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Ensuring a Successful SOA Implementation

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The adoption of a Service Oriented Architecture (SOA) offers appealing advantages to many companies, from meeting business needs more efficiently to enabling service reuse to achieving a shorter Return on Investment (ROI).

However, many organizations cannot achieve these advantages for various reasons related to a project's sponsorship and/or governance. In other words, problems arise when SOA planning aspects are neglected.

This white paper will help readers identify and avoid these risks to ensure a complete and successful SOA implementation.

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Introduction

GlobalLogic has many years of experience developing SOA products, and we are a strategic partner to multiple market-defining firms in Finance, Telecommunications and Retail. We have partnered with clients at all stages of SOA implementation, from providing services to “SOA mature” organizations to developing roadmaps for organizations that are new to SOA. This extensive background enables us to make a detailed analysis of potential causes for failure during SOA implementation.

The purpose of this paper is not to explain SOA theory, but to examine it as a global framework at the corporate level. Our goal is to demonstrate how SOA can align to both a company’s IT and business processes.

With that being said, it is important to clarify that – in many cases – the acronym SOA is sometimes confused with the name of a commercial product or development language when it is actually a much broader concept. In addition to functionality, IT, and tools, SOA also includes management and planning processes. This means that SOA gathers and flows transversely across a company’s organization.

Labeling SOA as simply a tool or programming language is like reducing software development to just the programming stage. Similarly, SOA is often confused with application integration. Although application integration is a natural consequence of applying SOA, it is again just a single component.

This simplification or underestimation of key SOA concepts is what leads to many adoption failures. By not implementing SOA as defined, companies do not achieve effective ROI. Based on our own experiences, we have found that many companies use SOA only at a technical level. This weak adoption reduces SOA to a means for product implementation instead of embracing it as a strategic initiative at the corporate level.

We will now demonstrate different scenarios that can lead to SOA initiative failure, as well as the various mechanisms that can reduce these risks.

How do you ensure a successful SOA implementation?

To answer this question, we should start with categorizing the different reasons why organizations fail to conduct an SOA initiative successfully. These reasons can be divided according to their nature: Corporate or Strategic Issues and Governance or Execution Issues.

Corporate or Strategic Issues

A successful SOA implementation bridges the gap between business expectations and technological possibilities. There is not a company today that doesn't require IT support to reach its goals. For this reason, SOA should be part of a corporate-wide strategy driven by top-level management.

While defining goals and business strategies, an organization's executive management team should consider the role of SOA in these plans. Ideally, they should discuss the tools and methodologies that will measure the effectiveness of their business strategy and to assess whether the actions taken ultimately help the organization reach its objective.

Unfortunately, many companies label SOA initiatives as IT-driven projects that organize assets and support various departments as needed. This approach ultimately fails to align business and IT goals, which in turn minimizes the potential benefits of an SOA implementation. By not driving the SOA initiative from the executive level, there is also a lack of support from other areas within the company to maintain a long-term project.

It is important to note that an SOA initiative is typically considered mature within two or three years of its implementation (assuming an organization starts from a scenario of zero maturity). As such, we recommend that a company's top-level management create mechanisms and incentives to ensure that managers comply with these long-term goals.

Governance or Execution Issues

Issues related to the governance or execution of an SOA project are the most frequent among organizations. By governance, we mean the action to pursue an SOA initiative to meet the objectives of a company's strategic plan.

Anyone who has been involved in project management at the senior level knows that planning is useless without the necessary activities to ensure that such planning is being executed. This includes not only monitoring an initiative's progress, but also possibly intervening with and redefining tasks. In this context, we will describe the most common issues faced by our customers. Please note that the order of these issues does not reflect the order of their relevance.

<u>Lack of metrics to calculate ROI</u>

One of the main drivers behind SOA projects is the possibility of reusing services. As such, the first projects often "carry" the development costs of the first services. Therefore, it should be noticed that, as time goes by, projects will become more economic and dynamic, thus repaying the investments made in the first stages.

