Service Oriented Enterprise Architecture Framework

Mohammad Kazem HAKI
Faculty of Business and Economics, Institute of Information Systems, University of Lausanne, Switzerland
kazem.haki@unil.ch

Maia Wentland Forte
Faculty of Business and Economics, Institute of Information Systems, University of Lausanne, Switzerland
mwf@unil.ch

Abstract- The concept of Service Oriented Architecture (SOA) has had a significant impact not only on software engineering but on the analysis of an organization’s business layer as well. In this paper we demonstrate that using the SOA concept into the Enterprise Architecture (EA) framework makes the best of the synergy existing between these two approaches. We will examine the characteristics of this relationship before proposing a roadmap for integrating SOA and EA into the Service Oriented Enterprise Architecture (SOEA). Some managerial aspects leading to a successful implementation of this kind of projects will be discussed.

Key words- Enterprise Architecture (EA), Service Oriented Architecture (SOA), Service Oriented Enterprise Architecture (SOEA), Project Management

I. INTRODUCTION

Enterprise Architecture (EA) has developed to bring the information system design and business requirements together. EA analyses an organization all the way from its generic strategic components to its detailed IT infrastructure. Hence, EA is more than architecture because it encompasses governance as well as a roadmap for aligning IT investments with business needs [7].

The concept of Service Oriented Architecture (SOA) has introduced EA methodologies changes. The combination of SOA and EA, introducing the notion of Service-Oriented Enterprise Architecture (SOEA), highlights their synergic relationship. This new approach allows EA and SOA to complete each other for better support of agile business needs.

In this paper we will first examine the emergence of SOEA by introducing EA and SOA concepts. We will then proceed to illustrate their reciprocal contributions and explain the importance of combining them. We will then propose a practical framework and introduce its different architectural layer as well as its phases, steps, activities and deliverables. Finally we will offer some recommendations related to the management aspects of SOEA projects.

II. EMERGENCE of SOEA

In this section, we will explain the emergence of SOEA by bringing EA and SOA together.

A. SOA

The service-oriented architecture (SOA) approach is the latest in a long series of attempts in software engineering that try to foster the reuse of software components [3]. The SOA is a new way of developing systems that promotes a shift from writing software to assembling and integrating services [19].

As reported by [7], SOA can be viewed from three different perspectives:

- The business perspective: Set of provided services by an organization to its stakeholders;
- The architecture perspective: An architectural view which consists of a service provider, a requester, and a service discovery;
- The implementation perspective: Set of standards, tools, and technologies, such as Web services.

SOA usually refers to an organizational ICT architecture which unifying or coherent form serves the purpose of organizing and designing the construction, selection and interconnection of hardware, software and communications assets of the enterprise. With [1], we wish to stress the fact that as enabler of application integration, it brings an undisputable strategic value.

Technically, the main components of SOA are:

- The service directory, where all information about all available services is maintained;
- The service provider, that aims at offering services by putting appropriate entries into the service directory;
- The service requester that uses the service directory to find an appropriate service, i.e. a service that matches its requirements.

Some of the most important standards are:

- SOAP (Simple Object Access Protocol) (www.w3.org/TR/SOAP12) defines a mechanism for communicating with the Web services over the Internet. It deals with the format of the messages exchanged between the service requester, the service provider and the service directory.
- WSDL (Web Services Description Language) (www.w3.org/TR/WSDL.html) defines the structure and the contents of the service directory. Two
related pieces of this standard are: 1) service types which are typically standardized by standards and 2) actual business information.

- **UDDI** (Universal Description, Discovery, and Integration) (www.uddi.org) provides the capability to describe a Web service, without needing to have it formally standardized. A WSDL description of a Web service provides all information needed to actually invoke it [3].

To synthesize, one can say that SOA describes a new way of analyzing an organization in order to define its IT related requirements.

**B. EA**

An IBM Academy of Technology Study defines EA as follows [7]: "The EA discipline defines and maintains the architecture models, governance and transition initiatives needed to effectively co-ordinate semi-autonomous groups towards common business and/or IT goals".

EA is an important instrument to address company-wide integration because it features a coherent set of principles, methods and models that are used in the design and realization of the enterprise’s organizational structure, business processes, information systems, and infrastructure [8, 13]. It also provides a systematic documentation of the linkages within business architecture [12].

