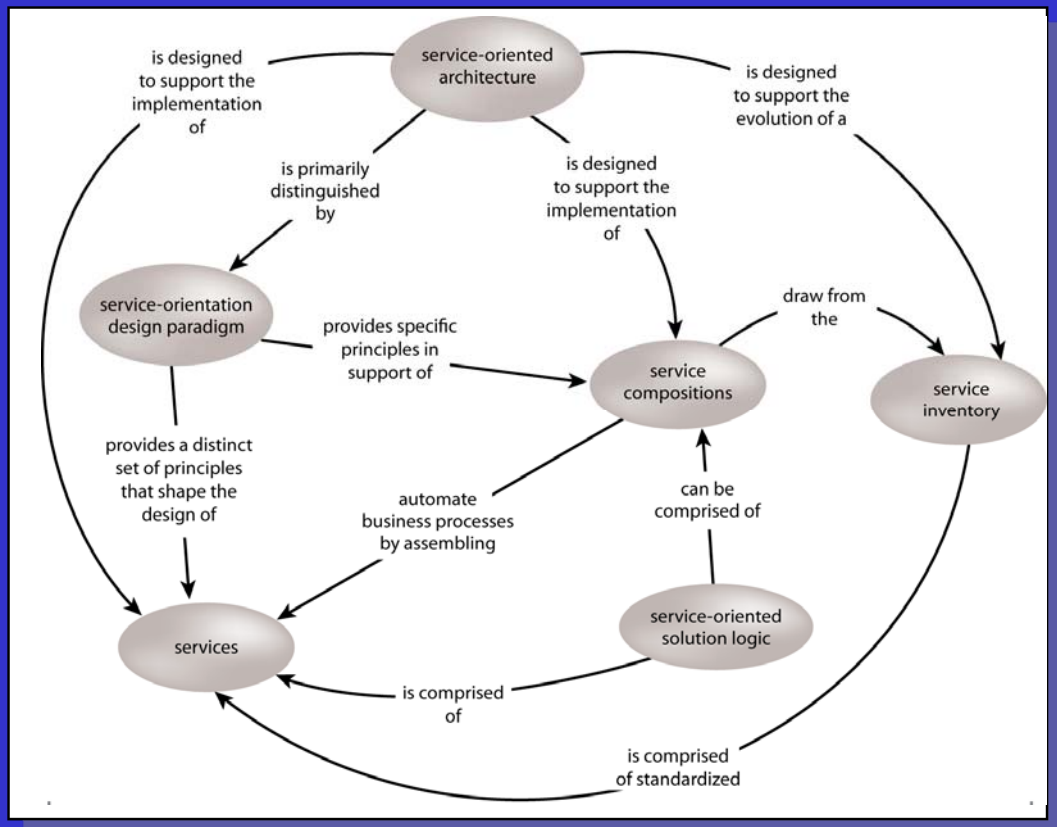


Service-Orientation and Next Generation SOA

Thomas Erl, SOA Systems Inc. / SOASchool.com

Service-Oriented Linguistics

- "Service-Orientation"
- "Service"
- "Service Composition"
- "Service-Oriented Solution Logic"
- "Service Inventory"
- "Service-Oriented Computing"



The Two SOAs

S☹A, the Media Acronym ("The Evil Twin")

- historically ambiguous and over-hyped
- was first associated solely with Web services
- was later stigmatized with "big bang" project delivery
- can be ignored

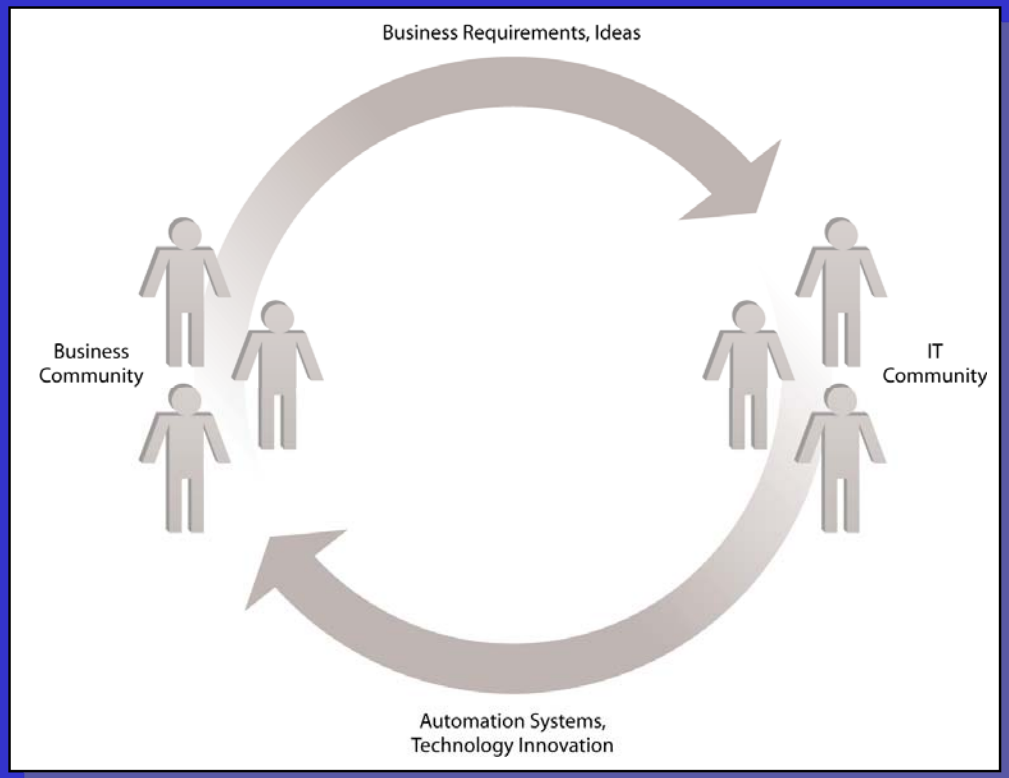
S☺A, the Architectural Model ("The Good Twin")

- a unique form of distributed architecture
- exists to support the realization of service-orientation
- has distinct characteristics, principles, patterns
- cannot be ignored

The key is to understand the service-orientation paradigm.

