

# White Paper

# Enterprise Architecture: Inside Out

A Best Practice Introduction

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**This is the third in a series of white papers on Best Practices in moving to an Enterprise Architecture discipline. The first was an overview: Enterprise Architecture (EA) Inside Out or Outside In, in which I summarized two approaches to initiating an EA project: from the technology side (Inside Out) and from the Business Goals side (Outside In).**

In the second, Enterprise Architecture (EA) Inside Out, I dove into some best practice approaches for engaging with business leaders on starting with business goals and moving towards a technology library approach by using tools like Orbus' iServer to capture the business goals and business processes involved leveraging the ITIL Process Maturity Model to identify what level of work is involved.

This white paper will look at some of the more common approaches through which Enterprise Architecture takes root in an organization: Enterprise Architecture (EA) Inside Out. In an Inside Out approach, Enterprise Architectural methods, tools and processes begin in the Information Technology or Technology R&D organization at the technical management level and move "outwards" to integrate with Business Processes and Business Goals.

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## Enterprise Architecture (EA) is more than just Systems or Application Architecture

A lot of what passes for enterprise architecture is really applications or systems architecture renamed. What differentiates an EA approach from these other two contained disciplines is the context, focus, and details of the data collected. Where application architecture and EA both capture functional requirements and map them into systems implementation, and systems architecture takes inputs: application, price, and performance requirements; EA does so from a broader perspective driven by business goals. The challenge in most Inside Out EA approaches is that the business goals are less concrete than the Application or Systems architectures. Thus there is a natural tendency for architects moving from a pure technology discipline to ignore these less concrete aspects and fall back simply into Systems or Application Architecture.

In an Inside Out approach the business goals are often even less concrete as they are derived from the general business strategy at the corporate or divisional level and lack the concreteness of verifiable goals. They also are likely to be more tactical since the goal in a nascent EA effort is to show value quickly. This value generation is then used to increase buy-in across the organization for additional, broader and more complete EA efforts. It is critical though that these business goals remain at the forefront of any nascent EA effort.

### What does EA Inside Out look like?

Inside Out EA bridges Application Architecture, Systems Architecture and often will integrate systems implementation details. It does this within the scope of one or more identified business goals. What does this mean? In a fully operational EA structure, the change governance of all the systems are integrated. So a planned upgrade of server infrastructure would identify which systems as well as applications (and which processes and goals) will be impacted and mitigation plans for all impacts would be in place.

Furthermore in an EA environment, all change planning would seek to move systems, components and implementations to conform to EA standardized Architectural Building Blocks (ABB).

#### Architectural Building Blocks

To summarize the TOGAF 9 Specification, an Architectural Building Block inter-operates with other ABBs, and a good ABB is often assembled from other smaller ABBs, is re-usable, replaceable and well specified. An ABB in turn may be a subassembly of other larger ABBs.

<http://www.orbussoftware.com/enterprise-architecture/solutions/togaf-9>

<http://pubs.opengroup.org/architecture/togaf9-doc/arch/chap37.html>

So what an Inside Out EA approach looks like is a catalogue of technology, systems, application and even business process ABBs, and the governance for reusability, change management, and lifecycle management associated with those ABBs.

“That’s all great! But where do I start? How do I decide what should be in an ABB” you ask? Rather than give the usual architect’s answer of “depends” or “Where you can show value”, let’s look at opportunities for “low hanging fruit” value at the lowest 3 ITIL Process Maturity Levels (I omit the top two because you cannot reach those without having already implemented most of an Inside Out approach.)

### **ITIL – Information Technology Infrastructure (ITIL) Process Maturity Model**

ITIL offers a Process Maturity Model for assessing your organization’s IT Process management maturity. This helps identify what are the current capabilities of your IT organization as well as what the most effective “next steps” are in the process of improving your IT service capabilities.

