Article

Enterprise Architecture, IT Service Management and Service Oriented Architecture: relationships, approaches and operative guidelines (part 1 of 2)

By Carlo Randone

Abstract
*Enterprise Architecture, IT Service Management (and Governance) and Service Oriented Architecture are current topics, widely discussed in the information technology departments and professional publications. In addition, many companies have been (or are) involved with the adoption of at least one of these innovations. While each of these elements can be considered in its own right, it is in their relationships, and more or less strong intersections, that interesting opportunities and synergies can emerge, potentially even with some specific issues to manage. The focus of this **two part** article is just that: to show the relationships, approaches and operative guidelines related to the synergic adoption in an IT organization and/or in an Enterprise of concepts from the Enterprise Architecture (EA), IT Service Management (ITSM) and Service Oriented Architecture (SOA) domains.*

Keywords
Enterprise Architecture, EA, IT Service Management, ITSM, Service Oriented Architecture, SOA

Introduction

Paraphrasing the title of the famous book Gödel, Escher, Bach: An Eternal Golden Braid (commonly also known simply as “GEB”) by D. Hofstadter [1.1], this article could have been titled “Enterprise Architecture, IT Service Management, Service Oriented Architecture: An Eternal Golden Braid”. Apart from the pun, it’s a matter of fact that the these three concepts are all fundamental aspects to consider in managing any modern medium-large information technology (IT) organization.

Enterprise Architecture, IT Service Management (and Governance) and Service Oriented Architecture are current topics, widely discussed in the information technology departments and professional publications. In addition, many companies have been (or are) involved with the adoption of at least one of these innovations. While each of these elements can be considered in its own right, it is in their relationships, and more or less strong intersections, that interesting opportunities and synergies can emerge, potentially even with some specific issues to manage. The focus of this article is just that: to show the relationships, approaches and operative guidelines related to the synergic adoption in an IT organization and/or in an Enterprise of concepts from the Enterprise Architecture (EA), IT Service Management (ITSM) and Service Oriented Architecture (SOA) domains.

Figure 1 shows the conceptual intersections between the three knowledge area in scope, and highlights some interesting overlaps between them. In particular, the figure want to synthesize the fact that the “whole” area of overlap and intersection (labeled here with the number 4) can also “explained” – if it’s more viable from an analytical and practical point of view – in terms of the three “simple” intersection numbered from 1 to 3. It’s a fact that there are some articles – in the not so large bibliography on this subject – about the areas 1, 2 and 3, but only a few describes directly the whole intersection.

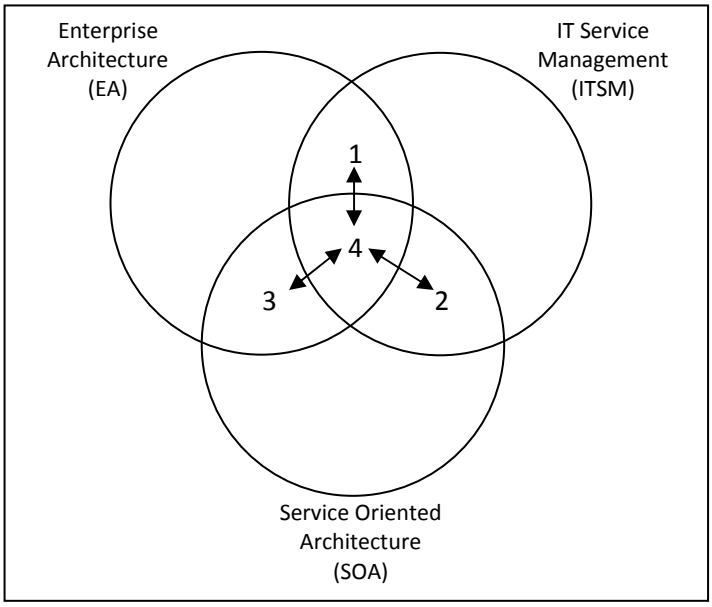

Figure 1: Relationships between EA, ITSM and SOA

(Note that the situation depicted in Figure 1 must be considered only from a conceptual point of view; at different times, an organization can leverage initiatives also in only one or two of the three area in scope. Also the "size" of the intersection areas are only illustrative. In some scenarios, as described in the article, one or more of these three sets can also be totally "contained" in another one).

This article is organized as follows:

- A brief introduction to each one of the three main topics: Enterprise Architecture (EA), IT Service Management (ITSM) and Service Oriented Architecture (SOA). This is not an article about these knowledge areas considered on their own, so this section must be considered just a "recap" of the main definitions and concepts in scope. References cited provide additional details.
- A contextualization of the discussion along the intersections between each pair of the concepts presented (that is the intersections numbered 1, 2 and 3 in the Figure 1). These analysis conclude this **first part** of this article.
- The **second part** of the article start with a description of the whole interaction between the three topics (the intersection numbered as 4 in the Figure 1), followed by a "Conclusions and further research" section.
- At the end of the article a rich **References** section contains a tailored set of useful links to other information sources and detailed contents. With regard to the relationships and overlaps between EA, ITSM and SOA discussed in this article, the specific literature is not so large, and in the References sections there is a selection of specific documents on this subject.

The article's leitmotif is focused not only on the relationship between the three subject area is scope, but try to cover also some practical approaches and operative guidelines, frequently emerged from consulting and delivery projects.

Enterprise Architecture

IBM's Enterprise Architecture Consulting Method [2.2] defines **Enterprise Architecture** (**EA**) to be:

"The definition, maintenance and use of the architecture **models**, **governance** and **transition initiatives** needed to effectively co-ordinate semi-autonomous groups (stakeholders) and/or individuals towards common business and/or IT goals".

The definition was crafted carefully to highlight that EA is more of a discipline than just an architecture. It also intended to capture the need for an EA to link an enterprise's business strategy to its change programs through the definition of:

- Architecture models to capture the business' intended structure (through a business architecture) and to provide a clear specification of how multiple projects and programs must exploit information technology (through common, and explicit, IS and IT architectures).
- Mechanisms, such as architecture governance and transition planning, to help plan, coordinate, and control all parts of the business, ensuring they all pull in the same direction.