The main goals of enterprise architecture, as summarized by [5] are the following:

- **Documentation** of current enterprise structures including artifacts from business and IT and their interrelationships (as-is model),
- **Analysis** of dependencies and relationships in as-is models,
- **Planning** and comparing future scenarios (to-be models), as well as deriving transformation projects and programs to achieve a desired EA.

A number of EA frameworks have been proposed such as: Zachman (was the first to formalize the concept), NIST EA model (National Institute of Standards and Technology Enterprise Architecture Model), FEAF (Federal Enterprise Architecture), DoDAF (Department of Defense Architecture Framework), TOGAF (The Open Group Architecture Framework), BizADS (Business Architecture Development Standards), NASCIO (National Association of State CIOs’ EA Maturity Model), TEAF (Treasury Enterprise Architecture Framework), FEAF (Federal Enterprise Architecture Framework), IBM EA Framework, etc. All of them have as common characteristics the fact that they offer a well-organized top-down model for documenting organization’s business and IT aspects.

**C. SOEA**

[11] assumes that the unique characteristics of SOA - interoperability, flexibility, cost effectiveness and innovation - can solve the two main issues EA deals with, which are:

- The problem of alignment between the various architectures
- The lack of a guiding principle for overall optimization with respect to an enterprise’s goals.

The dependencies between SOA and EA investigated by [2] around three issues:

- SOA proposes important principles on applications
- SOA depends on EA, its contents and governance, in order to succeed
- The service-oriented paradigm should be applied to other aspects of an EA.

From EA perspective, SOA is a basic concept that enriches the architecture modeling of EA at all architectural layers [4]. In effect, SOA could serve as a mediator between the different elements of an EA [17].

Apart from their reciprocal contributions, SOA and EA feature some similarities in their concepts, activities, processes, and outcomes: 1) address similar architectural domains, 2) intended to closely align IT with business, 3) use input based on business objectives, 4) require similar strategies and planning activities [7].

Actually EA and SOA complete each other and the second leads to a better architectural alignment of the first [2, 4, 11].

The combination of the two here above discussed concepts leads to the creation of a seamless framework for documenting organization’s business and IT aspects by utilizing service oriented approach. Methodologically it was created based on their obvious synergy.

The SOEA literature only mentions the contribution of EA on SOA and vice versa. In this paper we will propose a SOEA framework for showing the practical combination of these two concepts.

**III. PROPOSED SOEA FRAMEWORK**

Based upon the EA, SOA and SOEA literature and attempts to utilize EA literature in the SOA context for facilitating service-oriented IT governance, we propose a framework to determine the global structure of a SOEA.

This framework finds its roots in the Federal Enterprise Architecture Framework (FEAF), the Project Management Body of Knowledge (PMBOK) as well as on the authors’ experience in EA projects. Since this framework is based on a practical approach, in addition to mentioning the different level of architecture, we also have determined the phases and deliverables covering all the architectural layers of SOEA projects. The major characteristics of the proposed framework are that:

- It covers three architectural layers a) the business architecture, b) the information system architecture and c) the infrastructure architecture. For these layers, it determines the as-is and the to-be architecture of an organization (see Figure 1).
- It is composed of one planning phase (phase 0) and four main phases.

We will not go through the detail of each phase, step and activity, because the technical requirements of each SOEA project differ from one another and need to be customized based on the special requirements mentioned in the employer’s Request for Proposal (RFP).

In contrast, we will concentrate on the general concept of each phase and architectural layer. At each of them, we will propose some managerial recommendations that should contribute to success.

A. Architectural layers

In this framework, we have covered three architectural layers in order to have an overall architecture of the organization while aligning IT applications with business needs.

A1. Business Architecture

The Business architecture is the vital part and first architectural layer of SOEA that impacts other architectural layers. In our framework, we combine the traditional Business Process Management (BPM) approach with service orientation. After briefly describing the concept of BPM we will recommend a specific modeling language.