Unfortunately, companies often have no metrics to evaluate the ROI of each project and the distribution of costs for reused services. Typically this occurs because the projects are distributed across different areas, and project managers may prefer to develop their own services instead of reusing existing services. Their reasons may range from service reliability (i.e., performance), to a lack of documentation that validates the actual costs of service reuse, to potential hidden costs resulting from improper project execution.

This basic mistrust between projects and departments thwarts one of the major drivers behind the SOA initiative. When services are not reused, cataloging the services across different areas becomes impossible, and the company's investment is never repaid.

Metrics are essential to successfully implementing SOA. In addition to identifying, analyzing, and quantifying the expected achievements of each step of a specific SOA activity, metrics enable companies to monitor long-term projects and therefore understand the right time to intervene and adjust the implementation strategy. This is why it is so important for top-level management to promote metrics among their teams.

No continuity given to SOA initiatives

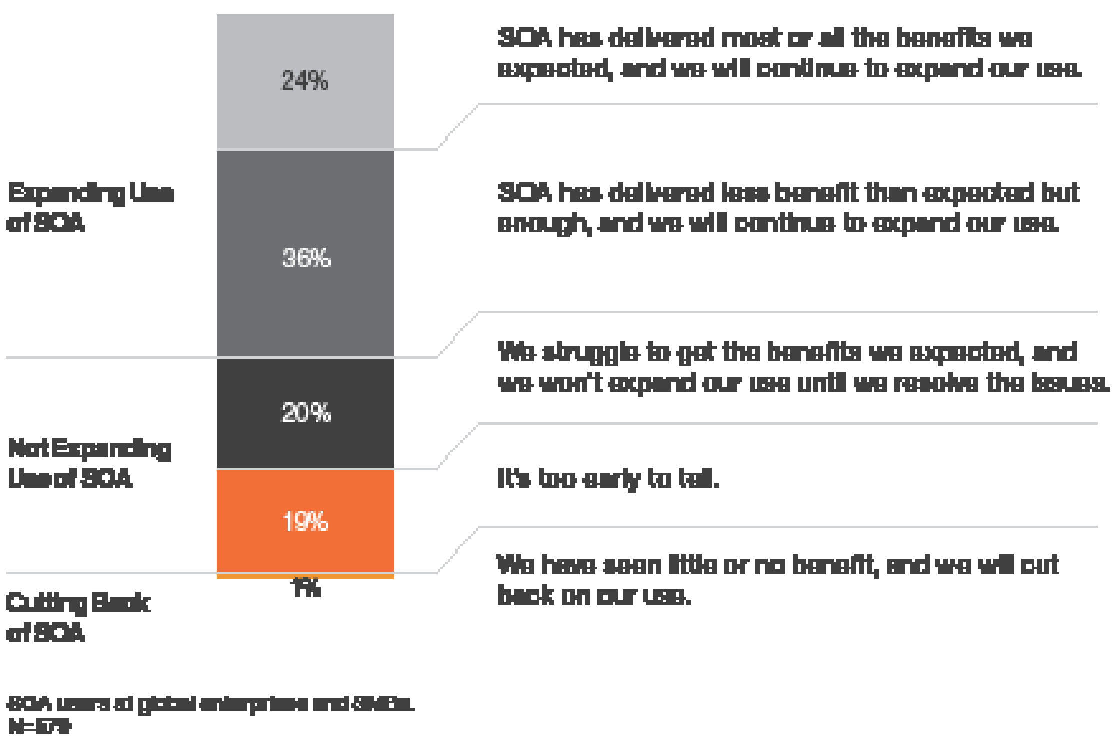
A common scenario we have witnessed is when a company chooses SOA as a strategy but then later decides to drive it at the corporate level. In this situation, only the CIO and/or the CTO is convinced that SOA is the correct solution from a strategy standpoint. However, they are also aware that the organization may not be ready to adopt this new culture, nor do they have the necessary skills to start this process. As a result, they decide to partner with a services firm who has experience with the SOA implementation process.