It is thus through EA that an enterprise can determine how its business strategy should capitalize on an "On demand" opportunity by identifying which parts of the business are well placed to exploit it (the business architecture), how to exploit it (the IT architecture) and how to achieve it (the Governance). In this sense, an Enterprise Architecture is a framework for making IT investment and design decisions in support of business objectives: EA aligns the vision of the business with the technical requirements, guiding investment and design decisions.

Figure 2 (from [2.2]) depicts a framework developed as part of the IBM Academy of Technology Study on EA that addresses all the concepts mentioned in the proposed definition and shows how EA is positioned as the link between the enterprise strategy (both business and IT) and the business operating environment and IT infrastructure.

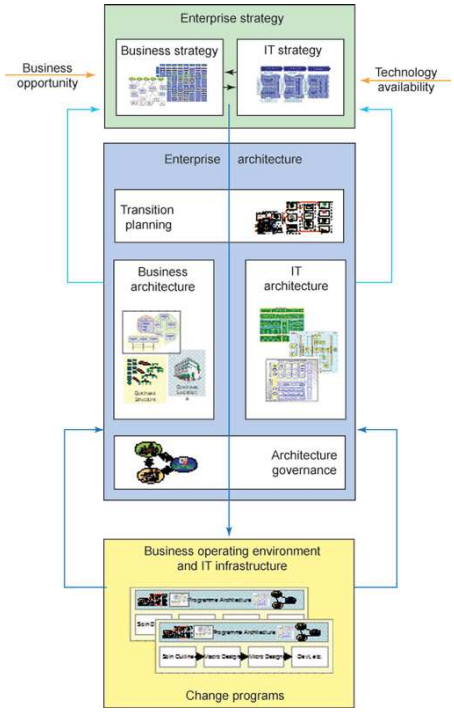

Figure 2: IBM EA framework

Note how the "**[Enterprise] Architecture Governance**" – with related processes, involved roles and supporting technology infrastructures – is one of the fundamental part that defines an Enterprise Architecture. For example, in the IBM Enterprise Architecture Consulting method the Architecture Management Process Framework is composed by four core Governance Processes (Exception, Approval, Vitality and Communication) that must be defined and managed, according to EA Principles.

Other sources defines EA with different words. For example, Gartner [2.3] defines EA in these terms:

"Enterprise architecture is the process of translating business vision and strategy into effective enterprise change by creating, communicating and improving the key principles and models that describe the enterprise's future state and enable its evolution. The scope of the enterprise architecture includes the people, processes, information and technology of the enterprise, and their relationships to one another

and to the external environment. Enterprise architects compose holistic solutions that address the business challenges of the enterprise and support the governance needed to implement them”

Apart from the definitions, it is important to note here that these definitions are similar, and – even more important – that there is a consistent intent in explaining the EA concept.

TOGAF – The Open Group Architecture Framework – [2.1] is a framework for enterprise architecture which provides a comprehensive approach for designing, planning, implementation, and governance of an enterprise information architecture. TOGAF is a registered trademark of The Open Group. TOGAF is a detailed method and a set of supporting tools for developing an Enterprise Architecture.

TOGAF is based on four pillars, called architecture domains:

- **Business architecture** or business process architecture which defines the business strategy, governance, organization, and key business processes of the organization
- **Applications architecture** which provides a blueprint for the individual application systems to be deployed, the interactions between the application systems, and their relationships to the core business processes of the organization with the frameworks for services to be exposed as business functions for integration.
- **Data architecture** which describes the structure of an organization's logical and physical data assets and the associated data management resources
- **Technical architecture** or **technology architecture** which describes the hardware, software and network infrastructure needed to support the deployment of core, mission-critical applications

Note that considering the TOGAF 9.x documentation, Applications architecture and Data Architecture are part of the TOGAF “Information Systems Architecture” domain.

TOGAF is considered as being the most popular open EA method/model/framework, and is often used “in tandem” with other methods, like for example the IBM Enterprise Architecture Consulting method.

One of the key driver in the definition of an “actionable” Enterprise Architecture (and a recognized best practice in the field) is the formalization of a set of Enterprise Architecture **Principles**. This approach is pursued for example by TOGAF and also by the IBM Enterprise Architecture Consulting method.
Principles are general rules and guidelines, intended to be enduring and seldom amended, that inform and support the way in which an organization sets about fulfilling its mission.
In their turn, principles may be just one element in a structured set of ideas that collectively define and guide the organization, from values through to actions and results.
Depending on the organization, principles may be established within different domains and at different levels.

Also SOA (and SOA Governance) and the IT Service Management must base their definition on a set of explicit and possibly formalized principles. So, the “principles” can become an interesting relationship element between these different domains.

IT Service Management

IT Service Management (see also [3.1] and [3.2]) is the strategy to let companies automate their key IT processes and to provide IT services according to best practice approaches, such as – for example – the well known Information Technology Infrastructure Library (**ITIL**). ITIL is a public domain description of how to manage IT processes.

IT Service Management is often equated with the Information Technology Infrastructure Library, (**ITIL**) [3.3] an official publication of the Office of Government Commerce in the United Kingdom. However, while a version of ITSM is a component of ITIL, ITIL also covers a number of related but distinct disciplines and the two are not synonymous.

IT Service Management's goal is to reduce the time needed to deliver a company's IT services according to business policies. IT Service Management reduces the labor cost of the people involved in executing the processes by replacing manual IT process management with autonomic management. The IT Service Management strategy models the processes of an IT service and automates the activities involved in the processes by integrating systems management tools into the execution of the process steps.

