

## EA and ESOA: Relationship – Part 1

### Applies to:

Enterprise Architecture (EA) and Enterprise Services Oriented Architecture (ESOA).

### Summary

This paper is first of a two part article that looks into the relationship between two of SAP's major initiatives; EA and ESOA. In this part, let us go into the overview of both EA and ESOA highlighting how they relate to one another.

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## Executive Summary

Enterprise SOA is a new architectural paradigm that revolutionizes the design of business applications by enabling rapid composition of business solutions. ESOA also brings a new set of challenges for organizations to have the necessary management system and governance in place to implement the solutions necessary for the adoption of ESOA.

Enterprises need the right set of methods and tools to adopt ESOA and the Industry analysts also have recognized that Enterprise Architecture is something that SAP needs embrace to drive ESOA and make it a success. Increasingly Enterprise Architects are evolving to be a key stakeholder group which makes decisions regarding platform selection and adoption of ESOA. To fulfill these external drivers, SAP started an Enterprise Architecture initiative and a key cornerstone of this initiative is the launching of “SAP Enterprise Architecture Framework (EAF) for ESOA” during SAPPHIRE 2007. SAP EAF is based on, The Open Group Architecture Framework (TOGAF) with numerous extensions to support the adoption of ESOA.

This paper is the first part in a two part article and the overall intent here is to provide an overview about EA & ESOA, their similarities and how they complement each other. In the second part of this article, we will look at one specific aspect namely *Services modeling* method prescribed by SAP EAF and ESOA approaches.

## Basic Definitions

Before proceeding with the article, it is important to provide some basic definitions of the following industry and SAP standard terms.

*Web Service (WS)* - Web Service is a mechanism of encapsulating an application's functionality and exposing the functionality through an interface that is platform independent and based on open standards.

*Service Oriented Architecture (SOA)* – SOA is an architectural style or pattern that integrates application components via loosely coupled, implementation/protocol independent and location agnostic Services.

*Enterprise Service (ES)* – An *Enterprise Service* in simple terms is a *Web Service* that provides enterprise-level business functionality. Similar to a web service, an enterprise service is also based on open standards but is structured according to a harmonized enterprise model based on business objects, process components, and global data types (GDT). Another key difference is that an ES is identified at a business level that supports business processes.

## EA & ESOA

What is Enterprise Architecture (EA)? – It is a key architecture discipline that considers an entire enterprise as a value chain or a system with an overarching goal to manage the enterprise's complexity. It is a mechanism for enabling design, development, communication and an overall understanding of the enterprise. EA discipline helps to align business processes, information system architecture and technology architecture of the enterprise to its business vision and strategy.

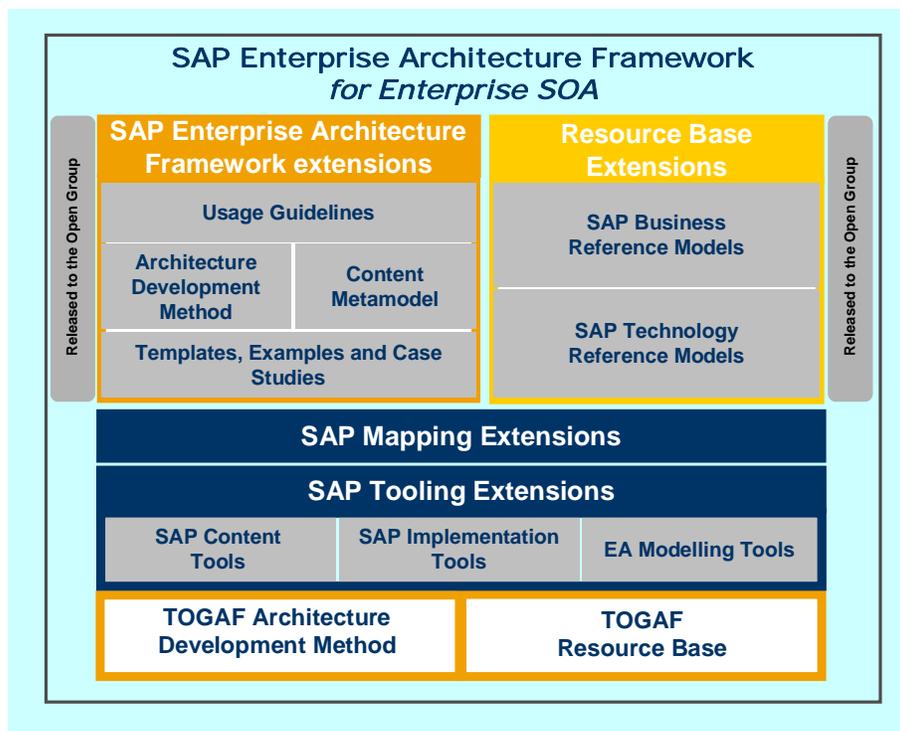
EA facilitates the understanding of an enterprise in its totality and focuses on both the architectural and contextual elements of an enterprise. It has methods and artifacts that explicitly define the relationship between business processes, information system and technology architectures. One of the primary outputs of developing enterprise architecture is the development of a roadmap specific to the enterprise's business strategy. This roadmap clearly identifies the initiatives that are needed and spells out the sequence of their execution to enable an enterprise transform from its current state to a desired future state.

