Don't Bag Service-Oriented Architecture: Reduce, Reuse, Recycle

BY JENNI CRENSHAW

One of the most vibrant debates in the world today is the fate of the environment and what can be done to change it. In the technology industry, a similar debate concerns the fate of the Service-Oriented Architecture (SOA) approach.

Many are speaking and writing about the death of SOA, explaining how IT organizations are abandoning their SOA adoptions because they have not achieved expected results. Yet others are touting that SOA is not dead, but merely changing how it will be implemented and being re-evaluated given the current economic climate. A lack of a simple answer is just one of the many similarities between the environmental and SOA debates.

In Roger Smith's article[1] in *InformationWeek,* a quoted study indicated that most of those who have implemented SOA are satisfied, however, out of the same group of implementers, SOA has only led to a seven percent increase in software reuse. Consider SOA components as the reusable bags purchased at grocery stores. These bags are a great idea if used properly, improving the environment as a result. However, the key to that benefit is proper use, which requires planning and preparation on the part of the shopper. The same principle applies to SOA — used properly, SOA provides a benefit of reuse, thereby reducing costs and speed, as well as improving the working environment. Similarly, properly using SOA requires planning and preparation on the part of the IT organization.

A person purchasing reusable grocery bags is making a minor investment with the promise of helping the environment. The cost of the investment allows quick decisions and an experimentation process to select the right product. In fact, if the buyer decides after trying the bags that they can't remain committed to using them, the investment can quickly be written off and no longer considered. In contrast, the decision to implement a Service-Oriented Architecture requires a significant investment of both human capital and money. A decision of this magnitude can't be looked at as a mere experiment and must be approached analytically, determining the approach, process, alignment, tool, and deployment.

THE RIGHT APPROACH

The first step is to determine if SOA is the right approach for the organization. This determination must begin with an understanding of the projected business needs. Then the maturity of the organization must be considered as SOA requires a commitment of leadership and governance not often found in immature organizations. The complexity of the enterprise must play a driving role in the final decision.

Every business is looking for agility and speed to market, both of which are commonly touted benefits of SOA; however, before making the choice, one must dig a bit deeper to understand what is driving the business needs. For instance, a business that is quickly and often changing direction is looking for agility and speed to market, but a SOA implementation may not help them. The quick changes in business direction impact the proper alignment of SOA, thus reducing its benefit. But a business that has its direction confirmed

and is looking to quickly drive new functions to market can benefit from a set of standard services providing commonly used information. The ability to determine where an organization fits requires the next key element — maturity.

THE RIGHT TIME

Maturity is defined as the state of being fully grown or aged. Age withstanding, to select a SOA approach, an organization must have the maturity to commit to a program. For this discussion, maturity is the ability to analyze without bias and the ability to define and commit to a process. For example, an organization may be aged, but experiencing a major event such as a reorganization or acquisition. Such events shake the direction of the company, introduce the tendency for

bias to protect a group, and make the ability to define and commit to a process unattainable. However, a young organization may have reached a point where they know their direction, are secure in their roles, and have the adaptability to define and commit to a new process. Maturity, not age, is key to a successful SOA adoption. Although, with age often comes increasing complexity.

THE RIGHT COMPLEXITY

The complexity of the IT Enterprise is a key factor in the decision to adopt SOA. It is evident looking at ROI that, in a highly simplistic enterprise, with few source systems, and/or little integration, the overhead of SOA would not be acceptable. On the other hand, in a very complex environment with too many integrations and moving parts, SOA implementations