IT Service Management represents an evolution from managing IT as a technology to managing IT as a business. This evolution is illustrated in the graphic (see Figure 3, from IBM Tivoli Unified Process, [3.4]). As businesses move toward On Demand environments, IT organizations are faced with the daunting challenge of increasing the quality of services provided to business, while simultaneously addressing faster rates of change, rising technical complexity, cost pressures, and compliance issues. With traditional resource and system management approaches, providing effective support for business and efficient use of IT resources is proving impossible. IT Service Management provides for the effective and efficient delivery of IT Services in support of changing business needs.

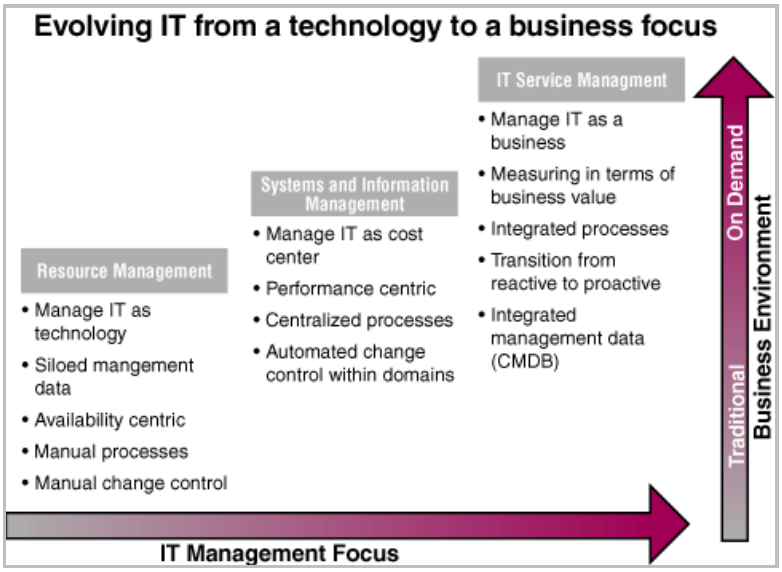

Figure 3: Evolving IT from a technology to a business focus

Implementing IT Service Management requires the optimal intersection of people, process, information and technology. When all of these components come together, they can make IT more efficient and effective.

In synthesis the main objectives of ITSM can be described as follows:

- Aligns IT Services with the needs of the business and its customers
- Continuously improves the quality of IT Services
- Reduces the long term costs of IT Services
- Identify new Service opportunities to support the business

A variety of different process frameworks and initiatives exist in the IT industry, including ITIL, COBIT, Six Sigma, and others. These frameworks and initiatives all describe how to perform important IT functions, but from different perspectives. ITIL is widely accepted standard in the Industry.

ITIL is de facto standard for service management built on industry "best practice", and is essentially a series of documents that are used to aid the implementation of a lifecycle framework for IT Service Management.

ITIL v3 is organized into five core publications, that revolve around the service lifecycle. These provide best practice guidance for an integrated approach to IT service management.

The five core titles are:

- Service Strategy
- Service Design
- Service Transition
- Service Operation
- Continual Service Improvement

IBM **PRM-IT** and **ITUP** (see also [3.4]) may be shown as examples of a more "prescriptive" and operational model, however still aligned to ITIL:

- **PRM-IT**: **IBM Process Reference Model for IT**
  - PRM-IT is a comprehensive model, covering all of the activities under the purview of the office of the CIO. In the area of IT Service Management, which is the focus of ITUP, PRM-IT is tightly aligned with ITIL version 3.
  - PRM-IT provides a formal treatment of the more conceptual process descriptions in ITIL V3
- **ITUP**: **IBM Tivoli Unified Process**
  - IBM Tivoli Unified Process (ITUP) provides detailed documentation of service management processes based on industry best practices.
  - ITUP is a web-based tool used to implement ITIL-based IBM Service Management (ISM)
  - Customizable version is called ITUP Composer
  - IBM Tivoli Unified Process (ITUP) is based on the IBM Process Reference Model for IT (PRM-IT), which was jointly developed by IBM Global Services and Tivoli

Note that the differences between IT Governance and IT Management are not always clear. However, although there may be a mere thin dotted line separating IT Governance from IT Management, there is a fundamental difference between IT Governance and IT Management that goes well beyond theory, which has profound implications for the design and effectiveness of IT Governance in practice. According to [3.5], whereas the domain of IT management focuses on the efficient and effective supply of IT services and products, and the management of IT operations, IT Governance faces the dual demand of (1) contributing to present business operations and performance, and (2) transforming and positioning IT for meeting future business challenges (Figure 4).

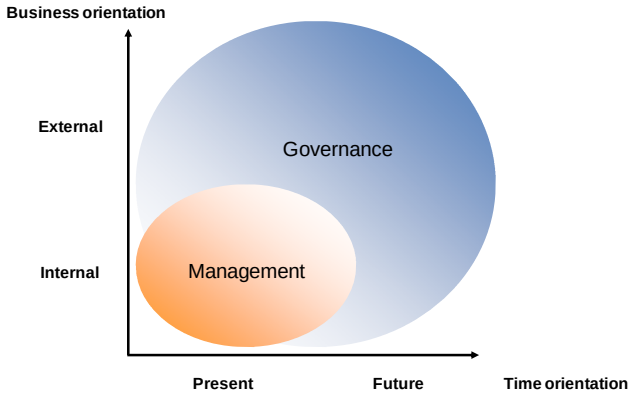

Figure 4: IT Governance and IT Management

In other words, IT management is focused on the effective and efficient internal supply of IT services and products and the management of present IT operations. IT governance, in turn, is much broader and concentrates on performing and transforming IT to meet present and future demands of the business (internal focus) and business customers (external focus). To simplify, for the purposes of this study the term "ITSM" will define the set of issues related to management and governance of IT, if not differently specified.

Service Oriented Architecture

As described in the IBM SOA foundation white paper, "... service orientation is a way of integrating a business as a set of linked services." [4.5].