Based on our experience, we believe it is imperative to begin any SOA implementation by first defining the SOA maturity level achieved by the organization. Only after this step can you set goals and develop gap, short-term, and long-term plans for implementing the SOA initiative. We have found that this process generally takes 6-8 months, depending on the complexity of the organization.

Even after bringing in a services partner, companies can run into issues by failing to follow the governance guidelines provided by that partner. For example, some organizations will build an uncontrolled service to justify the investment in the previous stages. While we do not object to building services, they should be done in a controlled way utilizing the “know how” gained from their services partner.

Performing SOA Governance Increases Satisfaction with SOA

Source: Forrester Research, Inc.



We also advise companies to continue working with their partner through a support service and audit phase to gain further maturity in regards to governance processes. Although the implementation itself may take only 6-8 months, an organization is not considered fully mature for at least a year, depending on the company.

It is also important to not lose sight of the initiative's long-term impact, which transcends a single project. Adopting SOA has a learning curve that requires some initial "burdens" in the early stages in order to provide pay-off as it achieves maturity and stability. Without ensuring continuity across builds and projects, it is highly probable that an organization's time and effort will never be recovered properly.

Different providers with different methodologies

Another similar issue to SOA continuity is managing different service providers who have different methodologies. Frequently, organizations do not have the full amount of experience or resources necessary to manage the entire SOA development project in-house. Instead, they rely on multiple specialized vendors to optimize skill sets, budgets, and response times. Although this is generally a good approach to implementing SOA, issues can arise if the company is not mature enough in their project management policies.

For example, if a company does not have the appropriate governance framework in place to specify development standards, nomenclatures, and other deliverables, each vendor will develop the various services and business processes using their own methodologies. Ultimately, this will result in chaos and disorder as different methodologies clash.

If an organization does not effectively manage these various methodologies through a unified governance framework, they lose ownership over the services and cannot effectively catalog them. This in turn can further contribute to project managers refusing to reuse the SOA services, which voids one of the most important values of the SOA initiative: improved ROI through service reuse.

Dependency on specialized partners

At the beginning of this paper, we stated that SOA is strategic and should be supported by the company's executive management team. We also confirmed that relying on service providers was an effective approach to SOA initiatives as long as the organization has a mature governance framework. Along these same lines, we recommend leveraging specialized partners to help define an organization's Center of Excellence (COE), roles, standards, best practices, responsibilities, etc.

It is worth mentioning that the COE is a multidisciplinary group composed of business and IT professionals, an SOA architect, and other product specialists that support the initiative (e.g., ESB, Repository, Registry, etc.). Initially, the specialized partner will serve as a company's IT product specialist and SOA architect because they have the most skills in these areas.

The COE is responsible for the SOA initiative's governance and will ultimately become a strategic group within the company. As such, an organization should take steps to acquire the information and skills necessary to eventually make the COE an internal group rather than depending on specialized partners long-term. Specialized partners play a very important role in developing the SOA strategy, but a company's operations should not depend on them as a permanent fixture. We recommend creating a transition plan that ensures the organization is fully adapted and capable of continuing the SOA initiative independently within two years.

Implementing services with a maturational gap

A common issue we have witnessed is how CIOs must justify their investment in SOA. To this end, they begin to develop services to show results without taking into account many of the governance aspects. Later on, when they realize their mistake, it is very hard to go back. In many cases, these services need to be entirely re-implemented. In other situations they are treated as legacies, and new services must be built from scratch the right way.

However, the truth is that often CIOs cannot justify the time it really takes to address an SOA initiative when it is handled by the IT sector alone. It is easier to get the appropriate time allocation when the project has support from top-level management. Even if a company doesn't have the time and/or necessary budget to create these services, a specialized partner can help identify the organization's maturity level and provide a general awareness of the risks taken by implementing services with that maturational gap.

To minimize risks, we recommend not starting with a project that gives the initiative high-visibility. True, if the project is successful, it will put the SOA initiative in a favorable light and give the CIO more leverage for further implementation. However, the odds of this happening are very low with a maturational gap. It is more likely that a high-profile project will compromise the SOA initiative's reliability in the eyes of the company. Instead, we recommend starting with a project with low business impact and then gradually adopting SOA across the company in a controlled, uniform manner.