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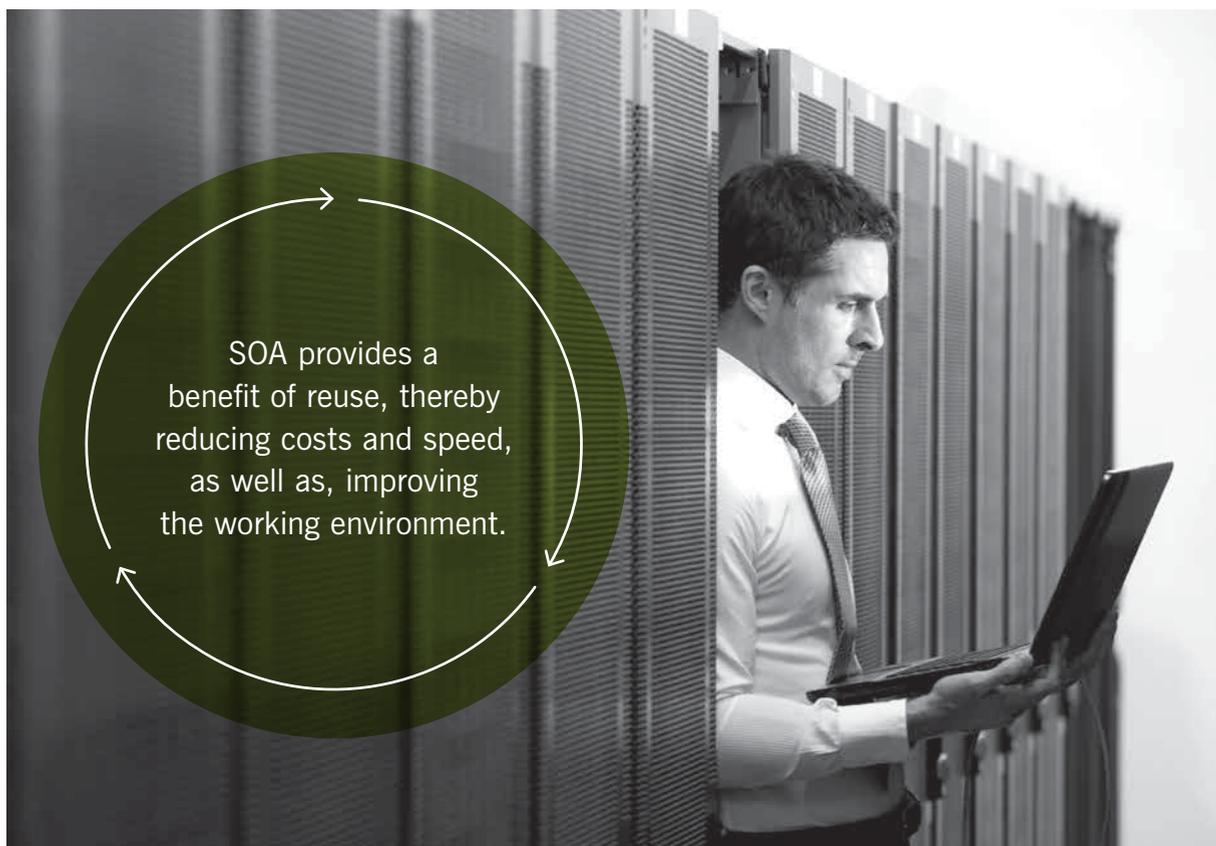
often take longer than acceptable and are never fully adopted. The enterprise must be comprised of enough systems and integration points to enable the return on investment without allowing the adoption period to become unmanageable.

SOA is not an impulse buy like the reusable bag hanging on the counter at the cash register. SOA is a selection that must be made by the educated buyer having evaluated the true business needs, organizational maturity, and enterprise complexity.

THE RIGHT GOVERNANCE

Once an organization determines SOA to be the correct path, it must begin a journey to define its governance. The first key to governance requires a sponsor who can obtain agreement and maintain the respect of the organization; however, no one person can govern alone. A strong process and team must be in place with properly identified checks and balances. Finally, governance requires continuos commitment from all involved.