There are a lot of definitions of "Service Oriented Architecture" (see also [4.1]). Open Group (in the TOGAF documentation), for example, propose a more complex definition, in which there is an explicit focus on the concept of "architectural style":

"The concept of an SOA provides an **architectural style** that is specifically intended to simplify the business and the interoperation of different parts of that business. By structuring capability as meaningful, granular services as opposed to opaque, siloed business units, it becomes possible to quickly identify functional capabilities of an organization and to avoid duplicating similar capabilities across different areas of the organization. By standardizing the behavior and interoperation of services, it is possible to limit the impacts of change and also to understand in advance the likely chain of impacts".

IBM propose also a "constructive" definition that includes different points of views, as shown in Figure 5.

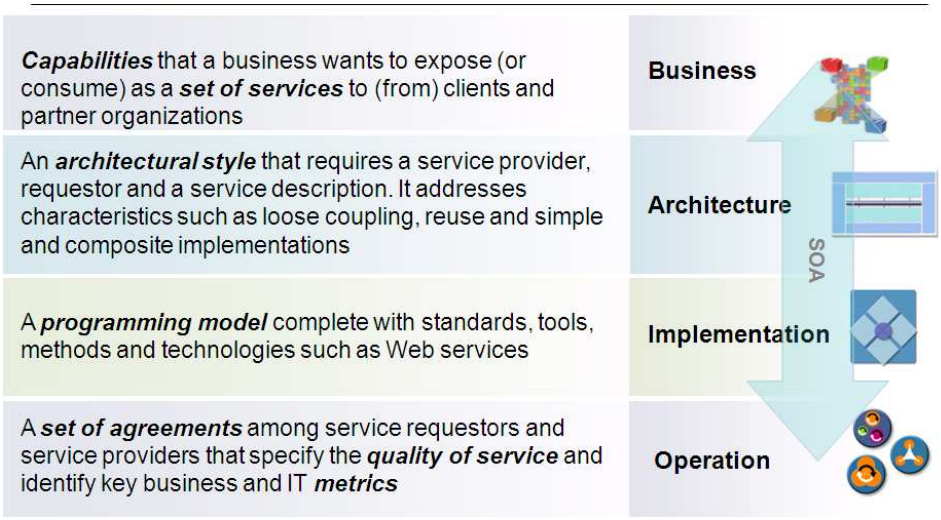

Figure 5: SOA defined from different viewpoints

Business process flexibility through the adoption of shared services requires that organizations adopt an end-to-end governance model. Based on several projects, our experience demonstrates that implementing
an end-to-end **SOA governance** model leads to an accelerated business outcome (e.g., a new product or enhanced capability) and provides benefits such as flexibility in sharing that enable it to respond to unforeseen events or new lines of businesses or applications without having to change the deployed service. SOA Governance is an extension of IT Governance in order to develop and manage SOA and services lifecycle, metadata and applications within a Service-Oriented Architecture.

An SOA governance model is simply a framework that enables an organization to come to a consensus on the scope of SOA governance and its definition and use. It can be a schematic diagram that represents the governing ideas and candidate building blocks for SOA governance. Governance models can take different forms and provide different views, but the purpose of a model is to provide the basis for discussing SOA governance.
The following Figure 6 (from [4.4]) shows a possible tailoring of the IBM SOA Governance and Management Model (SGMM), presented here as a practical and operational example of a governance model for a "Service Oriented" architecture.

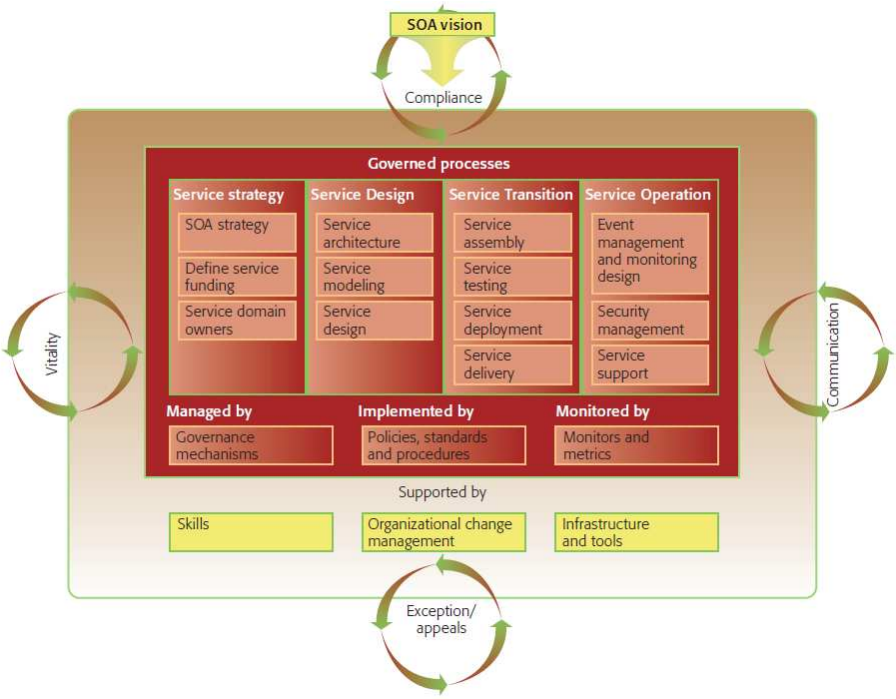

Figure 6: The IBM SOA Governance Model

The SOA governance model provides a useful construct for both determining what must be accomplished and for illustrating the key components of governance that should be considered and evaluated for applicability. The model provides an overview of the main SOA conceptual elements and relationships that should be considered when implementing solutions that adopt SOA. Because communication is its main purpose, it is more important that the SOA governance model be simple, brief, clear, and understandable than comprehensive or accurate in all details. Consequently, the diagram of the model uses an informal rich picture notation and includes supporting text that explains the main concepts of SOA governance.