In addition, the EA developed provides the necessary context, structure and implementation governance to all initiatives within an enterprise which describes “Why” business needs a specific initiative, “What” the initiative is, “How” to go about carrying out the initiative and finally “with what” the initiative will be realized. EA discipline will support the enterprise to manage the transformation in a highly planned and controllable way.

*Enterprise Services Oriented Architecture (ESOA)* - Enterprise SOA is SAP's business oriented version of SOA (Service-Oriented Architecture) and SAP's blueprint for developing flexible and services based business solutions. ESOA enables the rapid composition of business solutions by encapsulating business logic and expose it as enterprise services. ESOA supports reassembling smaller functionality components and to develop new innovative business solutions that meet ever changing business requirements. Simply stated ES + SOA = Enterprise SOA. In this equation, Enterprise Services differentiate ESOA from plain SOA. Enterprise SOA provides business with a sound IT strategy and a sound top-down approach to define enterprise services and also to guide the deployment of Web services at a business process level. An important point is that while Enterprise SOA guides SAP solutions to become Services compliant, it is also addressing IT landscapes at large, unifying both SAP and non-SAP systems in one architecture. It is important to note that Enterprise SOA is not a product but rather describes SAP's approach to service-enablement, which is physically enabled by the open technology platform SAP Net Weaver.

## SAP EAF

SAP Enterprise Architecture Framework (EAF) with its extensions offers more clarity by providing clear definitions of key terms and processes, contains an explicitly defined *metamodel*, templates to develop the required artifacts, usage guidelines and examples. It contains an Architecture Development Method (ADM) which is closely patterned on TOGAF ADM, offers a robust SAP business and technical reference models and a detailed case study to demonstrate how the framework can be applied to the needs of an enterprise.



In short, SAP EAF is designed to expedite the development of EA for enterprises that have significant investments in SAP products already or seriously planning to invest in SAP products and services. SAP EAF enables enterprises to re-use SAP's a product architecture and provides a foundation to adopt ESOA.

## EA & ESOA – What is the Relationship?

It is imperative to establish that both EA and ESOA have enterprise wide impact and embrace the re-use of functionality and *Services* and support the idea of “build” where necessary. They represent much more than simply “Architecture” and address non-architectural aspects such as goals, objectives, drivers and measures. At a high level they both represent the blueprint to the future state of the enterprise or a segment of an enterprise. Both EA and ESOA must be a business led exercise to succeed and garner enterprise wide support. They both require backing and commitment from senior management.

*What EA Offers ESOA?* - The development of Enterprise Architecture provides the definition of initiatives and prioritization of those initiatives with each of these initiatives realized via ESOA solutions. EA guides the development of the Solution Architecture of those individual ESOA initiatives. In other words EA defines the architectural requirements that can be fulfilled by individual ESOA initiatives. EA provides a complete business-IT traceability and supports the alignment of *Enterprise Services* with other enterprise wide *Services* within each architecture domain (business, data and platform services). EA enables the trace of enterprise services to business goals/objectives and strategy.

One of the key benefits of EA is that it optimizes application and data portfolio at the enterprise level by defining the strategic architecture and helps enterprises avoid applications that have duplicate business functionality and data structures that duplicate enterprise information. EA provides the necessary Context, Structure and Governance for the individual initiatives and their solution development that would transform the enterprise from its current state to the desired future state. From the “context” perspective, EA helps to define the business vision, goals and objectives and prescribes the development of Principles & guidelines that will guide the subsequent architecture development. EA drives the establishment of standards and guidelines that need to be followed for individual ESOA initiatives. From the structure perspective, EA requires the development of business; application and data architecture models that can help understand current state of the enterprise. EA *Services* modeling can guide and enhance *Enterprise Services* modeling (addressed in Part 2 of this article and provide an additional dimension/depth to model the architectural assets of an enterprise.

*What ESOA offers EA?* - ESOA can be a starting point for application architecture principles and guidelines. ESOA and in general SOA has expanded the concept of *Service* orientation to other architectural domains within an enterprise. In other words, what is good for applications is good for business as well. The notion encapsulating functionality and exposing it as a *Service* can be expanded to the following as well

- *business service* (business domain) – Defines what a business does (capability)
- *platform service* (technology domain) - Enterprise wide authentication and Single sign on service
- *data service* (Information system domain) - Enterprise wide application/data security service, Enterprise wide data back up service, Enterprise wide Master data creation and maintenance service

EA discipline, by employing SAP EAF, offers enterprises with a structured approach to *identify* the changes that are needed to realize their strategy, *define* what those changes are and finally guide/govern the *implementation* of those changes. ESOA also offers a structured approach to develop flexible and open *Services* based solutions for the change initiatives identified and prioritized during the development of enterprise architecture. In any case, SAP offers the methods, tools, approach, techniques to develop both enterprise architecture and solutions that will assist customers to adopt ESOA.

## Related Content

1. SAP Enterprise Architecture Framework (currently available from SAP Roadmap Composer and Solution Manager)
2. SAP ESOA Roadmap Methodology (currently available from SAP Roadmap Composer)

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