The Endless IT Progress Cycle

Business demands and trends create automation requirements that the IT community strives to fulfill.



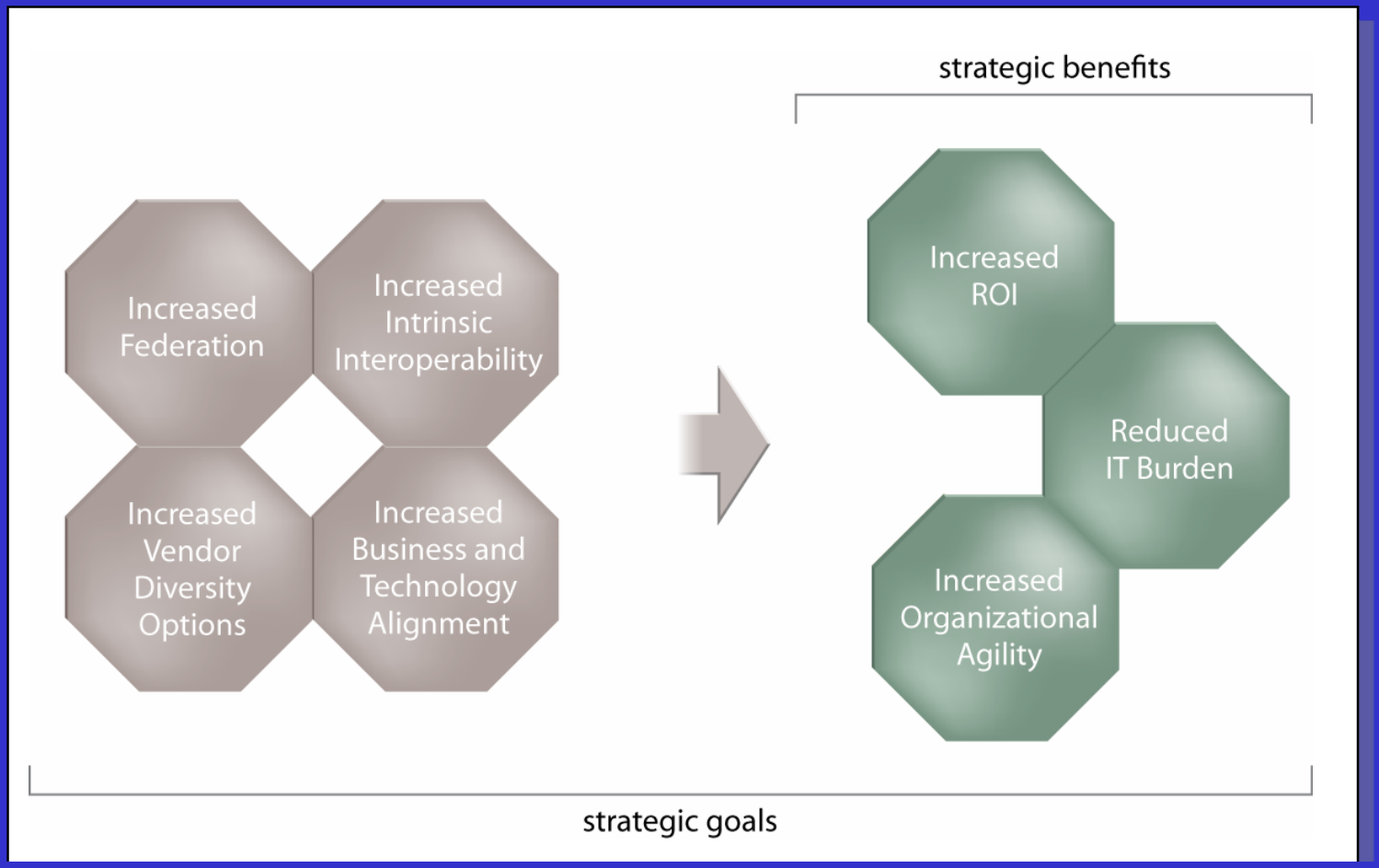
New method and technology innovations produced by the IT community help inspire organizations to improve their existing business and even try out new lines of business.

Next Generation Service-Oriented Computing

Next Generation Service-Oriented Computing is comprised of:

- a vision that defines a target state
- a formal paradigm that defines a method for achieving the target state
- technology innovation that improves the benefit potential of the target state
- technology architecture capable of realizing the target state
- formal practices and patterns that support the creation and evolution of the target state