The IBM SOA Governance and Management Method (SGMM), is aligned with IBM PRM-IT, and PRM-IT is fully aligned with ITIL. So, the IBM SOA Governance method is well aligned with ITIL using PRM-IT, to ensure that SGMM is fully aligned with industry standards. See also [4.3].

The already introduced – speaking about ITSM – difference between “governance” and “management” is significant also in the SOA context. SOA Governance is more about the strategic aspects of SOA. That is, the definition, communication, enforcement, and maintenance of policies, organizational structure, roles and processes needed to control the ownership, identification, creation, categorization, consumption, and proliferation of services. SOA Management is more about the tactical and operational aspects of the services life cycle and SOA.

Note that the concept of “Service” in ITSM is different from the “SOA Service”. In ITIL (and in ITSM in general) a “Service” is means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks. In SOA, instead, we can consider these two “level” of service definition (see also [4.6]):

- From a **business perspective**, a service is a well-defined, encapsulated, reusable, business-aligned capability. A service operation is the elementary part of a service and specifies the associated inputs, purpose (function, duty or obligations), and outputs (artifacts, products, outcomes, or deliverables). A service is fully defined by a service description, a published document or artifact that outlines the overall objective of the service and its inputs, purpose, outputs, scope, responsibility, governance, sustainability (provision period, maintenance, and repair), and qualities of service provisioning.
- From an **information technology (IT) perspective**, a service is a discoverable, invocable software resource that has a service description and interface and is configurable using policies.

The service description is available for searching, binding, and invocation by a service consumer. The service description implementation is realized through a service provider that delivers quality of service (QoS) requirements for the service consumer.

Relationships between Enterprise Architecture and IT Service Management

Some articles, whitepapers and academic studies are available in literature about the interesting relationship between the Enterprise Architecture and the IT Service Management. Most of these sources specifically mention TOGAF as EA framework and ITIL as IT Service Management reference model (see for example [5.2]). However, applying a principle of abstraction, most of the considerations about the relationships between TOGAF and ITIL can be applied more generally to the EA and ITSM areas. It's important – in this case – to highlight that the main ITIL books in scope for this comparison are those mainly related to ITSM, namely "Service Support" and "Service Delivery". As mentioned also in [5.1], in their current versions TOGAF and ITIL appear to have entered into each other's domains.

The joint adoption of EA and ITSM techniques as closely interrelated concepts sometime is presented and described in executive guides and studies. For example, in [5.5] the United States General Accounting Office, describing the "Information Technology Investment Management" (a Framework for Assessing and Improving Process Maturity) states that the concurrent evaluation and development of both IT investment management processes – key processes of IT governance – and EA can "greatly increase the chances that an organization's operational and IT environments will be pursued in a way that optimizes mission performance". This kind of concept is also exploited for example in [8.3]. Generally speaking, however, in agreement with [8.3], the literature often does not emphasize that the concepts are related.

A common way to look at their domains of interest, and their role in the organization as a whole, is depicted in Figure 7 (adapted from [5.1] and [5.4]):

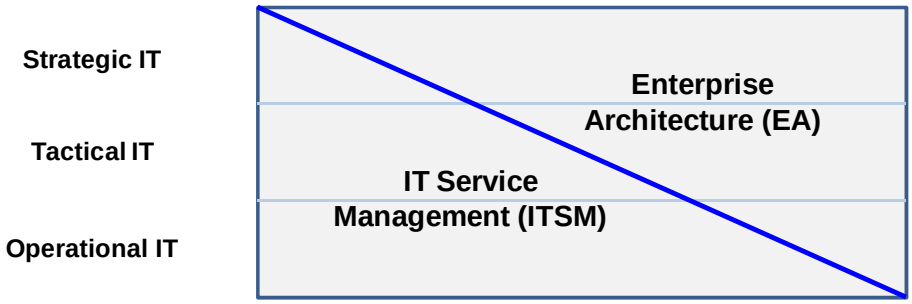

Figure 7: The domains and roles of ITSM and EA within an organization

This picture shows, in eidological form, the dependency between EA work/progress and ITSM work/progress.

Figure 8 (adapted from [5.1]) depicts where ITIL and TOGAF can be placed on a continuum, from primary business processes to delivering and maintaining IT services.

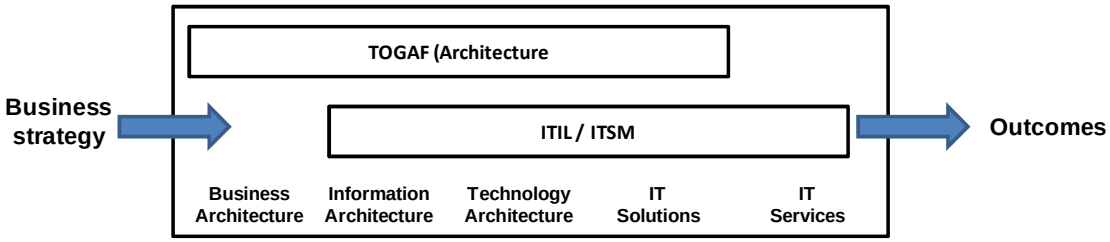

Figure 8: The scope of ITIL and TOGAF on a business continuum

In summary, we can say that the main areas of relationship between Enterprise Architecture and IT Service Management, and the key points that must be considered, are the following:

