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Leonard Fehskens

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Boel Ohlin, Jenni Dahlkvist Vartiainen, and Eskil Swende

Book Review: “Composite/Structured Design” by Glenford J. Myers
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Four Questions: Joe Maissel

AEA Chapter Spotlight: Hungarian Chapter
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Len’s Lens: Is versus Does
Leonard Fehskens

Four Questions: Robert Weisman

Talking Shop: A Conversation with Jeff Scott
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About the Journal: The Journal of Enterprise Architecture (JEA) is published by the Association of Enterprise Architects, 44 Montgomery Street, Suite 960, San Francisco, CA 94104, Tel: +1 415 374-8280, Fax: +1 415 374-8293, www.globalaea.org. The JEA is a peer-reviewed international publication for the EA community. Four issues are published each year. The JEA supports the global practitioner community of interest through the publication of articles that promote the profession of enterprise architecture, and deals with issues regarding practices and methods, case studies, and standards at the national and international levels. The views expressed in JEA articles are those of the respective authors, and not necessarily those of the publisher, the Chief Editor, the associate editors, or the Association of Enterprise Architects (AEA).

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This issue we’re trying something a little different with how we sequence the articles, so they flow better when read in order.

We open with a topical article in which Boel Ohlin, Jenni Dahlkvist Vartiainen, and Eskil Swende share their experience practicing agile enterprise architecture for the Swedish Board of Agriculture. Continuing on the subject of agility, I review a not-so-recent but surprisingly relevant classic on software design and how its ideas relate to the current concern for agile architecture.

We take a short break with a “Four Questions” practitioner perspective by Joe Maissel (whom you may remember from his Chapter Spotlight on the New York Metro Chapter), and a Chapter Spotlight from the Hungarian Chapter of the AEA on its recent activities.

We then shift gears with an article about enterprise architecture metrics by Dr. Gopala Krishna Behara and Prasad Palli.

My series of “off the beaten track” articles (“Len’s Lens”) continues in this issue with a discussion of enterprise architecture’s “definition problem”, with specific attention to the community’s seeming inability or unwillingness to distinguish between what an organization is and what it does.

Then Bob Weisman (whom you may remember from his recent Chapter Spotlight on the Ottawa-Gatineau Chapter) provides another “Four Questions” practitioner perspective.

The issue closes with a “Talking Shop” with Jeff Scott, a thought-provoking writer on business architecture, in a wide-ranging discussion that explores, among other things, why the way the enterprise architecture community thinks about enterprise architecture seems to be stuck in a rut.

As always, I urge you to consider contributing to the Journal. You don’t have to write something to do so – you can suggest something you’ve seen published elsewhere that you think would be of value to the enterprise architecture community if it were featured in the JEA. If you do want to write something original, we’re now accepting non-peer-reviewed short subjects (a few pages) and articles (a half dozen or so pages), as well as the traditional peer-reviewed longer articles. We’re especially interested in business and other forms of enterprise-related material, as well as technology-related topics. Finally, you can always send us your own “Four Questions”, suggest someone you’d like to have submit their “Four Questions”, volunteer to “Talk Shop” with me, or suggest someone you’d like me to “Talk Shop” with.
Call for Papers

The Journal of Enterprise Architecture is accepting article submissions for its future issues. Research and best practice articles are sought on enterprise architecture-related topics, including:

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Agile EA in Practice

Boel Ohlin, Jenni Dahlkvist Vartiainen, and Eskil Swende

Abstract

Architects are often criticized for being too slow when developing the overall architecture for their enterprise. When their overall architecture is finished they are often further criticized, because it is difficult to understand, difficult to use, and the quality of the architecture is not acceptable.

This article describes how these problems were solved at the Swedish Board of Agriculture (SBA). During our architectural journey we gradually learned how to work with Enterprise Architecture (EA) in a new way. The reason was a large program (ProCAP) with a lot of uncertainty, rapid changes, and strong deadlines. The solution was Agile EA.

By combining agile methods with more traditional EA methods, we have found a way to successfully develop an EA step-by-step based on current needs – while we support and participate in the program’s projects.

A number of critical success factors are in place at SBA; some due to hard work and some by lucky circumstances in our environment. The agile development method Scrum was the standard development method in use. In the very ambitious program ProCAP, Scrum has been successfully related to the EA.

