

Strategic planning a must for
agile service-oriented
transformation

Failing to plan is planning to fail

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Introduction

The purpose of this point of view (POV) paper is to guide and educate all levels involved in any way with service orientation initiatives, not only at the top of the hierarchy, with a capital L, but also in a more modest sense (l) throughout the enterprise.

In addition to topics like virtualization, cyber security, and cloud computing, Agile service orientation (ASO) is the hottest three-letter acronym in information technology (IT) circles. Service orientation is particularly suited to help organizations deal with the pain points of implementing new systems that will enable them to modernize business architecture, integrate service delivery, and share information across organizational boundaries — all in an agile way. Technology alone does not deliver transformation — people do. Before any acquisition or investment decisions are made, to ensure that the organization's mission area's maximize service-oriented transformation potential and value, the business mission leadership (at all levels) need to understand the importance of service-oriented strategic planning for the long haul. Successful business transformation requires strong and dedicated leadership. The rationale for providing this forward guidance on ASO is to orient readers into thinking and performing activities in such a manner as to ease the transition to a truly holistic Agile service-oriented approach to doing business, as well as implementing systems and architecture that are truly service oriented. We need to be able to get the service-oriented infrastructure right; build the right governance, quality, and management systems and processes, and associated metadata; and lock them down so that they cannot change frequently. When we build the services, we should allow for ambiguity, design for flexibility, have an agile iterative approach, and measure our progress to guarantee success. We need to make sure we are heading in the right direction, given the fact that functional requirements will be ever evolving and changing. Therefore, strategic, tactical, and operational planning, supported by formal processes with cascaded organizational goals, attainable performance measures and objectives, and assigned accountability is a must for successful Agile service-oriented transformation. Failing to plan is preparing to fail.

What is ASO?

So what are “service” and “service orientation”? The words “service” and “service orientation” are sometimes misunderstood. The noun “service” is defined in Encarta dictionary as “work done by somebody for somebody else”

Service orientation depicts the delivery of any valued output via a service from one party to another. It is based on the theory of the marketplace. If a service has value, then someone will consume it, and if a service has a lot of value, then a lot of people will demand it.

Achieving ASO is primarily accomplished by taking monolithic business models, processes, or systems and breaking them open to form a well-organized collection of individual parts. Individually, each part can then be designed to offer value (a service) in a broader context. That is, each service can then be used within different “collections” in an agile way, reducing the need to build duplicate services.

So what is service-oriented architecture? It is a software design approach in which a client application requests one or more services from another application that provides complementary services. It can be a single service, or a collection of services, that communicate via a high-level abstraction layer and is/are based upon existing and emerging Web service standards. Quickly building systems using heterogeneous network-addressable software components is what ASO is all about.

Value of ASO

Why is ASO relevant to organizations?

1. Integration issues keep chief information officers (CIOs) awake at night. Application integration topping the list of important initiatives, along with security that CIOs are concerned about.
2. Operating and maintenance (O&M) costs continue to eat IT's lunch. Maintenance and ongoing operations costs eat an increasing amount of the IT budget, with the average split between O&M versus new IT initiatives reaching 80% and 20%, respectively. Thin IT budgets for new initiatives provide little support for wholesale replacement of obsolete systems.
3. Monolithic stove-piped applications and other legacy albatrosses bog down organizational transformation efforts.

Some of the key goals of a service-oriented design are to cut through the current information silos, promote interoperability, and enable services to be delivered more effectively and uniformly. Service orientation adoption has the potential to erase the barriers that separate the business and technology sides of any organization, which will dramatically improve productivity and increase overall harmony and agility. The core business benefits of service orientation have been grouped into five main categories: cost reduction, increased asset reuse, increased business visibility, greater business agility; and business empowerment. Business agility and empowerment are fast becoming the central motivation for adopting ASO for many organizations.

Role of ASO

The role of ASO is to provide a structured architectural approach that supports an organization's ability to continuously change in the face of a heterogeneous environment. Organizations have two universes in constant flux: business architectures and IT architectures. Now, a third factor has entered the mix — services-oriented architecture. As organizations seek to align business and IT architectures, service orientation can play a key role in streamlining this process. Service orientation helps align business and IT architectures to deliver more effective, more efficient responses to ongoing business demands — on a transitional basis and over the long-term.

To achieve the best results, service orientation must be used in a consistent fashion. Providing clear and concise guidance on the acquisition, use, adoption, implementation, and sustainment of service-oriented assets will enable organizations to develop highly reusable and fully interoperable components. The result will be greater efficiency, more consistency, minimal duplication, and less overlap across the entire enterprise.

Creating new services from scratch to replace operational application environments is unrealistic, given the substantial foundation of software assets, data, and business logic embedded in existing IT architectures. One essential aspect of a service-oriented strategy, therefore, involves the incremental transformation of existing software assets into service-orientation-based assets.