- ITIL (as an example of ITSM) was developed to support Service Management and TOGAF (as an example of EA framework) was developed to support organizations in the development of Enterprise Architecture. The focus of ITIL is therefore on services (in the "ITSM-meaning"), whereas TOGAF is focused on architecture. However, since services have become part of fast-changing organizations, the prediction of what will be needed tomorrow is of growing interest to the people that deliver these services.
- In general, there is a dependency relationship between EA maturity and ITSM maturity. Organizations moving up through different in EA maturity levels need also to be progressing through ITSM maturity levels.
- EA work tends to focus more on strategic IT issues, while ITSM work tends to focus more on operational IT issues.
- There are several benefits to collaboration between EA and ITSM teams. Some of the salient benefits are:
    - Organizational learning – the two teams can learn from each other and thereby have a greater impact on their enterprise (both the Business and IT side of their enterprise).
    - Avoid duplication of effort – you do not want both teams to be developing ITSM architecture in parallel without being cognizant about the other team's effort.
    - Re-use of documentation and other outputs – EA Process outputs are useful as ITSM Process inputs and vice versa. Constant communication and collaboration are required to exchange information and insights.
    - Cross-training between the two teams can help with collaboration at a deeper level and improvement of morale (keep them excited about their jobs).
    - Collaboration via integrated toolsets can help in developing and maintaining a consistent view of the Enterprise Processes and Services (EA) and IT Processes and Services (ITSM).
    - EA and ITSM Maturity Model planning and implementation can happen in a coordinated and integrated fashion. In other words, the target EA and ITSM architecture can be planned and implemented with a coordinated and integrated method.
- Running IT operations and delivering actual IT services are within the scope of ITIL (as demonstrated in the Service Operation volume). TOGAF does not cover the development and maintenance of a run time environment. How services are actually produced and delivered is not covered in TOGAF.
- TOGAF should be considered as being on top of ITIL as it covers the product conception lifecycle, and ITIL as the way product services are managed for users and customers
- A well developed and documented EA is a very valuable basis for ITSM. EA provides an overview of the IT infrastructure, software components and applications, the support of business processes and customer processes, as well as the dependencies between these key components.

Relationships between IT Service Management and Service Oriented Architecture

It's now well accepted that there are clear synergies between the management of IT service delivery and that of the SOA lifecycle. When IT services (often called IT processes), such as incident, problem and

change management, are formalized, SOA run-time issues can be addressed in a more consistent and efficient manner. See for example [6.1].
Version 3, the most recent of ITIL, has reorganized the framework to support a lifecycle view of IT services that parallels the lifecycle for software development and SOA. The result is significant potential synergies between the SOA governance and ITIL version 3 lifecycles that could codify points of interaction between the teams managing SOA and IT infrastructure.

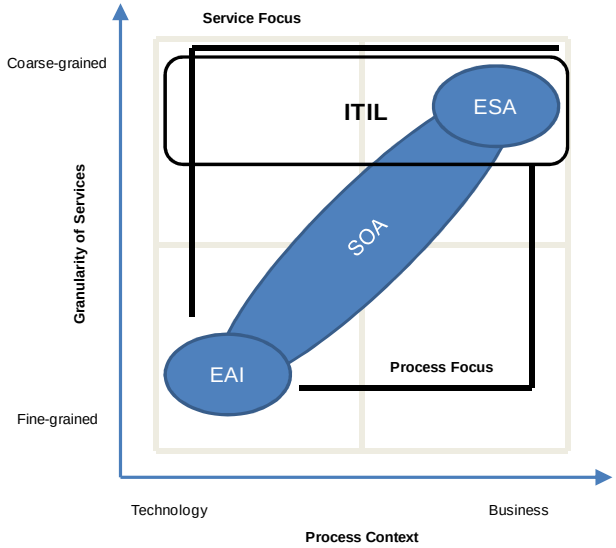

Figure 9: Service perspectives in ITIL

Figure 9, adapted from the ITIL Service Strategy book, states that all services, whether they are IT Services, business services or services based on Service oriented Architecture (SOA), Enterprise Services Architecture (ESA) or Enterprise Application Integration (EAI), are members of the same family. They may differ by granularity (fine versus coarse) or by context (technology versus business). They each provide a basis for value and require governance, delivery and support. ITSM and BSM (Business Service Management) are each perspectives on the same concept: service management.

In summary, we can say that the main areas of relationship between IT Service Management and Service Oriented Architecture, and the key point that must be considered, are the following:

- Considering for example the SOA Governance model depicted in Figure 6, the main processes in which there are significant elements of overlap with ITSM are the following:
  - The Service Delivery process
  - The entire “Service Operation” processes group
- As recommended also in sources like [6.2] (but is only one of possible examples) SOA governance and ITIL have clear synergies that can significantly improve the effectiveness of managing and governing the SOA run-time. See for example [6.4] for some practical examples of SOA run-time governance and related IT supporting tools.
- The convergence of an ITSM approach with SOA is that as the loosely coupled, composable SOA services come into play, the service support and service delivery processes can manage and support them per ITIL guidelines. As a simple example, what would the incident management process be on a “get currency rate” SOA service built using technology such as Web services?
- On the flip side, you can implement ITSM services such as DBA support in a more service-oriented manner, learning from the concepts of SOA. If you think about it, SOA and ITSM are less likely to be successful without each other. The ITIL can be the glue that ties them together.
- The challenges to implementing SOA and the ITIL (with or without each other) remain the same. In both cases, technology is probably the easy part. The biggest challenge is (frequently) the culture change required in most organizations. The business must begin thinking “services”.
- There are several guiding principles of SOA that are directly served by an effective implementation of ITIL. If a set of SOA initiative is already started, usually a set of “SOA principle” was defined,

and the ITSM framework can be designed to address this principles. On the other end, ITIL defines a framework of best practice guidance for IT Service Management, which is a framework for the governance of IT, and version 3 of the framework, while developed specifically for IT, can be used as a general governance strategy for SOA. The IBM SOA Governance model (SGMM), for example, is well aligned with ITIL (through the intermediation of the PRM-IT model).

- ITIL Services are different from Services Oriented Architecture (SOA) Services. The ITIL definition is
  "A service is a means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific cost and risks" (from the ITIL book "ITIL Service Strategy").
  The main difference is that an SOA service is a software component in SOA. It is not the service that a help desk provides when they reset your password and it is generally smaller than a whole payroll system. IT Service Management (ITSM) under ITIL however can provide an appropriate means for providing governance for your SOA and for providing the operational platform for your SOA. SOA may contain more component parts than traditional systems and a disciplined approach to configuring, operating and changing these parts is required which is exactly what ITIL offers.