Agile EA is used in practice managing both iterative development of the EA and guiding and supporting the development of new IT solutions.

This ambitious program at SBA may be regarded as a global breakthrough to achieve an Agile EA in Practice.

Keywords
Agile, Enterprise Architecture, Business Architecture, Scrum, Sprint, Product owner

INTRODUCTION

The EA Approach

To handle today’s changes we build an overall enterprise structure based on a stable foundation. The information resource is such a stable foundation. It does not change very much even if the organization, the business innovation canvas, or the business processes change. Information management – the way an organization deals with information – makes information available as a resource to be used in business processes and the business innovation canvas.

Most approaches to thinking about an enterprise in a holistic way involve abstractions and the use of metaphors. The metaphor we use is the business as a city to be planned. A city plan draws up an organized arrangement of sustainable zones or areas as when Baron Haussmann remodeled Paris in the middle of the 19th century. Our areas in the enterprise are based on stable and sustainable information groups.

The goal of this EA approach is to restructure the business and its IT solutions to become more efficient, robust, and integrated. When integrating with Scrum, an agile development method, an Agile EA approach in practice is achieved.

The Swedish Board of Agriculture

The Swedish Board of Agriculture (SBA) is the Swedish Government's expert authority in the agro-food sector. This means that the Board of Agriculture monitors and analyzes the development within the sector and implements related political decisions.

The Swedish Board of Agriculture promotes food production that is competitive, adapted to environmental and animal welfare concerns, and that benefits consumers. The political decisions may sometimes change dramatically and with short notice. To handle these changes is a big challenge.

The Ambitious Program – ProCAP

To understand the background of our architectural journey at SBA, we start with a visit to Brussels and the European Union. Every seven years, a new long-term budget is added. The current budget period is 2014 to 2020. The Common Agricultural Policy (CAP) accounts for about half of the budget and therefore it can be
assumed that the agricultural policy will be reformed before a new budget period.

At SBA we thus know years in advance that a change is on the way; even if we don’t know any details. The conditions are thus: we don’t know what to do; we don’t know when to be finished. Late decisions and rapid changes are a daily challenge. We had to start preparing for the reform changes and an agile approach became one of the prerequisites for being able to manage the assignment.

The CAP reform includes three new policy programs. In 2012 SBA started the program ProCAP to prepare for and implement CAP in Sweden. ProCAP is divided into three major projects: Business Rules and Processes, IT Development, and Business Change. These major projects are supported by expertise in enterprise architecture, methods, and information security.

Because of three new policy programs in CAP to be implemented, the need for a new modern IT platform (the legacy systems are from the 1990s and have difficulties meeting new business demands) and an ambition to take a holistic approach to business change, business processes, business rules, and IT solutions, the ProCAP is a big undertaking including over 400 persons with a budget of 530,000 hours with a calculated cost of 30 billion Euros. The program was initiated in March 2012 and is planned to be finished Q1 2016. During this time 10 or so new IT systems will be developed.

This very big program is managed by the Chief Architect, during the program replaced by another person in his architecture role. This enables a very good understanding and support from the Program Management to the Architecture Team.

IN THEORY

Business Architecture

To handle today’s changes we want to establish an overall business structure based on a stable foundation. The information resource is such a stable foundation. It does not change very much even if your organization or your business processes change.

As a city plan draws up an organized arrangement of sustainable zones or areas, we arrange our areas in the business based on the stable Information Groups.

The goal of this EA approach is to restructure the enterprise to become more efficient, robust, and integrated. Traceability will secure that the solutions relate to the Business Architecture as intended. It is also a way to continuously maintain and develop the architecture based on more detailed knowledge in new solutions.

The first Business Architecture was developed by IRM in 1984 for SKF, the Swedish Global Ball Bearing company. Over 100 Business Architectures have been developed since 1983 at SKF, including IKEA, Statoil, Scania, TeliaSonera, and other private and public business. Since 1994 around 1000 Business Architects have been certified at an academic level in Sweden.

Today it is fully accepted (at least in theory!) that EA should be based on business knowledge and not driven by IT. In consequence we focus on the Business Architecture. The IT Architecture and the Solution Architecture have consequently to be aligned with the Business Architecture.