A business process is composed of a series of continuous actions or operations that are usually initiated by an internal or external customer [10]. We have observed three common patterns for studying business process:

Organizational level: [10] has classified business processes in three categories:
- The strategic level, top level process that mainly deals with direction setting, high-level strategic planning activities;
- The tactical level that serves as a converting or communication level. It performs several critical roles: transfers the high level strategy into plans; serves as a bridge between business perspective and technical perspective; provides guidance and support at operation level;
- The operational level where implementing a system begins and where it is transformed into a final product.

Interaction: Both [3, 15] report two types of interactions between business processes:
- Peer-to-peer structure (conversational pattern): is well suited to support dynamic collaborations between business partners. Potential participants define their contribution to a process and their requirements from other participants.
- Hierarchical structure (Hierarchical pattern): In many situations the interactions between business partners can be described by a single top-level (root) business process. This business process defines the steps necessary to achieve the overall business.

![](image.png)

Figure 1: Proposed SOEA framework

Value chain: [9] has categorized business processes into:
- Primary: consists of firm infrastructure, HRM (Human Resource Management), technology development and procurement
- Support: inbound logistics, operations, outbound logistics, marketing and sales and services.

Inter-organizational sourcing of business functions is rapidly increasing the possibilities of outsourcing the non-core business processes as well as subcontracting expertise in areas in which the organizations are lacking it. This trend needs standardization of various business functions which makes service-oriented business architecture very useful. [12]. Hence the increasing interest in using a service oriented approach [6].

Modeling tools are necessary to build an architectural relation between the business and infrastructure layers. In the traditional BPM literature, business process modeling methods make use of either purely graphical models (e.g. flow charts), mathematical models (e.g. Petri nets), object oriented models (e.g. UML) or independent process modeling models (e.g. ARIS) [18].

In order to support service orientation we recommend Business Process Execution Language for Web Services (BPEL4WS), a process modeling language in service oriented context.

In effect, BPEL4WS is a service orchestration and choreography language which fulfills the need for
modeling all the above mentioned business process patterns. An interesting feature of BPEL4WS is its support for two distinct styles of process modeling: the graph-oriented style, involving definition of a composition using graph primitives (nodes and edges), and the algebraic style derived from process calculi, in which complex control constructs result in implicit control flow [15]. By using this language, it is possible to define the application and the infrastructure services directly based upon the business services.

A2. Application architecture
We propose a composite approach for defining applications. In other word, we have combined different services for determining application services. Composite applications are similar to Component Based Software (CBS) for they focus on building large software systems by integrating existing software components. A composite application has three different layers:

- The User interface layer where the different forms and functions are presented to the user;
- The Choreography layer that defines the correct order of calling services in the composite application
- The Service layer represents service to composite application [14].

BPEL4WS fully supports this compositional approach. [15] described BPEL4WS’s composition functionality as follows: enable flexible integration, offering choreography as a web service, support for multiple composition patterns and support for lifecycle management.

A.3 Infrastructure architecture
After determining the composite applications, in the infrastructure layer, we will identify the environment in which the application services support all business services.

The relationship between services in composite applications can be inter or intra-organizational. Hence the information about existing services is stored in a service registry based on UDDI. This information is returned in the form of WSDL files. This relationship occurs between different services by using XML-based interface. These XML-based messages exchange information between services by using SOAP. The service orchestration and choreography within an organization and between the organization and its stakeholders is also handled by BPEL4WS [14] (see Figure 2).

B. Proposed Project Phases
Table 1 illustrates our proposed phases, steps, activities and expected deliverables of the SOEA project in order to cover all the architectural layers.

B1. Project Planning

In this preliminary phase, all the expected deliverables, project scope and project roles will be determined. Its main activities are:

Organizing the project team: involving different teams with different fields of expertise and experience is vital to ensure a high quality of deliverables. Hence, a project well-defined organizational structure has a significant impact on the success of the project.

Finalizing the scope of the project: negotiation between implementer and employer is necessary in order to clearly determine the scope of the project and produce a detailed list of the project deliverables. In the end, implementer and employer should have fully agreed upon the outputs of the project and must have the same understanding and expectations.

Developing a Project Management Plan (PMP): this plan will be used at every step of the project. It serves as reference plan in all subsequent negotiations and project meetings. It should include the project scope, the project methodology, the WBS (Work Breaking Structure) of the project, its schedule, the human resource management plan, the configuration management plan, the communication management plan, the quality control plan, the risk management plan, the change management plan, etc. The PMBOK (Project Management Body of Knowledge) is a reliable guideline for developing it.