Lack of communication

The evangelization process is fundamental for a successful SOA implementation. Regardless of who drives the initiative, company-wide adoption of SOA depends on the participation and commitment of each department. Each area within the company should feel that it is playing a crucial role in the SOA initiative. If communication about the initiative is not clear and comprehensive, or if it does not begin in the very early stages, then this organization-wide commitment is threatened.

It is also important to select the appropriate people and media to promote SOA activities. The "who" and "how" are just as important as the messaging itself. This is another reason why top-level support is so crucial to a successful implementation. If managers are given incentives that align to the initiative, there is a higher chance that it will be adopted across all departments. Communication is a key component of the overall SOA strategy and will further a company's efforts to adapt to a new culture and a new way of working.

SOA vs. system integration

A common trap that many companies fall into is believing that they are carrying out an SOA initiative when really they are simply integrating systems and exposing services in the Enterprise Service Bus. As mentioned earlier, although systems integration is part of the "how to" of an SOA initiative, it is by no means the whole concept.

This mistaken belief is often driven by a technology solution vendor. When a CIO acquires and starts to use a new solution, they believe they are correctly implementing SOA. Unfortunately, this method won't achieve all the goals of a correctly implemented SOA initiative. At best, it will provide a beneficial means for integrating systems.

Selecting an IT solution is the second step on the road to SOA implementation, and there are many aspects to consider before deciding which solution is the most appropriate.

Managing SOA projects like traditional projects

SOA initiatives should not be managed like traditional projects because they require specific processes and a strict methodology. SOA initiatives must also be managed and audited under standards established by the company's COE.

If a business area requires a particular service, the first step should be to explore the existing catalog of SOA services. If the desired service doesn't exist, a request should be sent directly to the COE. This way, the COE can confirm that the service doesn't exist and then explore how to create a new version of an existing service in order to achieve the desired results while minimizing development time.

After properly vetting the request, the COE can then give the project team specific instructions on how to build the requested services, whether from scratch or from an existing service. It is important that all departments consistently follow this protocol in order to avoid redundancy and enhance the work of all participants.

