

# SOA Made Simple: Creating a roadmap for your SOA

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## Introduction

This paper looks at how to analyze the benefits a SOA offers to different stakeholders in the context of a business case, approaches to the realization of SOA, and how to setup a roadmap. The roadmap that you create also depends heavily on the type of initiative: strategic, IT driven or departmental. Apart from objective criteria like cost and benefit, time to complete the project and ability to repeat the process, perception is an important factor that determines the ability of an organization to mature and create a successful Service Oriented Architecture.

## Organizing the effort

Let's start with a definition of a Service and Service Oriented Architecture (SOA):

A service is something *useful* a *provider* does for a *consumer*. Service Oriented Architecture is a *reference architecture* based on *services*.

If you want to realize SOA in your organization, and realize it in a way that makes it successful, you need to take the following steps:

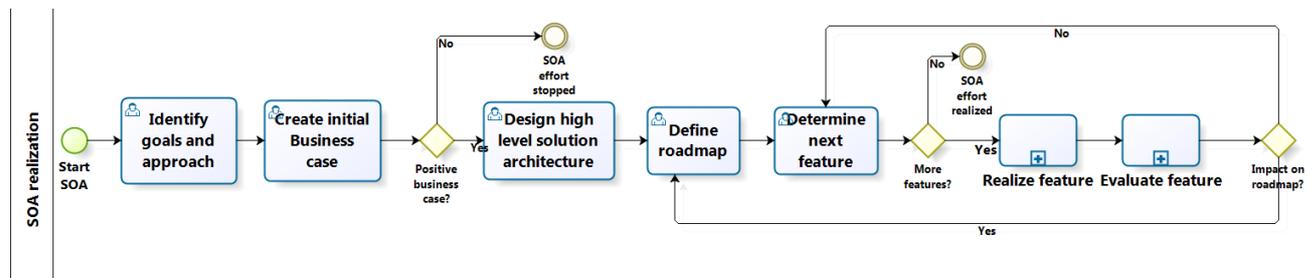


Illustration 1 Steps to realize SOA

## Approach

There are different approaches you can take to realize a service-oriented architecture: *top-down*, *bottom-up* or *meet in the middle*. When you design a service top down, you start by analyzing the need for certain operations from the perspective of the consumers of the service. Then these services can be designed: we design the service interface, a contract and build it from scratch. This approach works well for green field situations, when a service or the type of data needed by the processes and the user interface do not exist yet. If you already have systems in place, designing the service top down can lead to a mismatch between the API the system offers and what your detail design prescribes.

Another approach is to identify services bottom-up as a solution to the problem with top-down service design. However, identifying services bottom up leads to another problem: If you start identifying services by analyzing all your existing systems in the enterprise and offer the functions of these systems to other consumers as services you end up with a lot of services that don't match the need of the service consumers.

A meet in the middle approach solves these problems: you identify the services from the perspective of the consumers, and to make sure the services exist or can easily be realized in the organization you do the detail design of the operations and the interface based on the existing systems.

### **Business case**

A business case captures the reasoning for initiating a project or task. A new company can design their architecture and organization from scratch, but most companies don't have that luxury: they need to redesign and implement the architecture, while running the operation. This means that it is not feasible to change the architecture in a big bang scenario, but that you have to grow the architecture gradually. The order, in which you execute this, depends mainly on the benefits the new architecture offers for different stakeholders. Apart from benefits, a SOA can result in additional technical complexity and organizational challenges. In your business case you describe the following items:

- The background for the transformation:
  - What type of problems do we face today, what is the history?
  - What business goals does the transformation contribute to?
  - What other projects are related to this transformation?
  - What trends and developments are relevant?
- Problem:
  - Describe what you want to accomplish, the mission of the program.
  - Describe the business processes that are impacted and the problems or ambition that apply to the processes.
- Goal:
  - What are the results of the transformation?
  - Quantify the goal for the problem owner in terms of money, time, etc.
- Future developments
  - What are the future developments that we expect?
- Specific requirements of the solution. Apart from company-wide goals, there can also be specific requirements for this problem domain.
- Summary of the scenario's. What are the different possible solutions?
- Analysis of the scenarios. List the scenarios, one of which usually is 'doing nothing'. List per scenario the costs and the benefits of each solution, the impact on the organization, the feasibility, the risks, the turnaround or completion date and the net worth of the scenario.
- Advice. Give the organization an advice for one of the scenarios based on the analysis.
- Next steps. Describe what needs to be done next:
  - Describe how many projects will be started;
  - Describe who will be the project manager;
  - Describe who the stakeholders are.

There are different ways of looking at the business case: from the perspective of the company as a whole, the perspective of a specific department, or from an IT perspective. If the SOA effort is strategic, then the business case is calculated and described from the perspective of the *entire* company and it is based on the company strategy, operational excellence, product leadership, and customer intimacy. If the perspective is from IT, then the goals are often to cut cost or to consolidate or standardize the landscape. When the SOA is started from a tactical perspective, the scope usually is a specific department.