Figure 2: infrastructure architecture using the SOA approach

B2. As-Is Architecture

The main objective of the as-is architecture phase is to determine the requirements for defining the to-be architecture. In this phase, the project team should gather all required information about the organization’s business and IT applications. This phase consists of two steps:

B2.1. Business As-Is Architecture

At this stage, the implementer should determine the business structure of the organization and its relationships with external stakeholders such as customers, suppliers, government, holding company (for affiliated companies), etc.

Some of the basic activities to be carried are:
Identifying the overall business structure: to have an overall view of the organization’s business structure, the project team should, by using available documents, determine the structure of the market in which the organization is working as well as its relationship with all stakeholders and organization’s macro and micro-environment.

Extracting organization’s business strategy components: after determining the market structure, the project team should examine the strategic components of the organization so as to identify its strategic role in the market. The business strategic plan of the organization is the reference document for this activity.

Identifying the detailed business structure: the project team clarifies the internal business structure of the organization by proceeding to a very detailed examination of its organizational structure, departmental functions (divisional or business-unit), organizational business processes (primary and support business processes) and data entities.

Extracting as-is business services: by using the output of the previous activity as input, the implementer will determine the main business services.

B2.2 IT As-Is Architecture

This step consists in identifying, within the organization, as-is 1) technical IT resources such as information systems, applications, databases, security, hardware, network, etc. and 2) non-technical IT resources such as organizational structure of IT management department (group, team, etc), decision making structure for IT investment, IT human resources and their field of experiences and expertise, etc.

B3. Analysis of As-Is Architecture

This phase encompasses the analysis of both business and IT as-is architecture. From the business side of the coin, the alignment between the company’s mission, strategies and functions on one hand and the current business process, information flow and services on the other hand should be looked upon. From the IT side of the coin, compatibility, adequateness and alignment of company’s technical and non-technical resources with business requirements should be investigated.

Depending on the project, “benchmarking” activity could be added in order to identify the best practices in terms of both business and IT.

B4. To-Be Architecture

By using the deliverables of the previous phases as an input, the implementer will document in this phase the to-be architecture of the business and IT.

B4.1 Business To-Be Architecture

According to the results of analyzing the business as-is architecture and business services developed in phase 1, the to-be business services will be developed here. Three types of business services can be expected:

- Core business services: related to primary business process (front office)
- Non-core business services: related to support business process (back-office)
- External services: related to stakeholders and organization’s environment.

These services should offer a satisfactory solution to issues raised during the analysis phase. The implementer should justify how the proposed services will meet all the strategies and business functions. To be noted that every service should have an ID for tracing inter-relations.

B4.2 IT To-Be Architecture

Depending on the previous results of analyzing the IT as-is architecture in phase 2 and according to the specifications of to-be business services, the to-be IT services will be developed in this phase. This step consists in documenting application services and infrastructure services. First of all, application services will be identified based on the business services, then infrastructure services will be determined in order to support application services.

B5. Migration Plan

In this phase, the project team will develop a plan to migrate from the as-is architecture to the to-be architecture. Some of the basic activities of this phase are:

- Gap analysis: if a gap between as-is and to-be architecture is found, the implementer should determine the basic fields of gaps in both business and IT sides and propose an action plan to suppress it.
- Identifying projects and prioritizing: according to the gaps detected, the implementer will define the projects, their sequence and prioritization, the estimated time and required resources, etc.
- Developing evaluation and updating plan: in this activity, the implementer will propose performance indicators in order to evaluate the progress of the overall plan as well as an updating plan in order to be able to modify the overall plan according to business and/or technology changes.
- Proposing IT management structure: A team, group or department is needed for managing the proposed projects (out-sourced projects and or in-house projects) and evaluating the progress and updating the overall plan. Therefore, in this activity, an IT management structure with detailed functions, job descriptions, needed
education and learning and required resources will be proposed.

C. Project management recommendations

SOEA is a transversal project that affects all of the organization’s departments. We therefore need to take into account some special considerations. In this section we recommend some managerial actions destined to SOEA project managers in order to meet the requirements of this kind of projects.