Dwight Eisenhower said, "Leadership is the art of getting someone else to do something you want done because he wants to do it." This must be true of the SOA sponsor in an organization. Adoption of any new process requires the ability to inspire the organization to believe in the process. Because SOA often fails to deliver on its goals due to lack of adoption, ensuring the proper strength of sponsorship can help avoid this pitfall.
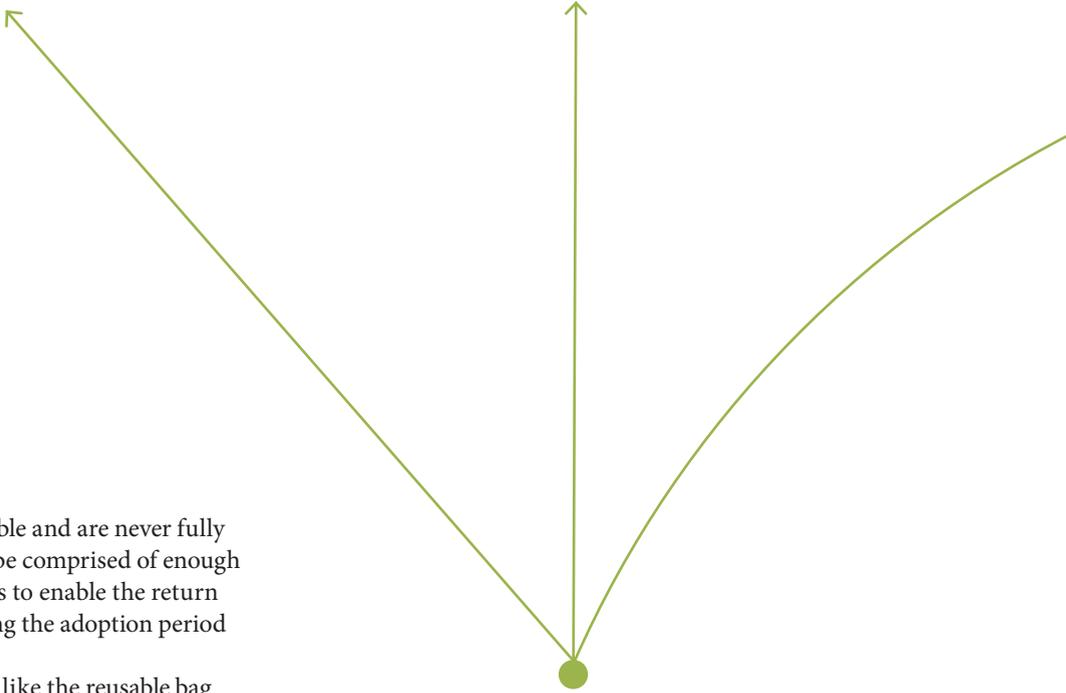
SOA CAN'T BE SUCCESSFUL BY ALLOWING PROJECTS TO CHOOSE WHETHER TO ADOPT. IT MUST BE THE STANDARD FOR ALL PROJECTS.
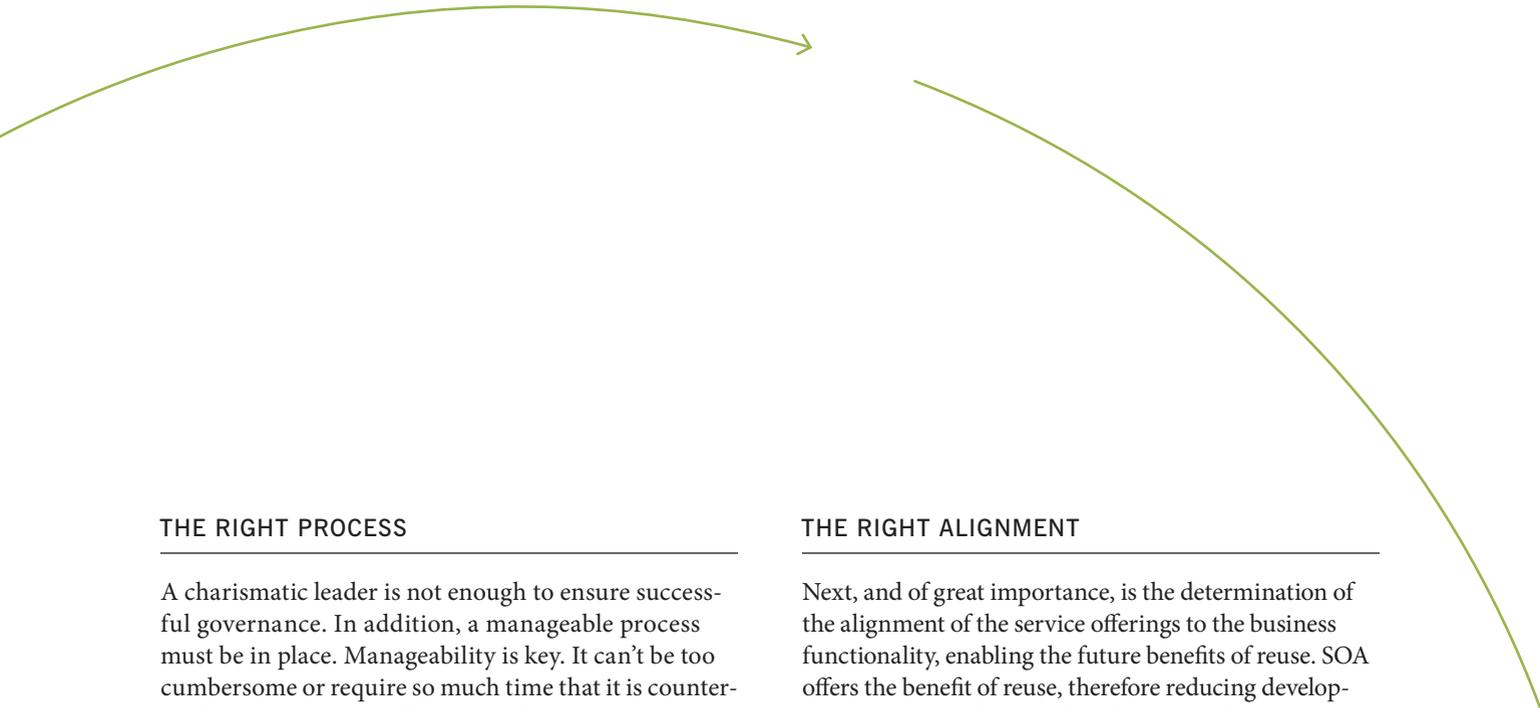
THE RIGHT PROCESS