Defining Business Architecture

Our Business Architecture definition is inspired by Len Fehskens:

“The Business Architecture ensures that the enterprise as a whole is always fit for purpose of achieving its vision, mission, and strategies.”

If your ambition is to always be fit for purpose you should choose an artifact that is stable and doesn’t change when you change your organization, make a new innovation, or you choose to outsource part of your business. The most stable resource or artifact we know of is the Information Resource itself. Another very useful and rare characteristic of this artifact is that data and information is not used up or consumed when you use it.

The definition implies that the lifecycle of the Business Architecture starts when the enterprise is established and ends when the enterprise is closed. The lifecycle of a vision, mission, strategy, IT solutions, and business innovation may have a much shorter lifecycles. That implies that the Business Architecture should not be made dependent on these shorter lifecycles, but instead be based on the business itself.

The Information Resource

The artifact of the Information Resource is the most stable one and an architecture based on the information structure may reach a stability needed to achieve a fit enterprise as stated in the definition above. Shorter for this is “keep your artifacts in good order”. Maintain your Information Resource and your Business Rules in good order and you are well prepared for future known or unknown changes – internal and external.
**Business Architecture – The Big Picture**

In a Business Architecture we usually have 25 to 50 normalized Overall Business Information Groups in the OBIM. A single data element belongs to one and only one Information Group. We also usually have 25 to 50 Business Processes where one specific activity belongs to one Business Process. The Business Process Matrix tells in which process a specific Information Group is created or used.

The Business Architecture is created in an agile way over a two-month period by 12-15 business experts all participating in three two-day workshops facilitated by two experienced Business Architects. The result consists of an Overall Business Information Model, an overall Process Architecture, and a number of high-level Innovation Canvases. If you want to create a Business Architecture in two months, you must stay at the overview level and avoid details at this stage.

Our world is growing more and more complex. We have many driving forces adding to this complexity and very few creating simplicity. Companies like IKEA, where “simplicity is a virtue,” are very rare.

“It seems that perfection is reached, not when there is nothing left to add, but when there is nothing left to take away.”

(Antoine de Saint Exupéry, French author and pilot, 1900–1944.)

**The Agile Approach – Scrum**

Scrum is an iterative and incremental agile software development framework for managing product development. It defines a flexible, holistic product development strategy where a development team works as a unit to reach a common goal and enables teams to self-organize communication among all team members and disciplines in the project.

A key principle of Scrum is its recognition that during a project the customers can change their minds about what they want and need, often called “requirements churn”. As such, Scrum adopts an empirical approach – accepting that the problem cannot be fully understood or defined, focusing instead on maximizing the team's ability to deliver quickly and respond to emerging requirements.

**Product Owner in Scrum**

The Product Owner represents the stakeholders and is the voice of the customer. He or she is accountable for ensuring that the team delivers value to the business. The Product Owner writes customer-centric items (typically user stories), ranks and prioritizes them, and adds them to the product backlog. Scrum teams should have one Product Owner.

**Sprint**

A sprint or iteration is the basic unit of development in Scrum. The sprint is “time boxed”, restricted to a specific duration. The duration is fixed in advance for each sprint and is normally between one week and one month.

Each sprint is started by a planning meeting, where the tasks for the sprint are identified and an estimated commitment for the sprint goal is made, and ended by a sprint review-and-retrospective meeting, where the progress is reviewed and lessons for the next sprint are identified.

Scrum emphasizes working product at the end of the sprint that is really “done”; in the case of software, this means a system that is integrated, fully tested, end-user documented, and potentially shippable.

Figure 2 (below) illustrates how important it is not only to have a working product at the end of the sprint, but also to deliver it to users to learn from their feedback.

**IN PRACTICE**

**The EA Approach at the Swedish Board of Agriculture**

A few months before the ProCAP program started at SBA, some architects received the assignment to lay the foundation for the ProCAP program – a foundation that included objectives and guidelines for the architecture which would form the basis for the new generation IT systems to be implemented during the program. The assignment was given by the Chief Architect (who then became Program Manager of ProCAP) and the ProCAP Steering Committee chair. This ensured that the Architecture Team had the necessary understanding by and support from Program Management.
To handle changes in our environment – sometimes dramatically and with short notice – it was important to establish an overall EA based on a stable foundation. Our two architecture principles became ‘a holistic perspective’ and ‘an information-driven architecture’.