This practical approach to the service orientation evolution works effectively when coupled with the evolution of the business-driven service orientation emerging on the frontlines of business. As enterprise-level service orientation evolves along with peripheral systems that automate, streamline, and integrate business processes and existing front-end systems, back-end service-oriented migration patterns will begin to emerge. This approach will set the stage for a phased evolution to ASO, but more importantly, create an environment in which business and IT alignment can evolve naturally as the business changes.

Putting ASO into business and technical perspective

First, the business mission areas must agree that they have problems with continuous inflexibility, an inability to change, and unwillingness to allocate resources to solve their IT dilemmas long term. Second, organizations need to engage the help they need, such as service orientation mentors, as well as train their staff and obtain the proper advisory services. Third, enterprises need to create long-term road maps and plans, making sure to consider all of the relevant business drivers and existing issues. This will typically include multiple projects, moving toward a long-term strategy. Finally, enterprises must execute effectively, making sure to take the service-oriented strategy to its logical conclusion, and resisting the temptation to redirect resources toward tactical business needs.

With proper guidance in the area of business design and by evaluating services in a consistent way, it is possible to bring together collections of related services in a more synergistic manner. Thus, service orientation in this context will entail formally componentizing each of the services and their subordinate services in support of a high-level master plan from which the planning and delivery of all services will spring. Such an approach will help ensure that individual services can interoperate and reinforce one another, have minimal redundancy and overlap, and exist as self-contained units. To be truly effective, service orientation must exist at all layers of an organization.

The technology is not the service; its use delivers services. Service orientation does not standardize how individual processes work, how different applications function, or how different programming languages operate in different machines. It is a standardization of their interfaces.

When building distributed solution logic, design approaches revolve around a software engineering theory known as the separation of concerns. In a nutshell, this theory states that a larger problem is more effectively solved when decomposed into a set of smaller problems or concerns. This gives us the option of partitioning solution logic into capabilities, each designed to solve an individual concern. Related capabilities can be grouped into units of solution logic. The fundamental benefit to solving problems this way is that a number of the solution logic units can be designed to solve immediate concerns, while still remaining agnostic to the greater problem. This provides the constant opportunity for us to reutilize the capabilities within those units to solve other problems as well.

Different design paradigms exist for distributed solution logic. What distinguishes service orientation is the manner in which it carries out the separation of concerns and how it shapes the individual units of solution logic. Meticulous planning towards applying service orientation to a meaningful extent will result in solution logic that can be safely classified as service-oriented.

ASO guiding principles

Organizations should keep the service orientation principles in mind when planning, defining, implementing, or changing business services or any of their supporting processes or technical components.

At its core, service-oriented governance focuses on establishing a framework for assuring service quality over the course of the service life cycle (i.e., service planning, service publishing, service discovery, service versioning, service management, and service security, etc.). To ensure proper service-oriented governance, organizations must manage services in the context of specific business, IT, and regulatory policies that apply to those services and the consumers that interact with them. We would not want to have any Wild West-style service-oriented implementations (which are extremely difficult to gain control over), duplicated service-oriented implementations (which are superficially effective, but limit real savings), or shelfware service-oriented implementations (which are a waste of resource and won't deliver benefits). With the right planning and infrastructure in

place, service-oriented governance can automate corporate policy, communication, and enforcement, reducing both the risk and cost of compliance.

Scope creep is common because business does not stop thinking once a project has started. One thing that has been learned over the years is that the success of any IT initiative is measured only in how much the business demand is met. Managing expectations has become important to IT, but even more important is delivering the solutions the business needs. With service orientation we have addressed these issues by increasing agility in order to deliver faster IT initiatives and to develop software that, by definition, is in line with business.

With service orientation, proper inter-organizational planning, cooperation, and ownership will allow the enterprise to get the scope right. This will require enterprises to define services that support real business functions and capabilities across business domains. A global service orientation approach and scope — enterprise-wide and often top-down — is hazardous at the very least. It implies filling a huge organizational and technological gap, which most decision makers will, rightfully, hesitate to do. Failures of past grandiose and promising IT initiatives have diminished decision makers' enthusiasm for very large investments. On the other hand, confining the service orientation to a too-small scope and a potential gain that takes no risk will cement the initiative with the status of an anecdotic episode, with no real benefit for the organization.

Successful business transformation requires more than process improvement or technology modernization. The successes of every change management initiative (i.e., adapting to change, controlling change, and effecting change) begin at the top — communicate, communicate, and communicate. Too often, change leaders make the mistake of believing that others understand the issues, feel the need to change, and see the new direction as clearly as they do. The best change programs reinforce core messages through regular, timely advice that is both inspirational and practicable. Communications flow in from the bottom and out from the top, and are targeted to provide employees the right information at the right time and to solicit their input and feedback. Address the “people side” of change management. Any significant transformation creates “people issues.” New leaders will be asked to step up, jobs will be changed, new skill and capabilities must be developed, and employees will be uncertain and resistant.