The Vision: The Strategic Goals of Service-Oriented Computing

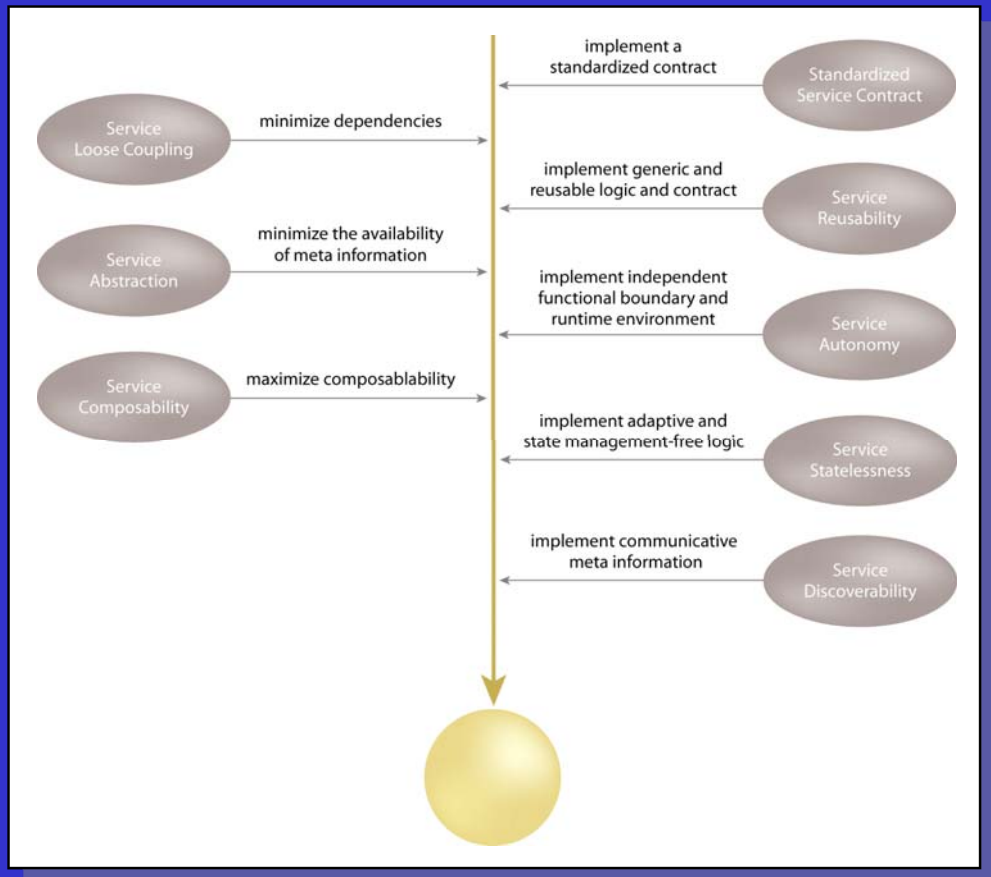


The first four goals lead to the attainment of the latter three goals and benefits.

The Paradigm: Service-Orientation

The eight service-orientation design principles:

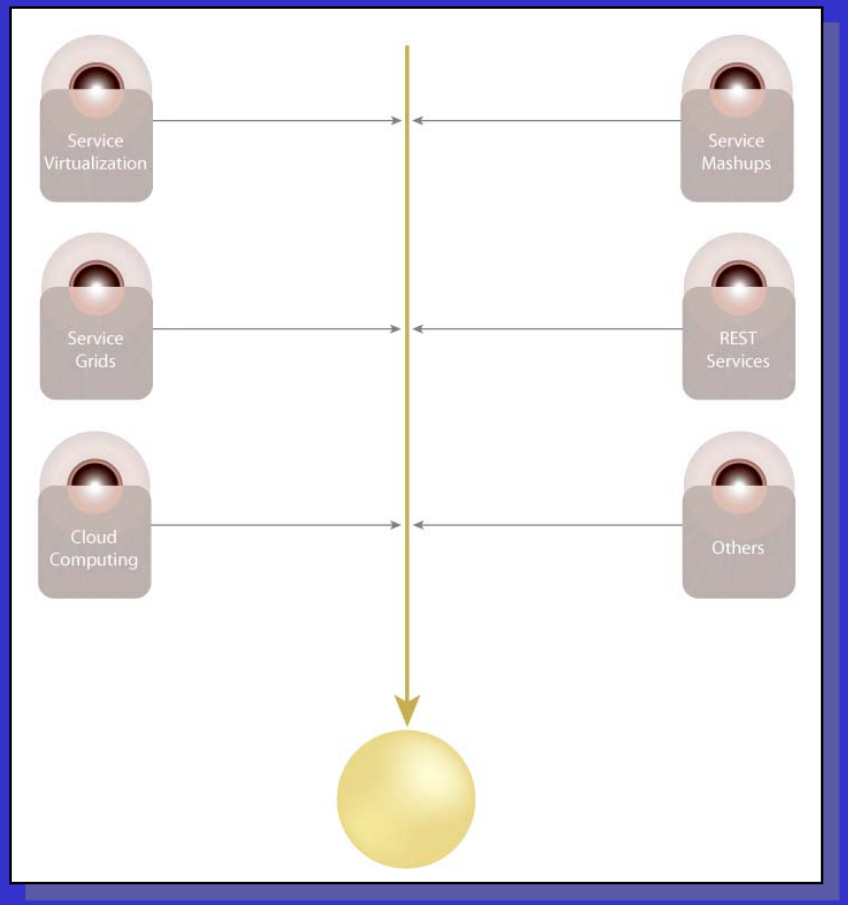
- Standardized Service Contract
- Service Loose Coupling
- Service Abstraction
- Service Reusability
- Service Autonomy
- Service Statelessness
- Service Discoverability
- Service Composability