<http://www.itil.org/en/zumtun/servicemanagement/assessment/index.php>

<http://www.itil.org/en/vomkennen/itil/ueberblick/index.php>

## **Where to Start (Application Architecture, Business Processes, Technology Inventory)**

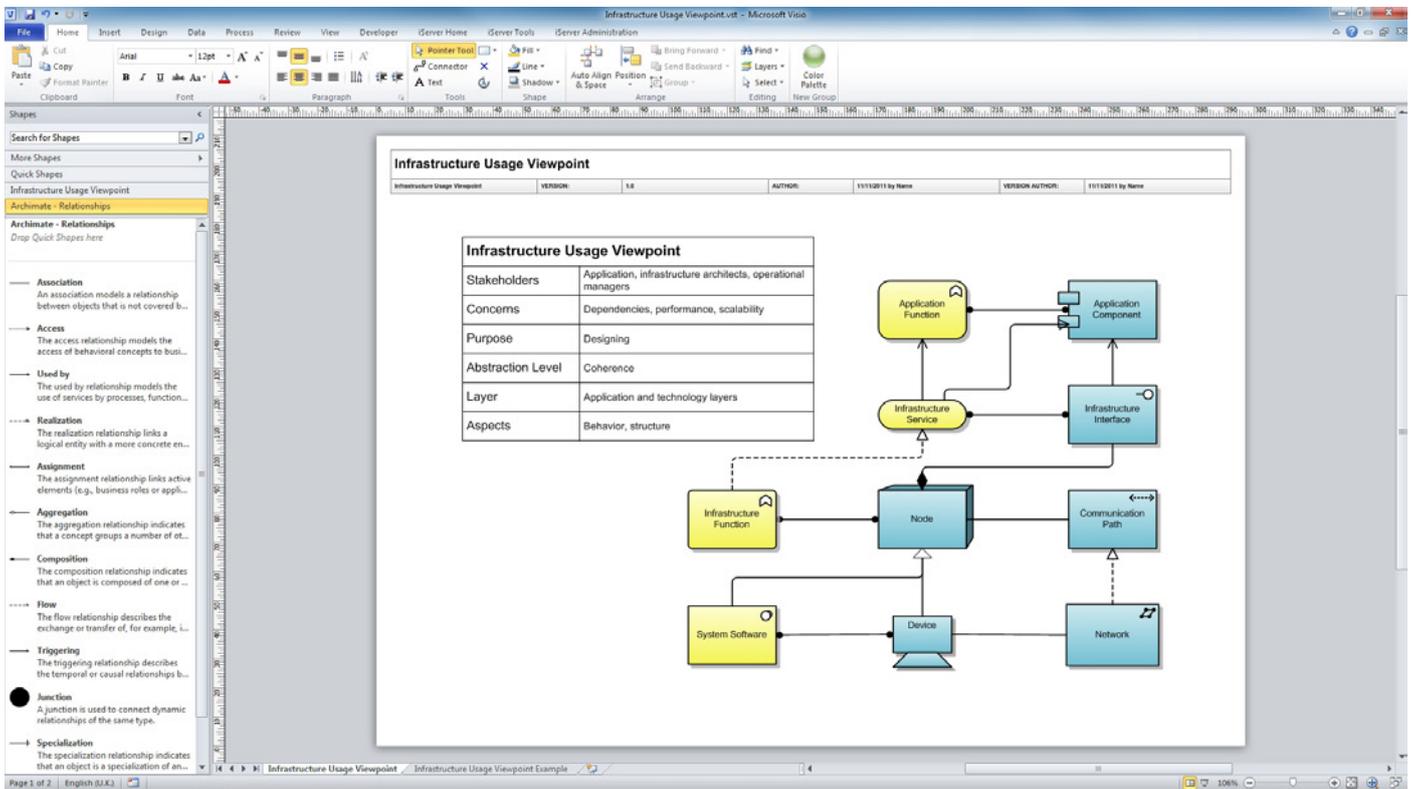
So where to start? Should you start with Application Architecture? Technology Inventory? Business Process Analysis? In EA Outside In I talked about using the ITIL Process Maturity Model for assessing how to position Enterprise Architecture as having business value and relevance.

We will use the lowest three definitions to differentiate where to start an EA implementation in a manner that is likely to be successful. Note, I will be referring to Orbus’ iServer Archimate tool which implements TOGAF 9 compliant architecture documents and processes. This white paper is intended to provide some insight on how to begin a successful EA practice. To get in-depth training on how to use the Orbus product and TOGAF compliant methodologies it is important that you use Orbus’ excellent online training tools.