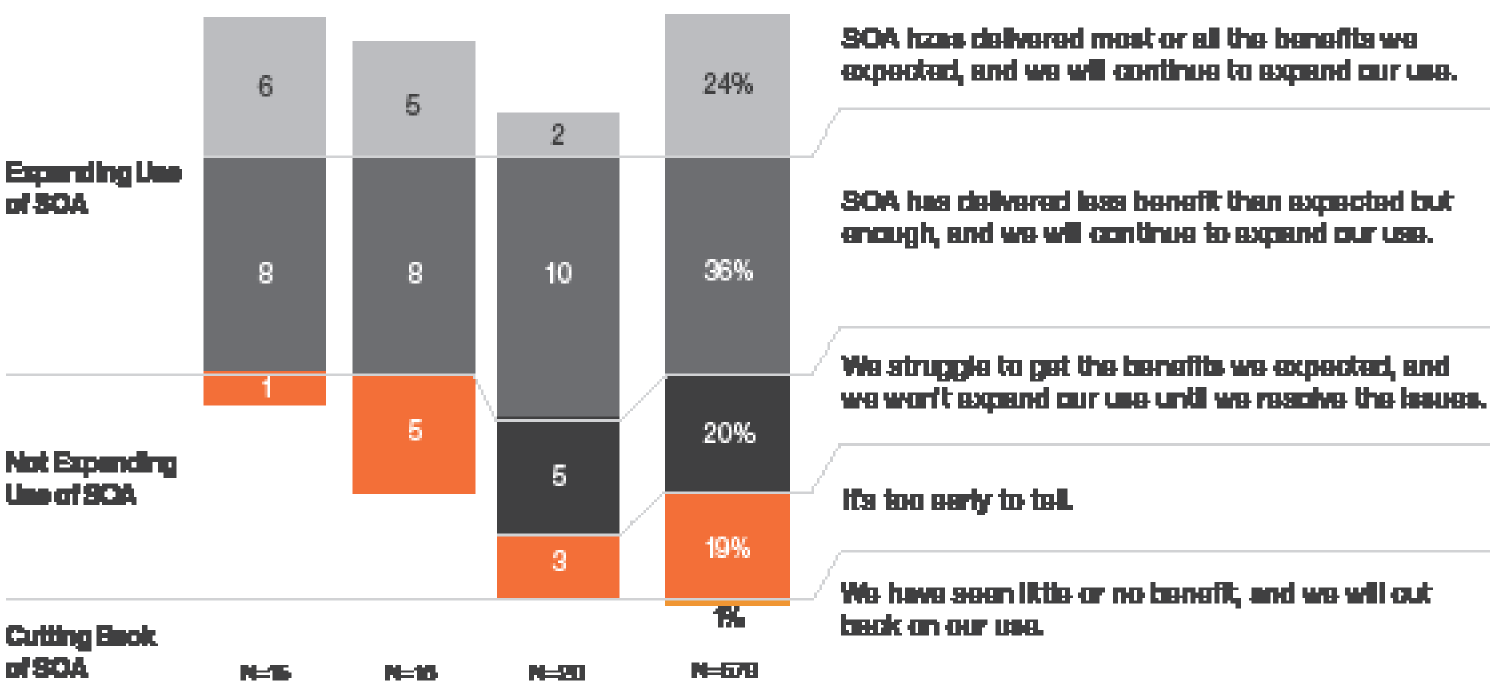
We understand that in some organizations, this step-by-step methodology could be viewed as "bureaucracy." It is not unusual in this case for project teams to implement their own services or, in certain situations, to create their own ESB. However, this approach will ultimately cause an SOA initiative to fail. Not only does the generation of multiple services void the basic benefits of SOA (i.e., services reuse), but having project-specific services sit in isolated silos is not healthy for the organization.

To avoid this outcome, a company's COE must be agile and expedite services. How exactly the COE does this depends heavily on how functions are segregated and how an organization establishes its Program Management Office (PMO) to prevent the COE from becoming a bottleneck in services development.

Ultimately, it is the CIO's responsibility to ensure that the defined SOA initiative will meet its goals at a corporate-level. He or she must be ready to make the necessary changes to accomplish the organization's strategic objectives without compromising the SOA initiative.

It Takes More Than a Little SOA Governance to See Better Results

Source: Forrester Research, Inc.



SOA users at global enterprises and SMBs.

Conclusions

Based on our experience as a long-term SOA implementation partner, we have found that most SOA initiatives fail when organizations view them as singular activities rather than integral concepts from which numerous activities are born. Neglecting or minimizing governance issues can significantly threaten the success of an initiative.

Secondly, SOA initiatives should be part of a company's long-term strategy, aligning with both business and IT goals. Without support from top-level management and a solid communication plan, a company cannot adapt to the cultural shift that is crucial to successfully implementing SOA.

We also recommend that organizations involve specialized partners when implementing SOA in order to effectively analyze their current level of maturity and to develop a roadmap for successful implementation. This partnership will be a company's mainstay for at least two years as it makes the cultural shift towards SOA maturity.

However, it is important that companies establish a governance framework for managing their specialized partners in order to maintain continuity across methodologies. Specifically, it is essential to establish an internal COE that will audit and manage projects over the long-term.

The information found in this white paper is based on GlobalLogic's observations from working with multiple companies on SOA implementation. It is our hope that such observations can help readers avoid similar strategic or governance issues within their own SOA initiatives.

About GlobalLogic Inc.

GlobalLogic is a full-lifecycle product development services leader that combines deep domain expertise and cross-industry experience to connect makers with markets worldwide.Using insight gained from working on innovative products and disruptive technologies, we collaborate with customers to show them how strategic research and development can become a tool for managing their future. We build partnerships with market-defining business and technology leaders who want to make amazing products, discover new revenue opportunities, and accelerate time to market.

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