Technology Innovation: Modern Service Technologies

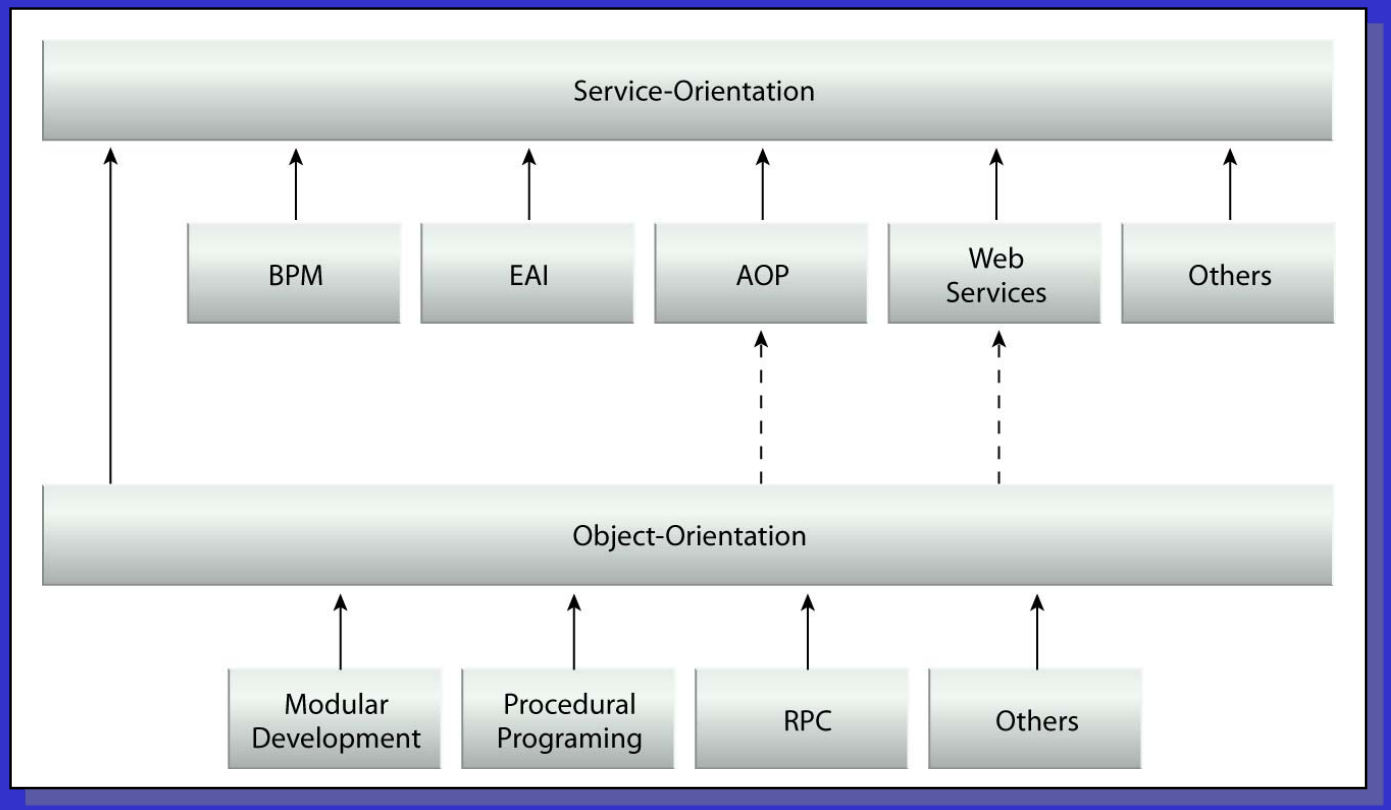
Modern service technologies provide critical solutions to scalability, reliability, performance, usage, and economical constraints that have inhibited some of the past SOA initiatives.

However, several of these technologies are still maturing.



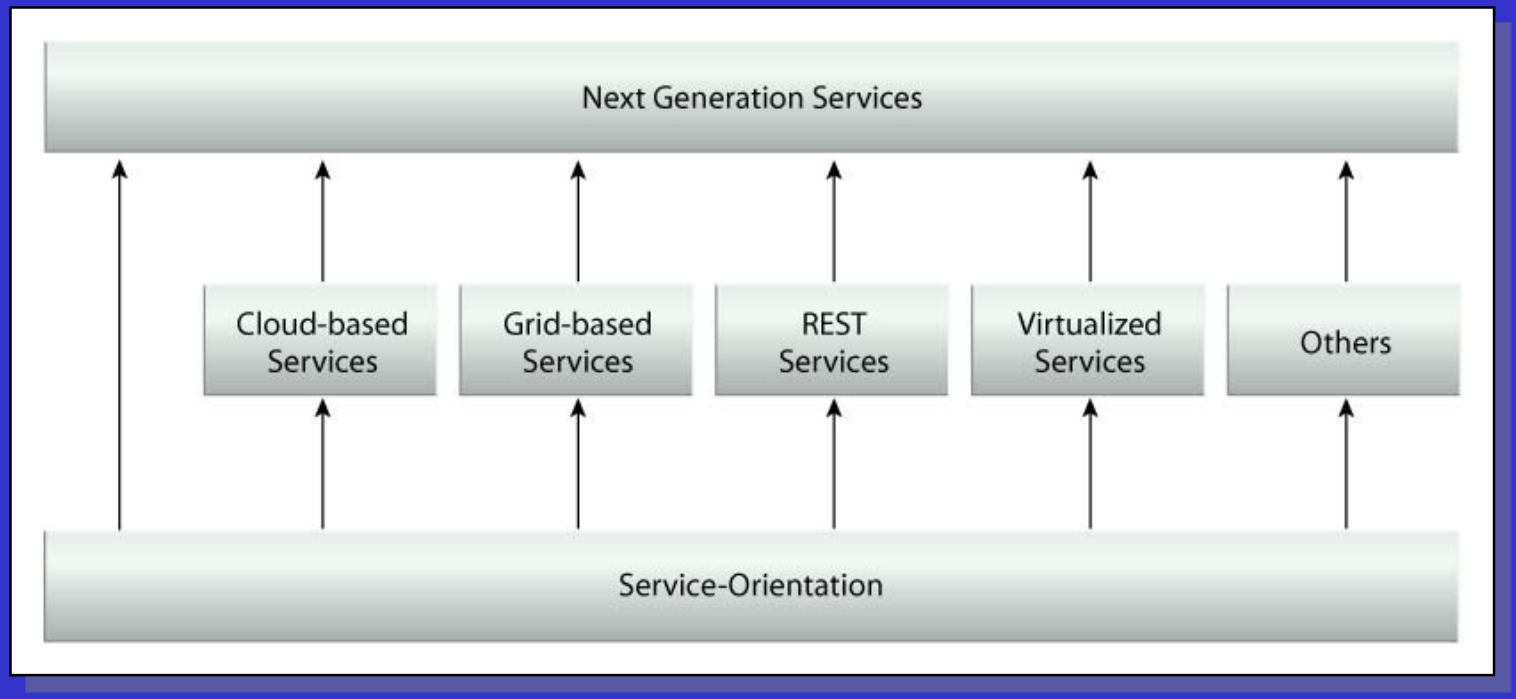
At Look at the Past: The Roots of Service-Orientation

The service-orientation design paradigm has been influenced by several established design platforms and technology innovations.