Adapting to ASO requires service-oriented people. New skill sets and roles will become important when engaging with ASO in the enterprise. Today, within the IT and business organization, there is sporadic knowledge of Agile or service orientation. Many people have heard the terms, but they cannot place them and certainly cannot indicate what advantages they offer to the organization. In addition, there is also a prevalence of skepticism and resistance at all levels against the consequences that the implementation of ASO entails. All service-oriented resources in an organization are going to experience a process of change towards a more agile structure that provides certain freedom on one hand, but demands discipline and fair treatment of all parties involved on the other. Developing service-oriented skills will be important, and the enterprise should strategically plan and budget for such training.

With more services available in the future and a more service-oriented infrastructure to quickly realize new IT solutions, IT will become less technical in nature and gain more business knowledge. IT will become a true partner of the business. No longer will business units just throw problems and requirements over the fence for IT departments to solve, deliver, and maintain for the benefit of business operations; once a service-oriented infrastructure is in place there will be a genuine dialogue between all parties. In the past, if the ultimate IT solution did not really match the business need, or if it took too long for IT to deliver the right solution, business units often went independently to the market to find the best-fitting solution, which they subsequently acquired and gave to the IT department to integrate and maintain, without ever involving the latter in the purchase decision.

Data quality is intrinsic to service orientation success. The proliferation and redundancy of data across varying and numerous autonomous systems has resulted in a disjointed and inconsistent view of the organization that directly or indirectly influences key business operations and decisions. There is no longer any one system that contains an entire set of business-critical information. Compound that with incomplete, inaccurate, and irreconcilable data, and the result is a loss of confidence and trust in organizational data assets and an organizational inability to define, integrate, and retrieve meaningful data.

Data is the lifeblood of the organization and a valuable asset. The cost of inaccessible, inaccurate, incomplete, and insecure data is substantial not only to business operations and decision making, but also to the organization's confidence and trust in its data assets. By taking a thoughtful, planned, service-oriented approach to data management, applications will be able to reuse data access, transformation, and quality logic across multiple environments, thereby reducing the time to implement new data and information access functionality.

ASO leadership

Finding the right person for the complex, cross-functional role of ASO champion or leader will be far from easy. First, the service orientation leadership should not be your everyday enterprise architecture executive. This role should be business process-centric first and enterprise architecture-centric second. If the service orientation leadership gets this equation reversed, the risk is that the service-oriented initiative will remain pigeonholed as an IT initiative. However, even though the service orientation leadership should report to the CIO, the role is primarily a business role, and the mandated C-level reporting guarantees ongoing visibility into the organization's service-oriented efforts at the highest level. Secondly, the service orientation leadership should be able to wield a substantial budget that isn't tied to any particular line of business (LOB) or to any individual IT silo. Instead, every dollar should focus on cross-departmental, cross-LOB value.

Conclusion

Do not undertake ASO for the sake of doing service orientation because it's the next big thing. ASO should always be driven from a business perspective. Define what success means with ASO. You need to have a vision of where you're going, and tactically plan and implement your strategy. Start and plan small. Don't boil the ocean. Focus on enterprise architecture, business processes, customers, data management, and the enterprise — the big picture — the "ABCDE" of ASO.

Service orientation is not a miracle cure for bad enterprise architecture. However, it is a step in the right direction for those looking to evolve their existing enterprise architecture into something more efficient and valuable to the business. Those who embrace service orientation as a practical architectural approach in the context of a long-term strategic enterprise architecture plan, and are able to execute architectural rejuvenation without tactical interruption, will find that they are quickly ahead of the game.

Service orientation is simply not appropriate for all problems, and even for problems that need to be solved enterprise-wide, not all parts of the solution should be service oriented. A good enterprise architect should know how and when to apply service orientation. Knowing how and when to apply service orientation is 80% of the battle. Managing the service life cycle, including continuous quality, service modeling, governance, and management, is the rest of the battle.

When organizations seek to implement hundreds of unproven services against a business case that is not justified using millions of dollars of untested technologies, they risk significant failure. And when those service-oriented projects fail to deliver as promised, do they blame their own efforts, the products they used, or their methods? Of course not! They rest the blame on service orientation itself. Proper planning can mitigate these risks.

For successful service orientation transformation, I recommend the following best practices:

- Educate senior management. Create (at minimum) a half-day service orientation executive overview of the software development course. If needed, repeat multiple times.
- Include and get buy-in from the business side by emphasizing costs of failed IT projects and by making service-oriented software development education a corporate goal.
- Understand your senior leadership's learning and listening style, and examine how much information is appropriate at each decision stage.
- Communicate goals appropriately. Oversimplifying service-oriented software development will put you in danger of creating an oversimplified solution.

When Thomas Edison was in quest of inventing the electric light bulb, he didn't get it right the first time. In a well-documented exchange, Edison was told that he had failed 700 times in his attempts to make the breakthrough he sought. In response, he said, "I have not failed 700 times. I have not failed once! I have succeeded in proving that those 700 ways would not work!" What we can learn from the king of invention is that failing often and quickly is one of the best ways to increase the likelihood of success, and to do so faster.

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