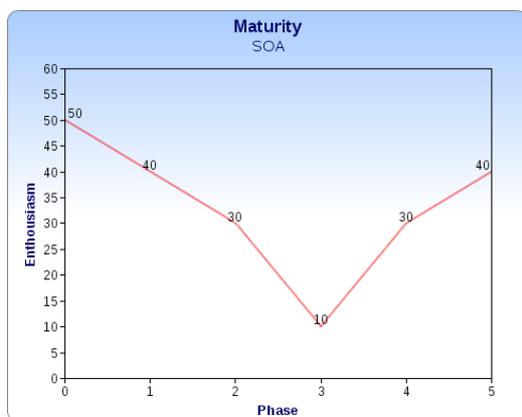
## Roadmap

Now that we have seen how you can create a business case, and what the best approach is to identify and design your services, we can look at planning the features, services and processes. There are several ways of attacking this. You can decide to build service-by-service, process-by-process, feature-by-feature, or a mixture of this.

Trigger	Business case	Unit of work	Advantages	Disadvantages
Strategic	SOA and BPM	Process	ROI is assignable to a specific budget	Reuse has to be taken into account
Strategic	SOA	Service	Reuse is possible from the start, flexibility is built in from the start	Risk of building services nobody uses. ROI is hard to specify
IT	Consolidation	System (or Service)	ROI is assignable to a specific budget	Service design is driven by an application, not by good service design
Departmental	SOA and BPM	Process	ROI is assignable to a specific budget	Local process improvements
Departmental	SOA	Feature	ROI is assignable to a specific budget	Local calculation

## Maturity and stages

Most maturity models look at SOA in a 'clinical' way and talk about how repeatable and planned the activities to realize the architecture are. While this can be a good way to measure the software maturity in an organization, it does not describe the challenges that are encountered when trying to change something in an organization. As with all change, the organization will hit some hard times during the entire effort. An alternative way of looking at the maturity of your SOA endeavor is to define it in terms of the perceived success and enthusiasm that the organization experiences in the different phases of the realization. An organization usually goes through five phases:



**Stage 0: Starting with SOA.** When a company starts with SOA, it is a new exciting endeavor. The business case is promising and people are enthusiastic and expect to solve all the problems. Usually the expectations are a little higher compared to what realistically can be achieved. The architecture is new, and a lot of people need to learn new ways of working. This is not apparent to everyone at this stage.

**Stage 1: Newly weds.** During the first project, the first disappointments occur. Solutions that were bought are not performing exactly the way you hoped. Some problems are technically challenging and especially at the beginning the coordination of service consumers and service providers is difficult. Enthusiasm for the project declines and becomes more realistic.

**Stage 2: Live.** After the first project goes live, some people in the business will be disappointed. The effort that went into the project is not always apparent to them: it took a long time and not everything they needed has been realized. It is not visible that a foundation is being laid and a lot of new things (architecture, technology, change management) needed to be learned. However, some of the benefits are achieved and the foundation for the next steps is laid.

**Stage 3: Growing up.** When the second project starts, things become more complicated. There are already users from the first project, so changing something requires more meetings and involves more people than in the past. Also, people expect everything to be reusable. Most of the time, this is not the case. The first project will have run into some time or budget issues, not everything is known in advance and it will be necessary to invest some money in improving the things from the first project.

**Stage 4: Experience.** After a while, things become easier. The change process is in place; administrators know the drill and most services are of good quality. When new services are identified and designed they are of better quality because of the increase in experience in the organization. The organization now gets full benefits of the architecture and more people are satisfied with the status quo.

**Stage 5: Maintenance.** The architecture hits maintenance mode: every major item in the solution architecture has been realized. Now and then systems or services are replaced, outsourced, in-sourced etc. Identifying, designing and maintaining services has become business as usual for your organization.

## Conclusion

It is important that your organization does not look at SOA as an architectural or IT-only endeavor. Organizational change needs to be guided. To help this process, a couple of measures are important:

1. Communicate the SOA drivers clearly.
2. Train people involved. Key users, administrators, programmers, project managers, everybody is impacted by a new architecture. Make sure everybody knows what is going to happen. Don't start training too early, make sure the training precedes the actual implementation closely.
3. Communicate your successes. Often all that is known about a project is its delays, extra money or other frustrations. It is important that the successes are equally well known.
4. Reward people that adapt to the new way. Often people don't take a stand and take a 'wait and see' attitude towards the change. People that are actively promoting the new architecture should be recognized for their efforts. If things don't succeed, the people with the wait and see attitude should suffer the consequences, not the people that were willing to change something.
5. Learn from the mistakes. This is different from blaming people or technologies. If something goes wrong, it is important to know what you can do to prevent it the next time. Nothing more, nothing less.
6. Look for a sponsor. It is important for all type of initiatives (strategic, departmental and IT driven) to have a corporate sponsor. Otherwise, the above goals can't be reached.

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