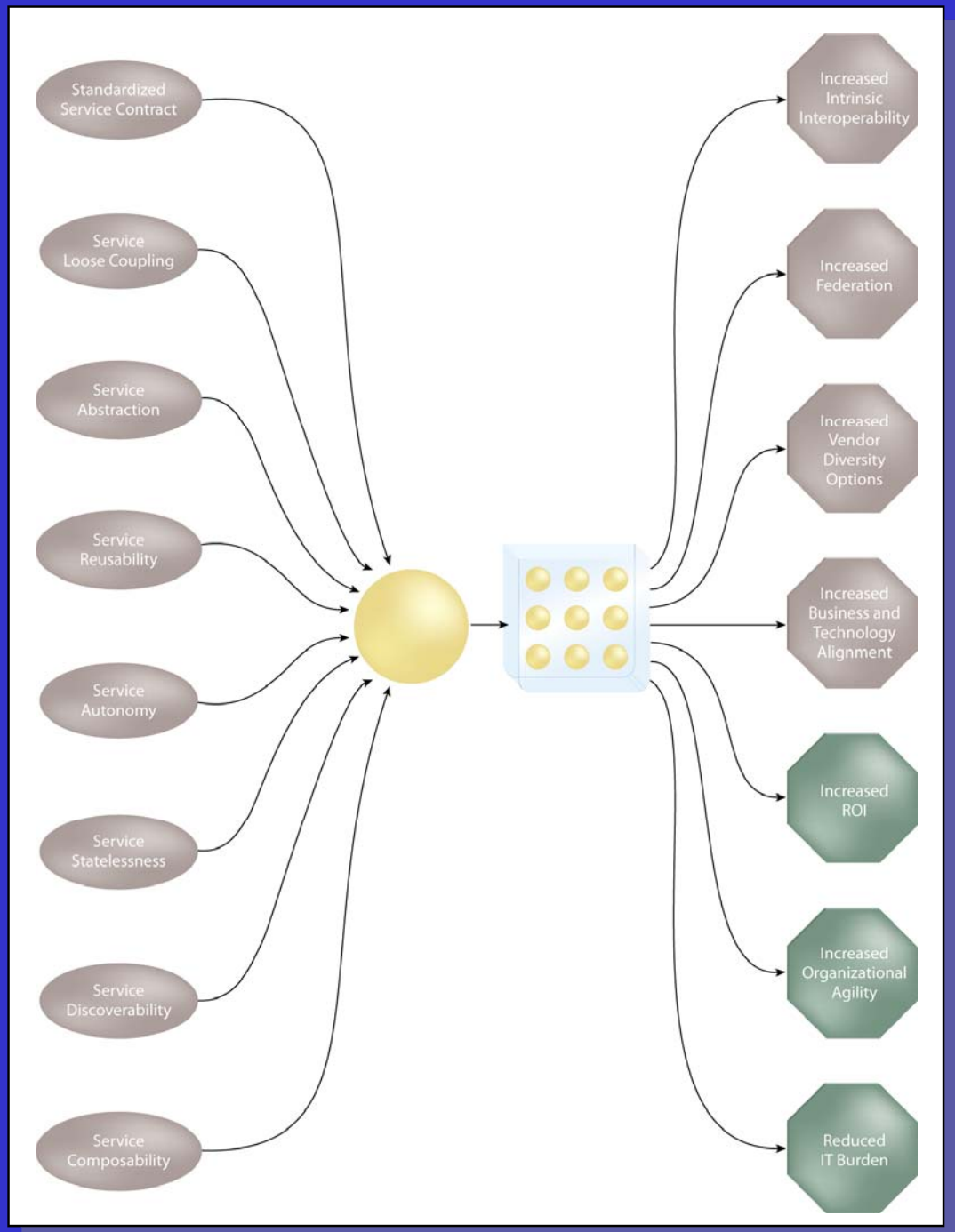
At Look at the Future: The Influence of Service-Orientation

The service-orientation design paradigm helps shape and leverage modern service technologies in support of creating next-generation services.



Service-Orientation and Service-Oriented Computing

As services are shaped by service-orientation, they are added to a service inventory that establishes an environment in support of the goals of service-oriented computing.

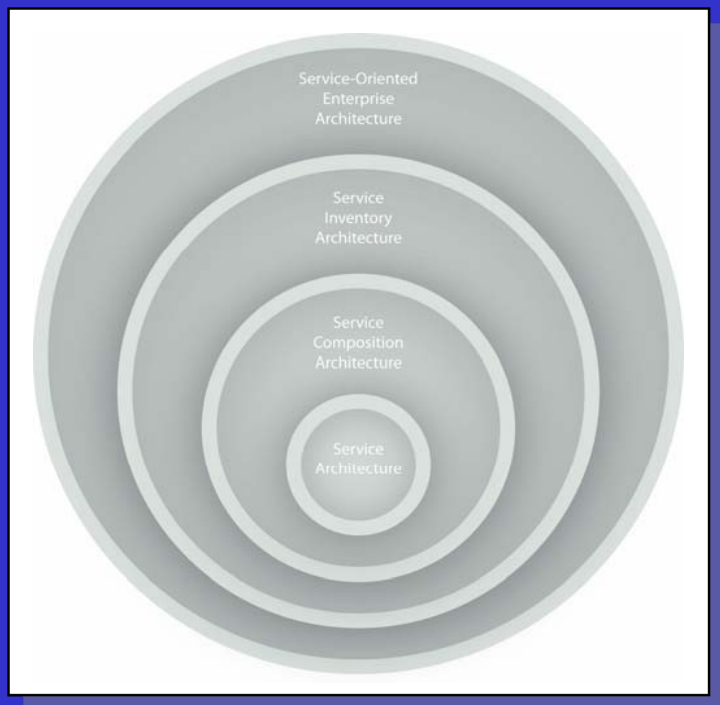


Technology Architecture: Next Generation SOA

Next generation SOA is a distinct technology architecture shaped by the demands and requirements of applying service-orientation for the creation of service-oriented solutions with traditional and modern service technologies in support of the goals of service-oriented computing.