C1. Project Management Plan (PMP)

Because of the nature of EA and SOEA projects, there might be some disagreements between SOEA the project team, i.e. the implementer, and the Organization, i.e. the employer. Therefore determining the scope of the project as well as the employer’s expectations is crucial to manage potential challenges.

Four areas of challenges have been identified by [16]:

- **Technology challenges**: New skills are often required to develop the different architectural layers needed while organizations are new at implementing a technical model;

- **Program management challenges**: Because of the technology challenges, the project outcomes call for additional monitoring, leadership and decision making considerations;

- **Organizational challenges**: Because SOEA influences all of the organization’s departments and Strategic Business Units (SBUs), the focus is on the overall business processes rather than on processes specific to business units;

- **Governance challenges**: Cross-functional challenges arise from having IT components shared by several departments, and these must be managed.

The most important challenges are organization and governance because of the difficulty of getting entire organizations, or even lines of business, to change their methods, modes of communication, means of cooperating, and methods of reporting relationships. Accordingly, good program management requires clarity of scope, priorities, project plans, and deliverables. It also calls for the participation of subject-matter experts (process and technology), the communication of a shared vision, and stakeholder management. In the phase 0 of our framework, we have proposed an activity for developing PMP that is a plan for not only integrating all parts of the project also for managing this kind of challenges.

C2. Readiness Assessment

Since service orientation is a new approach, it requires some special technical and non-technical qualifications throughout the organization such as technical infrastructure, education, qualified human resources, etc. Hence, the implementer should develop a readiness assessment questionnaire for assessing the organization’s readiness based on some pre-determined measures.

The result of this study will be useful for:

- Gap analysis between as-is and to-be architecture;

- Determining project priorities;

- Identifying IT department requirement in terms of human resources;

- Recognizing education and learning plan for both IT department and business side staff.

In this regard, we could add a readiness assessment activity to the phase 2 (analysis of as-is architecture) for measuring the readiness level of the organization.

Table 1: phases, steps, activities and expected deliverables of proposed SOEA

<table>
<thead>
<tr>
<th>Phase</th>
<th>Step</th>
<th>Activity</th>
<th>Deliverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 0: Project Planning</td>
<td>Business As-Is Architecture</td>
<td>Organizing the project team</td>
<td>Project organizational structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Finalizing the scope of the project</td>
<td>Scope statement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developing project management plan</td>
<td>Project Management Plan (PMP)</td>
</tr>
<tr>
<td>Phase 1: As-Is Architecture</td>
<td>IT As-Is Architecture</td>
<td>Identifying the overall business structure</td>
<td>Business conceptual model</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extracting organization’s business strategy components</td>
<td>IT and business strategy components</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identifying detail business structure</td>
<td>Business function model, process model</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extracting as-is business services</td>
<td>and data model</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identifying technical IT resources</td>
<td>As-Is business services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identifying non-technical IT resources</td>
<td></td>
</tr>
<tr>
<td>Phase 2: Analysis of As-Is Architecture</td>
<td>Business To-Be Architecture</td>
<td>Gap analysis</td>
<td>analysis of Business and IT As-Is Architecture</td>
</tr>
<tr>
<td>Phase 3: To-Be Architecture</td>
<td>IT To-Be Architecture</td>
<td>Identifying projects and prioritizing</td>
<td>To-Be business services (core, non-core and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developing evaluation and updating plan</td>
<td>external services)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proposing IT management structure</td>
<td>Application services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Infrastructure services</td>
</tr>
<tr>
<td>Phase 4: Migration Plan</td>
<td></td>
<td></td>
<td>Gap analysis report</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Proposed projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Evaluation and updating plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IT management structure</td>
</tr>
</tbody>
</table>

C3. Change Management and learning

Introducing novel IT approaches into an organization requires organizational change and signifies that functions must be put in place to reduce resistance to this change. A transition to SOA will have an influence on several divisions and departments within an organization. [14] identified an overview about different areas being affected by the introduction of service orientation. These areas consist of: infrastructure, applications, innovation and standards, sourcing, investment and human resources.
Accordingly we could investigate the sources of changes as follows:

**IT department:** The effective implementation of service oriented architecture mostly depends on the capabilities and qualifications of the IT department. In order to guarantee a seamless transition from traditional to service oriented enterprise, knowledge about different aspects of service orientation is necessary. Therefore IT department staff should be expert in different set of technologies and methods in service orientation. Accordingly current staff of IT department who are not expert in service orientation is the first source of resistance to change.