## **Level I**

Level I on the ITIL Process Maturity Model is summarized as: *IT Service Processes are ad hoc with no formal structure or repeatability behind them.*

Most organizations are operating at a level above this but all organizations also have to transition through this stage. Most of the work to be done here is putting formalized governance processes and tracking into place. The value this brings is all about visibility, predictability and the ability to plan. It usually also brings about cost reductions as duplicate systems are eliminated and the IT organization starts to switch out of Fire Fighting mode.



**Figure 1: Orbus' iServer Archimate Infrastructure Usage Viewpoint Visio Template**

The first steps at Level I are to document what your existing infrastructure looks like. Orbus' iServer offers a couple of TOGAF 9 based starting points: Implementation and Deployment Viewpoint, Infrastructure Viewpoint, and Infrastructure Usage Viewpoint. These are Visio Diagram templates where the objects link back into the iServer repository. It is possible to start with any of them and the tempting one to begin with is the Implementation and Deployment Viewpoint; since in a Level I environment this is what you are likely to have the most complete information about and it is the level that your Fire Fights are most often happening.

My recommendation though is to start at a slightly more abstract level: Infrastructure Usage Viewpoint. This allows the value of governance oriented activity related to Infrastructure Usage to be captured early on and also reduces the push/pull of operational changes until a more solid EA foundation is in place.

Notice that at this level you capture the System Software in place, the Infrastructure Service being implemented, but you also capture both the Infrastructure Function as well as the Application Function. These latter two allow you to quickly start to deliver value to the organization by enabling identification of duplicate uses of similar functions and applications. Once you identify this sort of duplication, you can make a case with reductions in licensing, training and complexity costs. This is the "low hanging fruit" in a Level I maturity organization.

IT functionality is also a core Architectural Building Block that composites into application functionality. It is important to keep in mind that the

goal is to move up the IT process maturity model. This means that the goal of EA at this level is to begin to document the IT processes that are in place. To accomplish this, you need to expand in both directions from this starting point: implementing change management processes downwards into the infrastructure service and deployment levels, as well as upwards into the Application Architecture processes insuring that any divergence from reuse of approved Infrastructure Functions and implementations is backed by a business justification.

## Level II

Level II on the ITIL Process Maturity Model is summarized as: *Recognized processes have been identified and can be repeatedly invoked, but ownership and tracking of results does not exist.*

At this point it is assumed that you have an incomplete set of governance processes in place for changing IT and application infrastructure, but beyond the management hierarchy it is not clear who the owner of a particular process is and even how these IT processes fit into the higher level business goals.

For EA to add value at this level requires beginning to formally integrate Business Processes into your IT Governance processes and similarly to integrate IT Architectural and Operational considerations into Business Processes. It is also assumed that at this level of maturity, you also have fairly solid and up-to-date documentation of what your IT Systems Architecture looks like at both the functional and implementation levels,