Fundamental characteristics:

- business-driven
- vendor-neutral
- enterprise-centric
- composition-centric

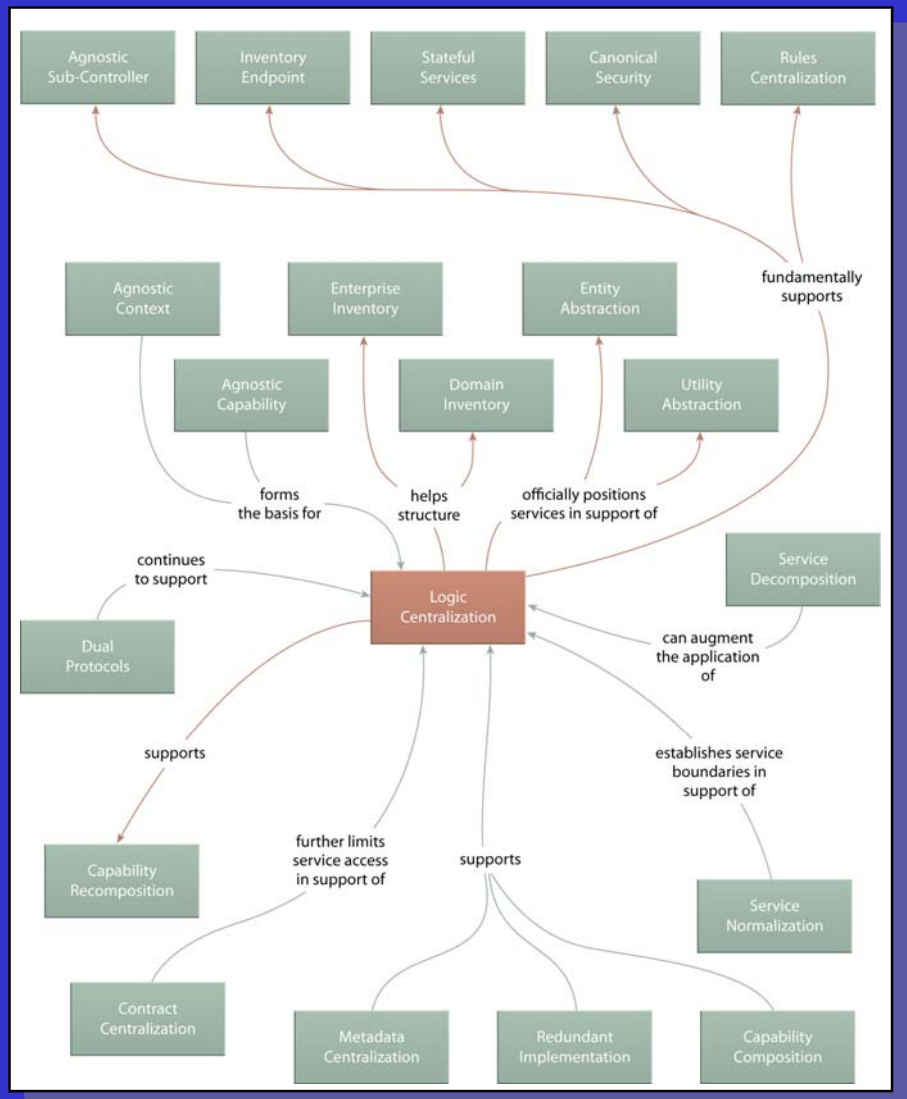


Formal Practices and Patterns: SOA Design Pattern Catalog

The SOA design pattern catalog was the result of a 3 year community effort that involved over 200 IT professionals from the SOA and patterns communities.

Organizations involved include Oracle, Sun, Microsoft, Red Hat, IBM, Intel, Cisco, Booz Allen, HP, SAP, Google, MITRE, DoD, and many others.

More patterns are in development...



Agnostic Capability
Agnostic Context
Agnostic Sub-Controller
Asynchronous Queuing
Atomic Service Transaction
Brokered Authentication
Canonical Expression
Canonical Protocol
Canonical Resources
Canonical Schema
Canonical Schema Bus
Canonical Versioning
Capability Composition
Capability Recomposition
Compatible Change
Compensating Service Transaction
Composition Autonomy
Concurrent Contracts
Contract Centralization
Contract Denormalization
Cross-Domain Utility Layer
Data Confidentiality
Data Format Transformation
Data Model Transformation
Data Origin Authentication
Decomposed Capability
Decoupled Contract
Direct Authentication
Distributed Capability
Domain Inventory
Dual Protocols
Enterprise Inventory
Enterprise Service Bus
Entity Abstraction
Event-Driven Messaging
Exception Shielding
Federated Endpoint Layer
File Gateway
Functional Decomposition
Intermediate Routing
Inventory Endpoint
Legacy Wrapper
Logic Centralization
Message Screening
Messaging Metadata
Metadata Centralization
Multi-Channel Endpoint
Non-Agnostic Context
Official Endpoint
Orchestration
Partial State Deferral
Partial Validation
Process Abstraction
Process Centralization
Policy Centralization
Protocol Bridging
Proxy Capability
Redundant Implementation
Reliable Messaging
Rules Centralization
Schema Centralization
Service Agent
Service Broker
Service Callback
Service Data Replication
Service Decomposition
Service Encapsulation
Service Facade
Service Grid
Service Instance Routing
Service Layers
Service Messaging
Service Normalization
Service Perimeter Guard
Service Refactoring
State Messaging
State Repository
Stateful Services
Termination Notification
Three-Layer Inventory
Trusted Subsystem
UI Mediator
Utility Abstraction
Validation Abstraction
Version Identification