Relationships between Enterprise Architecture and Service Oriented Architecture

In general, we can view Service Oriented Architecture (SOA) as a subset of EA, as SOA represents an architecture style of designing applications architecture, whereas EA is concerned with more than that. SOA, therefore, is more associated with the Enterprise Business Architecture (Business Processes and Business Services) and Enterprise Application Architecture. See also [7.3].

According to TOGAF, Enterprise architecture provides frameworks, tools, and techniques to assist organizations with the development and maintenance of their SOAs (see also [7.1] and [7.2]). Enterprise architecture becomes a foundation for service-orienting an organization, because it links stakeholders together, ensuring that the needs of each stakeholder community are met and that each stakeholder community is aware of appropriate context. This linkage is the foundation for interoperability and re-use.

In general, there are some different kind of relationships that can be described speaking about "Enterprise Architecture" and SOA (or SOA Governance) in an enterprise context:

- EA Principles and SOA Governance Principles
- EA Governance Processes and SOA Governance Processes (and relationships between EA Metrics/KPI and SOA Governance Metrics/KPI)
- EA Governance Roles and SOA Governance Roles (SOA Center of Excellence – CoE)
- SOA Elements in the Applications and ABB – Architectural Building Blocks – defined in the EA Overview Diagram are logically linked with the SOA Governance initiatives in scope, and are managed using the SOA Governance Service Lifecycle processes
- Confluence of EA Transition initiatives with SOA Governance Transition Plan (if developed).

Practical experiences shows that there are some interesting relationships between EA initiatives and SOA initiatives in terms of guiding (driving) principles and related implications, as depicted in Figure 10.

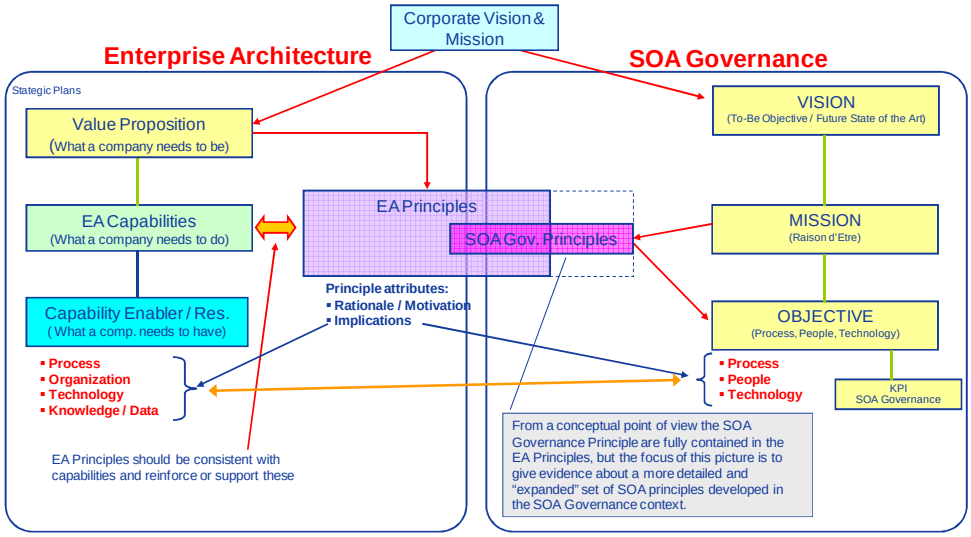

Figure 10: EA Principles and SOA Governance Principles

According to [7.4], the most obvious potential problems that an enterprise may encounter if they develop SOA and EA governance in isolation include:

- Potential overlap between the responsibilities of the enterprise architect and the SOA CoE lead. This overlap in responsibilities may cause confusion and friction between the two leads that ultimately might impede the success of both EA and SOA.
- Competition between SOA and EA for the same business resources, specially business subject matter experts. This can lead to less contribution by these experts to the activities of one or both.
- Potential for making contradicting architectural decisions that affect the whole enterprise. With both efforts for SOA and EA progressing in isolation, it's likely that some of the decisions made by one or the other could cause further confusion among those who are relying on the outcome to guide their decisions.

These potential issues need to be considered in the planning and definition phases of a joint EA/SOA governance approach.

In summary, we can say that the main areas of relationship between Enterprise Architecture and Service Oriented Architecture, and the key point that must be considered, are the following (see also [7.4]):

- The SOA Principles are "contained" in the EA Principles set, but the SOA Principles set is typically "expanded" in alignment with the SOA Design guidelines and patterns.
- From the governance processes point of view, usually the SOA Governance processes are specialized instances of the corresponding EA Management Processes, when SOA concepts are involved
- SOA addresses only a subset of EA domains
- SOA infrastructure (ESB) should be an enterprise asset
- Modern EA frameworks like TOGAF or IBM Enterprise Architecture Consulting Method are already well suited for the adoption of SOA as they takes a service-centric approach to developing their architecture domains, also describing additional meta-model entities that the architect should consider when developing SOAs.

The second part of the article

The **second part** of the article will analyze the "complete" relationships between EA, ITSM and SOA, and a section of "Conclusions and further research" will be able to provide ideas and thoughts for further research and investigation on these so strongly interconnected and interesting topics.