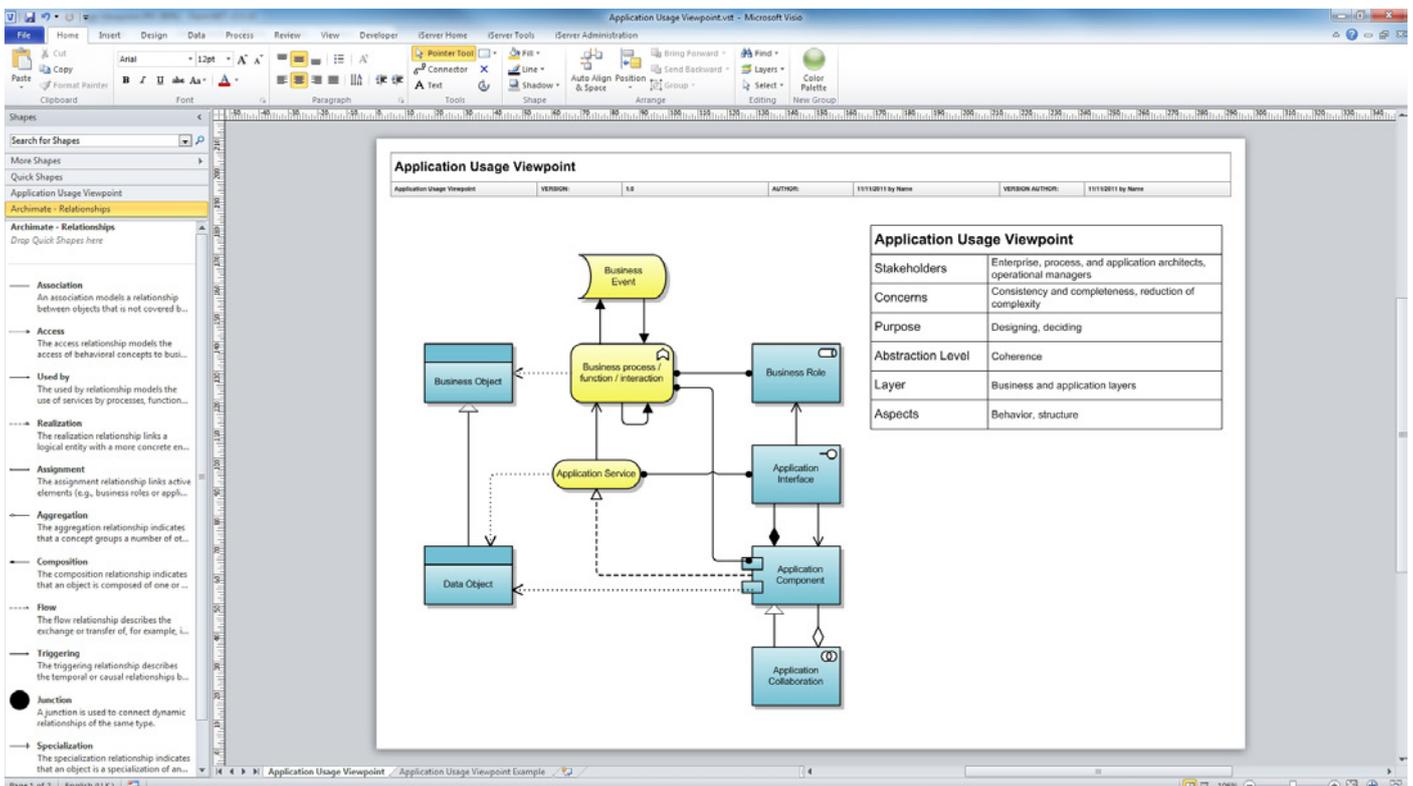


Figure 2: Orbus' iServer Archimate Application Usage Viewpoint Visio Template

though they may not be in a format or system that integrates directly with a tool like iServer. This is where the strength of iServer's import features as well as leveraging of Office Documents comes into play. The existing documents can be referenced as part of the implementation of the Enterprise Architecture documentation.

The value EA adds at this level is to begin to bridge IT operational processes with business processes. This enables faster and less expensive responses to changes in business needs as well as exposing to the Business Stakeholders, an insight into the type of data that is available to them for making their business decisions.

My preferred starting point at this maturity level is a mapping of Business functions and processes into the applications that support them. iServer's document for this is the Application Usage Viewpoint.

Starting with our list of IT Application Services, we begin to document which business processes are supported by which Application Services. Combined with the documentation of the Infrastructure Architectures that are "inside" of these Application Services, you can now begin to clearly identify which systems are impacted by a change request from business leadership.

There are three levels of value that Enterprise Architecture delivers at this level:

1. When a new business requirement (Business Event in the iServer Archimate template) is presented, you can quickly identify which systems are impacted and in turn what other business processes this request will impact. This information enables Business Decision Makers to balance the cost and operational trade-offs more accurately.
2. You can begin to create roadmaps for technology driven changes and identify which business processes are likely to be impacted by these technology changes. This in turn increases the value IT presented to the Business Decision Makers and enables moving to the next level of process maturity and operational predictability. Without this, you cannot realistically commit to any Service Level Agreements management might ask for.
3. When new systems such as CRM, eSCM, ERP etc. or even specific functional solutions such as a Medical Billing system or a Perimeter Security system are presented by an outside supplier, they usually present documentation on the application usage at this level of process maturity.