We started to map overall information and processes. By matrix analyses we captured the most important business capabilities and our city plan was born. The city plan became our way to communicate and visualize our overall target architecture. The city plan was divided into different views – for business architecture, information architecture, applications architecture, and infrastructure architecture. In this way we could start aligning Business Architecture and IT Architecture.

**The Agile EA Approach**

The ProCAP program had to start although the conditions were: “we don’t know what to do”, “we don’t know when to be finished”, “late political decisions and rapid changes”. The agile development method Scrum had been used at SBA for some years and would be used in ProCAP. This led us to the idea of testing Agile EA.

We formed an Architecture Team of business architects and IT architects (at the moment five business architects and three IT architects) working together. Our assignment given by the Program Manager and the Steering Committee chair was:

- Create conditions for good planning and effective implementation of IT development within ProCAP
- Contribute to effective business and IT development within the entire SBA

Based on the IT project needs we made a rough plan for six months at a time – a plan that was adjusted before each sprint. The tasks in this plan (our backlog) included both tasks to continuously develop the architecture step-by-step and tasks to guide and support the IT projects as they understand and use the architecture.

With the city plan, we had a rough, adaptive architecture. With Agile EA we added a rough, adaptive plan. This became our approach to meet the everyday challenges in ProCAP.

**The Architecture Team and the Product Owner**

The Product Owner role at SBA is staffed by three persons – the Program Manager, the Chief Architect, and the head IT Project Leader. The Product Owner helps and supports the Architecture Team to focus on their most important tasks in each sprint based on the needs within the different parts of ProCAP. In one period it could be to focus on the architecture itself and in another period to assist and guide the development team using and understanding the architecture.

In practice this means that the Product Owner and the Business Architects work in very close cooperation to secure that the result of the sprint delivers value both to ProCAP and the EA – avoiding specific “quick and dirty” solutions that represents an “architecture debt”. The Architecture Team and the Product Owner work together to identify, add, and prioritize tasks to the backlog.

The Chief Architect is both Product Owner and part of the Architecture Team.

**Three-Week Sprint**

The Architecture Team works in three-week sprints. Each sprint is started by a planning meeting where we review the backlog and decide what are the most value providing tasks to do right now. Sometimes tasks are deleted from the backlog because they are no longer necessary. The highest priority tasks from the backlog represent the sprint goal and they are estimated and planned in detail.

At the end of the sprint there is a retrospective. At the retrospective both methods and deliverables are evaluated and adjusted accordingly. During our architectural journey in ProCAP a lot of changes have already been made, both big and small. Some changes have been about the methods, some in what has been
delivered and focused on, and some about the forms of the deliverables.

Examples of deliverables from a sprint are:

- Generic principles and guidelines within a business capability
- A new part of a business process
- A more detailed information model
- A solution pattern for how to implement an IT function

The result of each sprint is delivered to the relevant parts of ProCAP; for example, through briefing, education, or by being used by the architects when supporting and guiding IT development projects. Feedback from the architecture users is important input to the next sprint to continuously further develop the architecture while adding business value.

Reaching all project members and getting them to understand and use the architecture deliverables is a difficult challenge. The best way is to have the architects involved in various projects and use the deliverables in this work. The reason is that otherwise there is no architect left in the Architecture Team to keep developing the shared architecture. And when the architects instead focus on developing the shared architecture, the result doesn’t reach every project member.

This is a tricky challenge and we use the learning process to constantly find the best approach for the moment.

**The Learning Process**

The Architecture Team uses the retrospective as a method to continuously evaluate the work and adjust accordingly. Some changes are made because you learn and get smarter and some because the environment changes. The retrospective and the learning process it creates is one critical success factor because the conditions are constantly changing.

The Product Owner and the Architecture Team work together in the ongoing learning process to transfer business knowledge to the project teams.

The Product Owner helps the ongoing learning process. The business knowledge is transferred from the architects and the Product Owner to the project teams. This transference of business knowledge is an ongoing learning process partly because of the need to repeat and add new business knowledge to the project teams whenever needed, but also because of high turnover of external consultants in the projects.