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References

General references

[1.1] Hofstadter , D.: Gödel, Escher, Bach: An Eternal Golden Braid, Basic Books (1979)

Enterprise Architecture references

[2.1] Open Group TOGAF – The Open Group Architecture Framework (2011); available at: http://www.opengroup.org/togaf/

[2.2] IBM Enterprise Architecture Consulting Method (2006); available at: ftp://ftp.software.ibm.com/software/uk/itsolutions/soa/reuse-and-connectivity/it-connectivity/enterprise-architecture-consulting-method.pdf

[2.3] Lapkin, A.: Gartner Defines the Term 'Enterprise Architecture', Gartner report G00141795 (2006)

IT Service Management references

[3.1] Simcox, L., Shah, K.,Dunton, T., Groves,D.: Introduction to IT Service Management, Part 1: Automate your key IT processes, IBM developerWorks (2005); available at: http://www.ibm.com/developerworks/library/ac-prism1/

[3.2] Wikipedia entry on IT Service Management (ITSM); available at: http://en.wikipedia.org/wiki/IT_service_management

[3.3] Official ITIL Website; available at: http://www.itil-officialsite.com/

[3.4] IBM IT Service Management Web site; available at: http://www.ibm.com/ibm/servicemanagement/us/en/index.html

[3.5] Grembergen, V.G.: Strategies for Information Technology Governance, (2004); available on Books24x7 (http://www.books24x7.com)

Service Oriented Architecture references

[4.1] IBM site “New to SOA and web services”; available at: http://www.ibm.com/developerworks/webservices/newto/

[4.2] Erl, T.: SOA Design Patterns, Prentice Hall (2009)

[4.3] IBM SOA Governance and Management Method (SGMM); available at: http://www-306.ibm.com/software/solutions/soa/gov/method/

[4.4] Varadan, R., Channabasavaiah, K., Simpson, S., Holley, K., Allam, A.: Increasing business flexibility and SOA adoption through effective SOA governance, IBM Systems Journal, vol 47, no 3, (2008)

[4.5] High, R., Kinder, S., Graham, S.: IBM SOA Foundation: An architectural introduction and overview (2005); available at: http://www.ibm.com/developerworks/webservices/library/ws-soa-whitepaper/

[4.6] Arsanjani, A., Ghosh, S.,Allam, A.,Abdollah, T.,Ganapathy, S.,Holley, K.: SOMA: A method for developing service-oriented solutions, IBM Systems Journal, vol 47, no 3, (2008)

[4.7] The Open Group SOA Governance Framework (2009); available at: http://www.opengroup.org/projects/soa-governance/

References about the relationship between EA and ITSM

[5.1] van Sante, T., Ermers, J.: TOGAF 9 and ITIL V3 – Two Frameworks Whitepaper, Best Management Practice (BMP) of the Office of Government Commerce (OGC), UK (2009); available at: http://www.best-management-practice.com/gempdf/white_paper_togaf_9_itil_v3_sept09.pdf

[5.2] Thorn, S.: “TOGAF and ITIL”, Open Group White Paper (2007); available at: https://www2.opengroup.org/ogsys/jsp/publications/PublicationDetails.jsp?publicationid=12110

[5.3] Braun, C., Winter, R.: Integration of IT Service Management into Enterprise Architecture, University of St. Gallen, Institute of Information Management (2007); available at: www.alexandria.unisg.ch/export/DL/204668.pdf

[5.4] Radhakrishnan, R.: Enterprise Architecture and IT Service Management - ITSM Frameworks and Processes and their Relationship to EA Frameworks and Processes, (2008); available at: https://www2.opengroup.org/ogsys/jsp/publications/PublicationDetails.jsp?catalogno=w078

[5.5] Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity, United States General Accounting Office, (01-MAR-04, GAO-04-394G) (2004); available at: http://www.gao.gov/new.items/d04394g.pdf

References about the relationship between ITSM and SOA

[6.1] Morgenthal, J.P.: Using ITIL V3 as a Foundation for SOA Governance, InfoQ (2010); available at: http://www.infoq.com/articles/itil-v3-soa-governance

[6.2] Baer, T.: Service Governance: The SOA-ITIL Connection (A Report), (2008); available on Books24x7 (http://www.books24x7.com)

[6.3] Mittal, K.: Merging Service-Oriented Architecture (SOA) and IT Infrastructure Library (ITIL) - Explore the fusion of two emerging concepts, IBM developerWorks (2006); available at: http://www.ibm.com/developerworks/ibm/library/ar-soaitil/

[6.4] Keen, M., Adamski, D., Basu, I.,Chilcott, P., Eames, M.,Endrei, M.,Fagalde, B.,Raszka, R.,Seabury, S. D.: Implementing Technology to Support SOA Governance and Management, IBM Redbook SG24-7538-00 (2008); available at: http://www.redbooks.ibm.com/abstracts/sg247538.html?Open

References about the relationship between EA and SOA

[7.1] "Using TOGAF to Define & Govern SOAs", chapter 22 in the TOGAF Version 9.1 documentation; available at: http://pubs.opengroup.org/architecture/togaf9-doc/arch/index.html

[7.2] "Using TOGAF to Define and Govern Service-Oriented Architectures", Open Group Guide (2011); available at: http://www.opengroup.org/projects/soa-togaf/

[7.3] Ibrahim, M., Long, G.: Service-Oriented Architecture and Enterprise Architecture, Part 1: A framework for understanding how SOA and Enterprise Architecture work together, IBM developerWorks (2007); available at: http://www.ibm.com/developerworks/webservices/library/ws-soa-enterprise1/

[7.4] Ibrahim, M., Long, G.: Service-Oriented Architecture and Enterprise Architecture, Part 2: Similarities and differences, IBM developerWorks (2007); available at: http://www.ibm.com/developerworks/library/ws-soa-enterprise2/

Other References

[8.1] IBM Actionable Business Architecture; available at: http://www-935.ibm.com/services/us/gbs/bus/html/actionable_business_architecture.html

[8.2] Harishankar, R., Holley, K., High, R., Sanz, J., Giesen, E., Daley, S. K., Ibrahim, M., Antoun, S., Botros, A., Hamid, T., Vaidya, S.: Actionable Business Architecture: IBM's Approach (2010); available at: http://public.dhe.ibm.com/common/ssi/ecm/en/gbw03125usen/GBW03125USEN.PDF

[8.3] Perko, J.: IT Governance and Enterprise Architecture as Prerequisites for Assimilation of Service-Oriented Architecture, doctoral dissertation (2008); available at: http://dspace.cc.tut.fi/dpub/handle/123456789/151