**Business (primary and support) departments:** As we showed in previous sections, since business architecture is the first architectural layer and vital part of SOEA projects, hence the success of this kind of projects significantly depends on the way of business services documentation. Therefore the staff of business departments should be aware of the primary principals of service orientation for giving right clue to business analysts. As we know, in a classic client/server environment all the business functions documented as business processes or work flows. Therefore, this kind of changes in business analysis will create new challenges in business side and consequently resistance to change.

As we seen, the novelty of service oriented approach is the main barrier for SOEA projects. Therefore having a learning plan for educating IT and business staff about service orientation is necessary for reducing resistance to change. All of these requirements could be identified by readiness assessment questionnaires.

C.4 Portfolio of experts

SOEA has different architectural layers which require different field of experiences. Also it needs close relationship between architectural layers in order to have an overall architecture of the organization.

For linking business layer to IT related layers (application and infrastructure), business process modeling has to be done in a way that:

- Business and administration people can understand the notation and semantics of the business process model;
- the business process model forms a basis to derive a distributed service oriented IT architecture and workflow orchestration (Specht et al, 2005).

In other words, SOEA is a multidisciplinary project and its success requires using business and IT experts’ expertise at the same time. Therefore project manager have to be able to harmonize different field of experiences in such a multidisciplinary project. It could be more manageable by having two vice managers for handling “business” and “IT” part of the project.

C.5 senior management support and involvement

Success of SOEA projects highly related to achieve a general commitment of managers and organization’s key members to the project. The amount of top management support surrounding the SOEA project determines the success and failure of these kinds of projects. Senior management could have a mediator role for aligning business and IT strategies also creating a general commitment throughout the enterprise for SOEA project which leads to speed up the project. Senior manager could be a best project champion.

The project manager have to arrange some general meetings -for example kick off meeting and some meetings for presenting project’s deliverables-and invite all the organization’s managers and key members and present the project progress, requirements and explain the required and potential role of organization’s members in each phase of the project.

Also, the degree of senior management involvement is important. Senior management’s direct involvement should be bounded otherwise all the project’s activities could be affected by excessive authority resulting in unwanted deviations from pre-determined objectives. In other words, not enough or too much senior management involvement would be a reason of SOEA projects’ failure.

IV. Conclusion

The service-oriented architecture (SOA) approach is the latest in a long series of attempts in software engineering that affected the way of business analysis as well. Enterprise Architecture (EA) is a framework for documentation, analysis and planning organization’s business and IT aspects. Therefore, these two concepts closely tie together. Their combination creates a seamless framework for documenting organization’s business and IT aspects by utilizing service oriented approach, the so-called Service Oriented Enterprise Architecture (SOEA).

Based upon the EA, SOA and SOEA literature we have proposed a framework to determine the global structure of a SOEA which finds its roots in the Federal Enterprise Architecture Framework (FEAF), the Project Management Body of Knowledge (PMBOK) as well as on their authors’ experiences in EA projects. This framework consists of three architectural layers (business, information systems and infrastructure), one planning phase and four practical phases.

We have covered these three architectural layers in order to have an overall architecture of the organization as well as an alignment between IT applications and business needs. Our proposed framework relies on a sequential approach. After planning the roadmap of the SOEA project, an As-Is architecture has to be determined that consists of a business and an IT architecture. Afterwards, based on some predetermined measures (extracted from business and IT strategy), the As-Is architecture is to be analyzed. The next phase consists in
defining the To-Be architecture, of the business and IT architecture. Finally, an action plan has to be developed in order to be able to migrate from the As-Is to the To-Be architecture.

Last but not least, and in order to guarantee the success of SOEA project, we have made some managerial recommendations insisting on aspects such as the need for building a robust project management plan and proceeding to readiness assessment, making sure that a portfolio of experts is available and that experts can be mobilized, giving very special attention to change management. Above all a champion, incarnating strong senior management support should be directly involved.

REFERENCES