**SUMMARY AND FURTHER CHALLENGES**

**Advantages Achieved with Agile EA**

We have described a number of advantages achieved by using the Agile EA approach, such as:

- Agile EA provides the ability to switch focus and change approach quickly when needed.
- The architecture development is driven by the business value where the ongoing projects set the priorities.
- The architecture value is achieved directly. Early versions of architecture deliverables are released to set the direction and enable early alignment. The detailing of the architecture continues when needed.
- A valuable dialog occurs around architecture, as an effect of not presenting finalized deliverables.
- The product owner ensures management commitment to the architecture.

**Critical Success Factors**

A number of critical success factors are in place at SBA; some due to hard work and some by lucky circumstances in the environment.

Some “lucky” circumstances are:

- ProCAP needs provided the opportunity to get resources for the architecture effort.
- Management understands the benefits of architecture.
- The Chief Architect was appointed manager of the ProCAP program.
- The agile development method Scrum had been in place for some years within the organization.
- The business is relatively stable even if the business rules may change frequently.
- The size of the business is manageable for a shared architecture (the personnel is 1,200 persons with 650 at the main office).

Some “hard work” factors are:

- Results from previous projects where the new IT platform was prepared have provided a good foundation for the shared architecture.
- A tight and very professional Architecture Team with extensive business knowledge is established.
- There is a mix of Business Architects and IT Architects working closely together in the same team.
- The agile method containing the retrospective makes the ongoing learning process possible.
• Working closely with the projects in the program and listening to their needs.
• The courage to try new ways of doing things.

Challenges

There are a number of challenges like:

• Maintain focus when the ongoing projects have a lot of various challenges to handle. We are all torn between competing tasks and prioritizing is demanding.
• Architects are much sought-after persons, with a deep understanding of the business – useful for other activities besides architecture development. The role of the architects needs to be evaluated continuously to make conscious decisions possible.
• How to reach all project members with architectural deliverables and at the same time achieve the balance between developing the architecture versus guiding and supporting the projects.

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REFERENCES


Book Review

“Composite/Structured Design” by Glenford J. Myers

Reviewed by Leonard Fehskens

Keywords
Agility, Agile Architecture, Cohesion, Coupling, Design, Systems, Emergence, Composite Design, Structured Design

INTRODUCTION

If you looked closely at the heading of this review, you might reasonably ask: "What can a book published in 1978 possibly have to do with agile enterprise architecture?", or: "Even if this book is relevant, is it still in print?".

The second question is easier to answer – no, it’s not still in print, but you can easily find copies of it on the used book market. The answer to the first question is what this review is about.

What prompted this review contextually is the current fashion for "agile architecture". A lot of good stuff is being written about agile architecture, but I am surprised that there is so little discussion about design strategies that facilitate agility. There’s a lot of attention to agile development processes, and especially how to integrate architectural thinking into such processes. There’s a lot of attention to how to use the latest technological innovations and "best practices" as a way of achieving agility. But there’s not much consideration of agility as a design problem, or how agile processes and agile technologies relate to these design strategies.

What prompted this review directly was my reply to a recent blog by Jason Bloomberg ("What is Emergent about Emergent Architecture?" – refer to: http://intellyx.com/2015/09/28/what-is-emergent-about-emergent-architecture/), and his suggestion that I read his latest book "The Agile Architecture Revolution". So I did, and in fact this was supposed to have been a review of Jason’s book. But as I read the book, I realized that what he wasn’t saying was as important as what he was saying, and that it really deserved to be said. That brought me back to Myers’ book, which has long been a touchstone for me, where all that stuff does get said, in considerable detail. Bloomberg’s book doesn’t reference Myers’ work, but I think practicing enterprise architects concerned with agility need to be familiar with it. It seems to me that agile architecture isn’t so much a revolution as it is some fairly old (but no less relevant) ideas about modularity and connectivity finally being taken seriously by the EA community.

CONNECTIONS AND EMERGENT BEHAVIOR

First, let’s revisit the basic ideas of systems thinking. One is that you can’t fully understand a system by considering the elements of the system in isolation; you have to consider their relationships as well – you have to look at the system as a whole. Things that are connected influence one another; if they didn’t, there’d be no point in connecting them. If you do something “over here” in a system, it is likely that something “over there” in the system is also going to be affected. More importantly, this results in what is called “emergence” (one of at least three things of interest to enterprise architects that are called emergence, but more on that some other time) – a behavior exhibited by a system as a whole that is not a behavior exhibited by any one of its components in isolation.