An EA documentation of existing Application Services, and supported processes provides identification of what systems any new technology deployment will need to integrate with. This enables a more accurate cost and feature/function assessment of such new IT systems.

This also applies to the deployment of new technology initiatives such as “Social Media” or “Integrating with The Cloud”. Challenges that many businesses face today.

As before, the goal is to move up the process and organizational maturity model to maximize operational efficiency. However, it is important to insure that lower levels of documentation: Application Function, Infrastructure Function and Infrastructure Deployment Services are integrated into your EA process before moving upwards. Otherwise you are building on an incomplete foundation.

Moving up the Process Maturity Model requires engaging Business Decision Makers (BDMs) on broader business process ownership. To make this worth their time, it is important to establish metrics on performance and cost improvements that adoption of an EA approach is driving.

### **Level III**

Level III on the ITIL Process Maturity Model is summarized as: *Processes are recognized, have identified owners and results are tracked and documented, but not all processes are defined and new process creation is ad hoc.*

Obviously part of the work here is to get a full catalogue of both IT processes and the business processes they interact with as in the previous level. At this level of maturity, the Inside Out and Outside In approaches meet because at this level of maturity, you are organizationally focused on improving both Business Processes as well as IT Processes. If you are beginning your EA efforts at this level you already have some integration with Business Goals, Processes and change drivers – which is fundamentally an Outside In approach.

At the same time, you are still working to fully define all the relevant processes and put in place a governance approach that incorporates all of the IT impacts, the hallmark of an Inside Out process.

There are many approaches that can be taken in process analysis. iServer implements the APQC (<http://www.apqc.org/about>) Process Classification Framework. Other approaches exist as well. The key here is that if you are starting an Outside In approach at this level, you need to start with well documented and well defined business processes that you want to drill down on. And if you are starting an Inside Out EA effort at this level, then you need to have a well-defined set of Application Services, Functionality and underlying Infrastructure Services and Functionality from which to move upwards.

## Enterprise Architecture in Portfolio Management

Using Level III as a starting point also can add value to Portfolio Management. While the IT organization that has reached Level III ITIL Process Maturity will be well on its way to understanding the value Enterprise Architecture brings to operational governance, it is not unusual for a technology solutions portfolio to not have this level of governance in place.

While Enterprise Architecture has traditionally been used for integrating the internal IT operations more cohesively with the Business goals and roadmaps, and Portfolio Management for managing the risks associated with new projects, EA has a role to play in Portfolio management as well.

Most Portfolio Management tools are focused on either the project management of new portfolio efforts, or on evaluating the risk and ROI of new potential portfolio initiatives. What is missing is an understanding of the Architectural Building Blocks available in the portfolio as well as where extra costs are being generated through a failure of ABB re-use.

In applying an EA analysis in one of my engagements I found that in a portfolio of 90 solutions, there were over 130 different technologies in use and at each level of Infrastructure Function and Capability, there were at least 3 different technologies in every single case. In some portfolio offerings there were parallel technologies (such as SQL Server and Oracle Server) that both had to be deployed to make the product function. Achieving a 10% cost reduction simply by normalizing the technology licensing within the portfolio was “low hanging fruit”.

In discussions with another large vendor of technology software, it came out that by applying EA analysis to their Portfolio Management process, they were able to dramatically reduce their technology inventory.

Precisely because there are tools already in place for managing the risks and processes in Portfolio Management and because the missing insight is a failure to identify Infrastructure ABBs, Portfolio Management is another example where an Inside Out approach to Enterprise Architecture has low hanging fruit to gather.

## Conclusion

There is an increasing awareness among business organizations about the critical role of social technologies for timely and effective business communication and interactions. However, before jumping on the bandwagon of social technologies, it is important for an organization to understand and develop a technology independent social architecture that needs to be supported through the adoption of social technologies. This white paper described the social architecture elements from The Gill Framework, which can be used as a guideline for developing an organization specific social architecture by using the available enterprise architecture frameworks and tools. In my next white paper, I will discuss the facility architecture from The Gill Framework.

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