A charismatic leader is not enough to ensure success-ful governance. In addition, a manageable process must be in place. Manageability is key. It can't be too cumbersome or require so much time that it is counter-productive. However, there must be commitments to evaluate projects at regular check points to ensure adherence. These milestones should begin early in the scoping process during the conceptual phase, occur again during design, and should be validated during code review or unit testing. These gate reviews must include adoption as well as alignment validation and standards adherence.

Note that SOA can't be successful by allowing projects to choose whether to adopt. It must be the standard for all projects. Commitment to the SOA approach is key to meeting the return on investment. To return to the reusable bag analogy, it is said that the resources and pollution from the creation of one reusable bag equals that of many plastic bags. Therefore, the purchase of the reusable bags without committing to their use will do more damage to the environment than just continuing to use the plastic bags. Ad hoc SOA adoption leads to sets of services that have used resources to be created, but the damage continues to be done to the schedule and budget of the company as "one-off" services are created. Without commitment, the SOA approach can do more damage than good for the enterprise.

The organizational adoption of SOA must begin with the selection of a sponsor with strong leadership skills and the respect of the organization. That strength will be needed to gain adoption of the governance process and overall commitment by the organization.

THE RIGHT ALIGNMENT

Next, and of great importance, is the determination of the alignment of the service offerings to the business functionality, enabling the future benefits of reuse. SOA offers the benefit of reuse, therefore reducing develop-ment time. In order to realize that reuse, the services must be aligned to enable business functionality. Determining the alignment of the business is the first step to SOA alignment. After aligning to the business, the services should be broken into major functional groups enabling the sharing of data by function. Since projects and programs across organizations can be broken into basic functions, this alignment of SOA provides the best reusability model for the organization.

To enable reusability, services must closely align with business organizations. Businesses are often aligned by functions that the organization provides to the company such as HR, Marketing, and Sales. Stating that services should be aligned to business organizations does not mean that a group of marketing services should be created. Instead, services should be aligned at the broader range of business functionality. Common themes exist inside the functional organiza-tion such as customer, product, and financial. Services provide the most benefit when aligned at these broader themes of the business organization.

THE RIGHT SERVICE

Although alignment with the broad themes provide the foundation for reuse — the key to success is in the details of service definition. Alignment of the services to functions within themes provides the structure
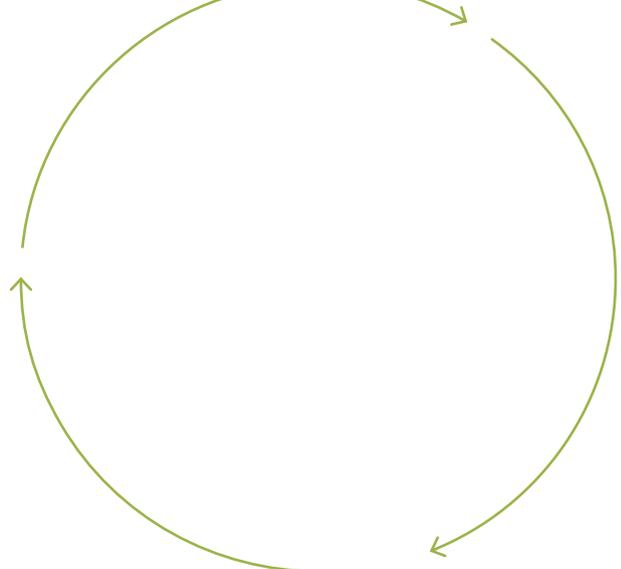
for delivery. Let's assume that one of the themes you define is the customer data theme. Service definition would begin with the CRUD (Create Read Update Delete), but shouldn't stop there. Within the Read and Update elements, the services should be divided further to make them more reusable.