www.soapatterns.com

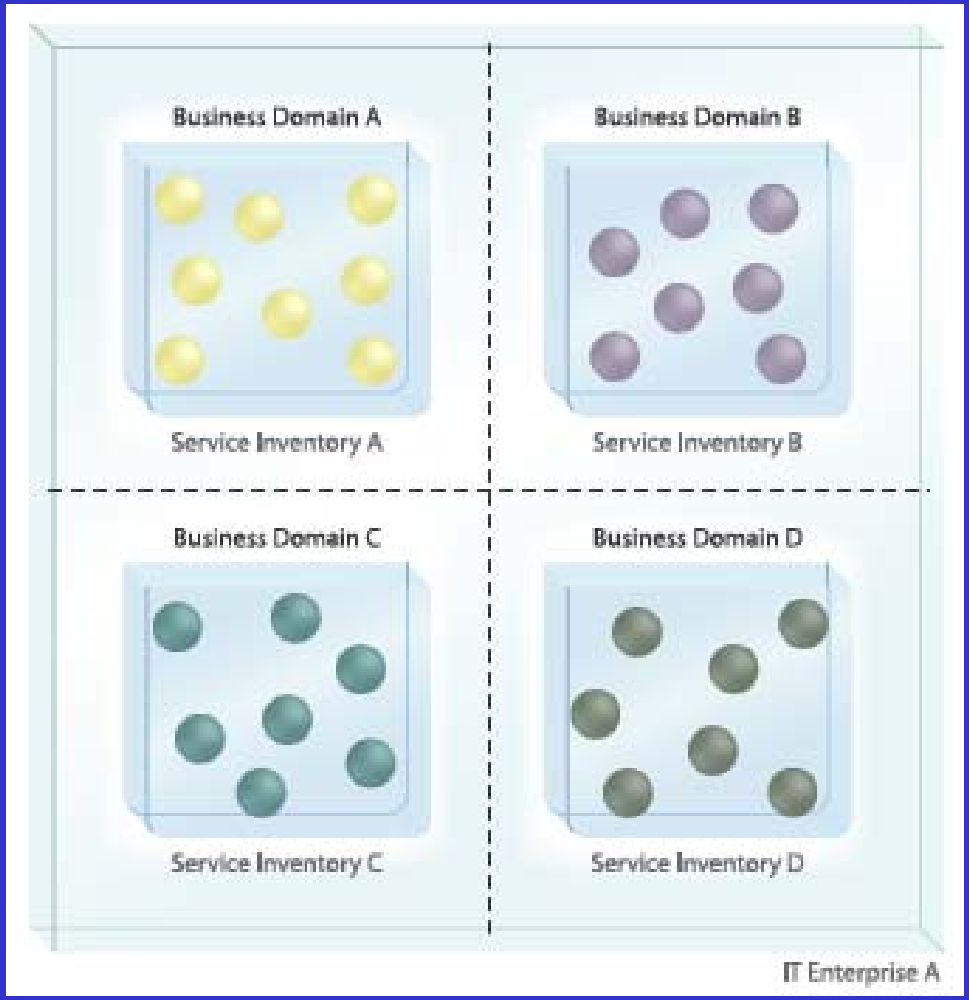
www.soapatterns.org

Domain Inventory

How can services be delivered to maximize recomposition when enterprise-wide standardization is not possible?

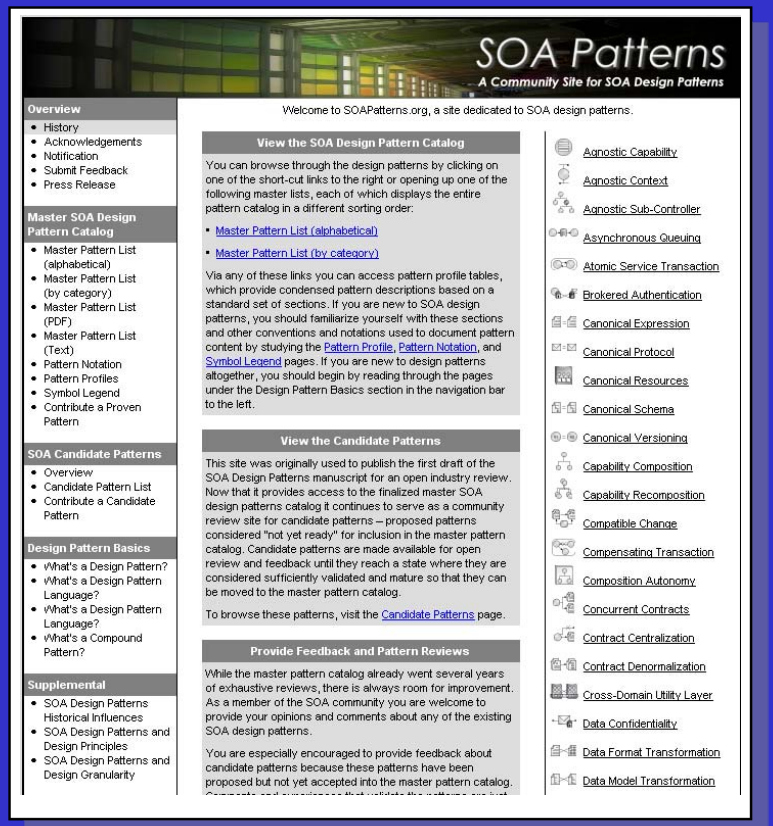
Problem: Establishing a single enterprise service inventory may be unmanageable for some enterprises, and attempts to do so may jeopardize the success of an SOA adoption as a whole.