Services should be built of reusable elements and bound together for easy use. Think about the reusable bags, each bag will contain a finite amount of groceries. The size controls how easy it is to lift and carry, and therefore, to use. For someone purchasing the essentials, one or two small bags will do, but for someone purchasing a month's supply, they will need multiple bags and a cart for movement. Having the multiple small bags at the shopper's disposal provides maximum flexibility. Just as building small services that are tightly coupled to functions and providing wrappers to those services when many are needed together provides the enterprise maximum flexibility.

The framework for building a set of services inside an enterprise begins with the business themes. From there, alignment to functions and to discrete areas within the function provide the necessary building blocks for maximum reuse. Understanding how the services will be mapped provides the organization with the guidelines to move forward with the tool selection process.

THE RIGHT TOOL

All too often, tools are selected based on previous relationships and high-powered presentations. The process for determining the SOA tool for an organization should begin with the definition of a set of scoring criteria. A set of possible tools should be scored against the criteria with the top three to five being

included in a Proof of Concept (PoC) analysis. After the PoCs have completed, the tools should be re-scored. After the tool is selected, the definition of standards should begin. Having a common tool and standards for the enterprise allows the workforce to become interchangeable, enabling more supply for the ever-increasing business demand.

Selecting the right tool is paramount to the program's overall success. This tool must deliver quality for your organization for years to come. It should not be selected because it is the last thing seen at the check-out counter. On the other end of the spectrum, the designer-label bag doesn't necessarily get the groceries in the house easier. The criteria need to be based on business need, enterprise fit, overall cost of ownership, support availability, and ease of use. The business need and enterprise fit should be laid out considering the items covered earlier. The overall cost of ownership and support availability considerations include: licensing, hardware requirements, integration plug-ins, and maintenance plans. Not often considered is the cost and availability of the resources trained on the tool or the cost to train your resources. This is where the ease-of-use factor comes into play. You must consider the training and ramp time involved in getting your team up to speed on the new tool. One way to get a true evaluation in this area is to perform a Proof of Concept.

The key to the success of a Proof of Concept is to ensure that the proof actually represents scenarios from the organization. The preparation and definition work completed in getting to the point of a Proof of Concept provides its guidelines. As the PoC is planned, consider who will be doing the work. Having resources who are supplied by a particular tool or company perform a PoC provides a greater understanding of what the tool can do. However, be aware that using professionals who work only on one tool

A CYCLE OF CONTINUOUS IMPROVEMENT WILL ENSURE THE LONG-TERM BENEFITS OF THE PROGRAM.

can misrepresent the complexity and time involved in the deployment. Evaluation of the PoC for a tool based on the ease of use and quality of the deliverables allows the non-bias selection of the right tool for the organization's needs.

THE RIGHT DEPLOYMENT

Once the tool is selected, it is time to begin the standards definition. Standards provide the foundation for reuse. Reuse of services across the enterprise is the primary reason for moving forward with SOA. Implementation of standards allows the reuse of human resource capital in the creation and maintenance of the platform. Standards, just like the determination to move forward with SOA and the tool selection, should be selected based on the business need and benefit to the organization.

With the selection of the tool complete and the standards set for the enterprise, the SOA platform launch can begin. Upon launch of the platform, the organization must engage in their governance program immediately. From the first service to the last, it is vital that commitment, process, and employment of a continuous improvement process remain a focus of the program. Key metrics must be defined and monitored to ensure the program is progressing successfully. A cycle of continuous improvement will ensure the long-term benefits of the program.

Whether debating the fate of the environment or determining if SOA is right for an organization, the first step is to understand that there is no easy answer. Purchasing reusable bags sounds like a great way to reduce waste and help the environment. Implementing SOA sounds like a way to reduce speed to market and overall costs to build. However, either outcome is only realized after careful planning and managed execution.

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