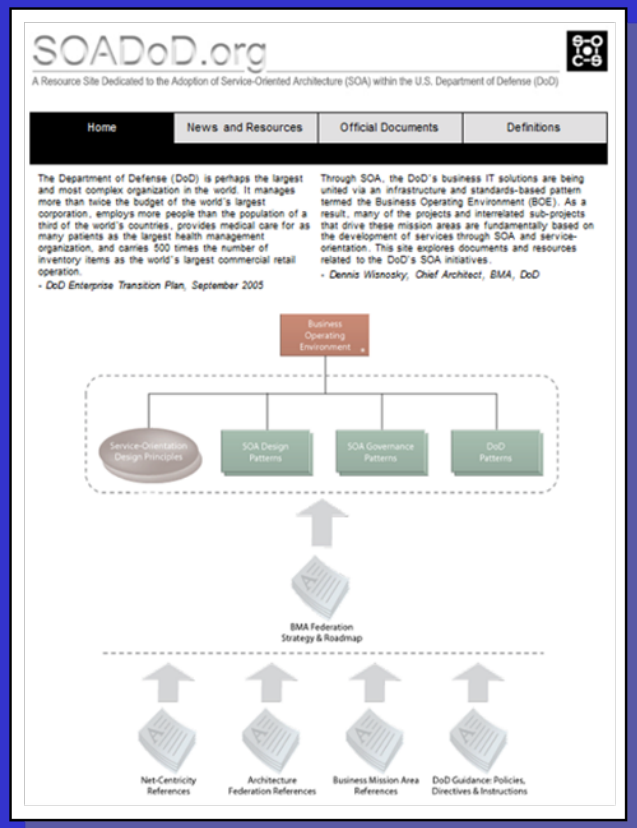
Solution: Services can be grouped into manageable, domain-specific service inventories, each of which can be independently standardized, governed, and owned.



SOAPatterns.org / SOADoD.org

SOAPatterns.org is a community site dedicated to the evolution and expansion of the SOA patterns catalog.



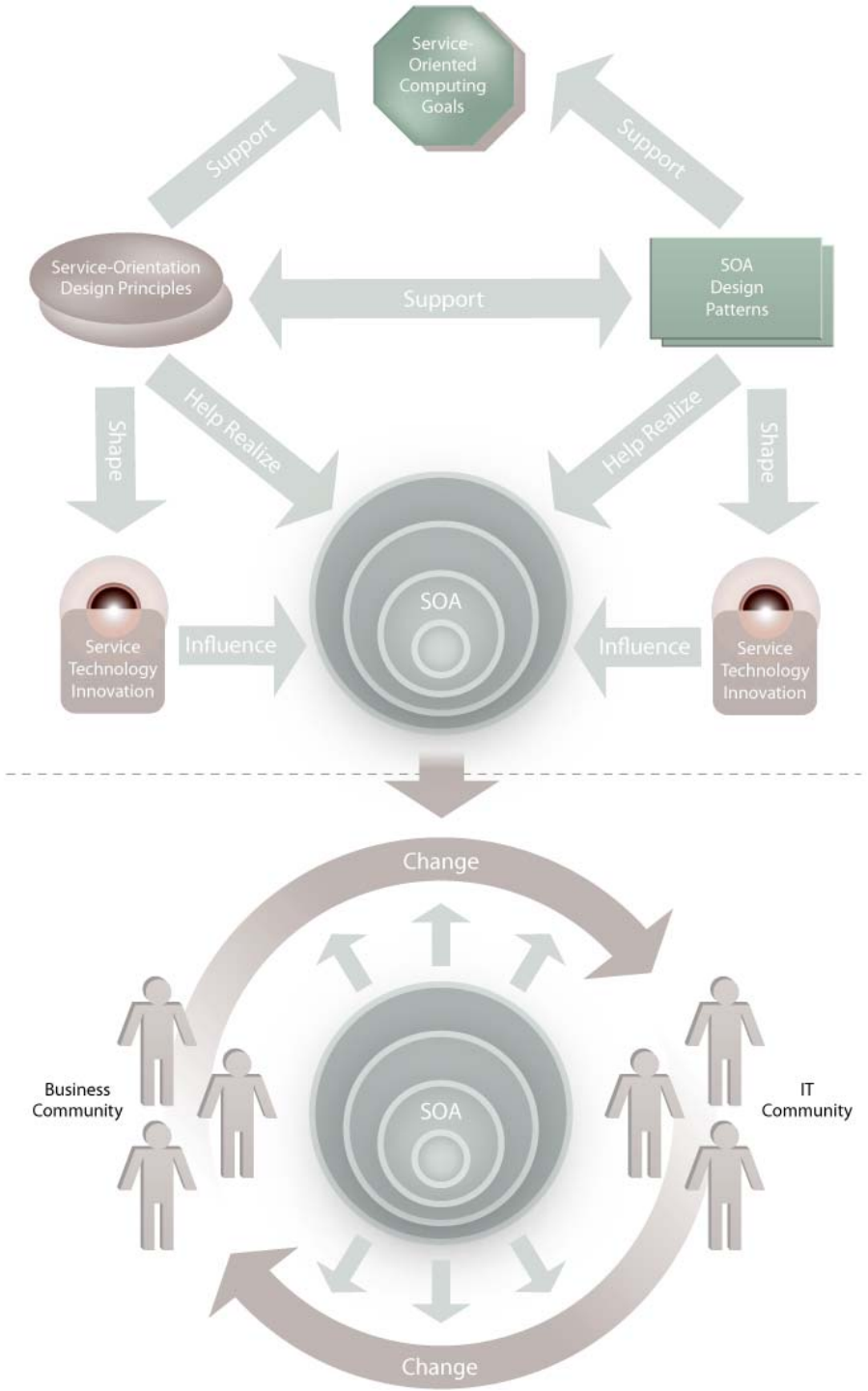


SOADoD.org is a community portal dedicated to the adoption of SOA within the DoD.

The strategic goals of service-oriented computing represent a target state that service-orientation provides a method of achieving.

The successful application of service-orientation helps leverage modern service technologies by shaping and defining requirements for service-oriented technology architectures that end up establishing an IT automation model designed to fully support the two-way cycle of change through which business and IT communities continually transition.

Amidst all of this, SOA design patterns introduce a critical success factor by providing proven design solutions and practices that support (and are supported by) service-orientation.



Contact

SOA Systems Inc.	www.soasystems.com
SOA Training	www.soaschool.com
SOA Certification	www.soacp.com
SOA Books	www.soabooks.com
SOA Magazine	www.soamag.com
SOA Patterns	www.soapatterns.org
SOA Symposium	www.soasymposium.com
Updates	notify@soasystems.com
Contact	info@soasystems.com