Connections are what make a system a system; without the connections, and the interactions they allow, you don’t really have a system, you just have a collection of things. But this comes at a price – these same connections can make it difficult to disassemble a system and reassemble it in a different way, so that its emergent behaviors do something different. In this sense, change is about breaking and remaking connections, and agility is about the ability to change quickly and effectively.

Change may also require that we change the things that are being (re)connected. We can do this by introducing a different kind of thing, or by modifying an existing thing, by breaking and remaking the connections between its parts, or by introducing a new part into it. This recursion can continue until there’s no point to looking inside a component of a system, and we can just treat it as an indivisible atomic unit.

Enterprise architects often make a big deal about an enterprise being a system of systems, but, really, everything that we as enterprise architects are likely to think of as a system is likely to be a system of systems.
Another thing we have a tendency to do is think of emergent behavior as unpredictable. Some emergent behavior may be unexpected – the larger and more complex a system (i.e., the more different kinds of components it has and the more different kinds of connections between them), the more likely there is to be unexpected emergent behavior.

But we build complex systems precisely because of the emergent behavior we expect to see; i.e., we rely on the interactions between the components we deliberately choose and connect in certain ways to produce desired behaviors of the system as a whole that we cannot get from the individual components acting in isolation. This is basically what system design is about.

The reasonable observation that emergent behavior is sometimes unexpected has led some thoughtful people to try to turn this possible liability into an asset, or even more aggressively, to partition design strategies into two “all or nothing” factions. We either design everything to “just makes it unintentional on our part, not spontaneous on the artifact’s part.

For example, Richard Veryard (refer to: http://rvsoapbox.blogspot.com/2011/03/emergent-architecture.html) writes:

“As I see it, the notion of emergence leads to a key distinction for enterprise architecture, between a planned order (which Hayek called Taxis) and an emergent spontaneous order based on self-organization (which Hayek called Cosmos).”

I don’t know if Richard considers these to be the extremes of a spectrum rather than mutually exclusive classes, but it’s easy to see how he could be interpreted as meaning the latter. In my experience, artifacts don’t self-organize. Some of the organizations (i.e., sets of connections) we impose on the elements of an artifact are easier to realize than others, and these usually result in better (specifically, simpler) designs; this is the idea of “Occam’s Razor”. But whatever adaptive behavior an automaton (i.e., an artifact/system that does not include people) exhibits is there because we designed the artifact in a way that enables such behavior. The fact that we may not have done so deliberately does not make the adaptive behavior any more “spontaneous”, it just makes it unintentional on our part, not spontaneous on the artifact’s part.

Of course, all of this changes rather dramatically when we are dealing with people-intensive systems, and an enterprise is unquestionably a people-intensive system. As I have been saying for years now, people are autonomous and nondeterministic. Systems of people do self-organize, but they don’t generally do so in a mindless fashion, they do so with some degree of deliberation. In the most extreme form of this a system of people is designed as if the people were automata, a practice sometimes mistakenly called Taylorism.

Finally, I am increasingly encountering a meme that we should deliberately design unpredictability into our systems as a means to adaptive behavior and thus agility and innovation. I suspect this comes from the observation that agile systems sometimes exhibit unpredicted behaviors, some of which can be considered “innovative”, or at least “different”. It is faulty logic to conclude that this means that agile and innovative behaviors are somehow a consequence of this unpredictability.

One can construct a plausible though still logically flawed rationale for this inference by extending the idea of emergent (i.e., “unpredictable”) behaviors to designs and architectures. This is the second of the three things called “emergence” that are of interest to enterprise architects. It is based on the agile software development idea of continuous refactoring – the design evolves over time by formalizing recurring patterns that are observed as new capabilities are added successively to the software artifact.

One can then posit that emergent behaviors are inherently “adaptive” and therefore “good”, and thus emergent – i.e., “unpredictable” – designs and architectures are also inherently “good”; i.e., inherently agile. The question of whether emergent behaviors, and thus emergent designs and architectures, are inherently good is another subject for some other time, but the idea that unpredictability facilitates agility makes absolutely no sense to me.

In particular, agility and unpredictability seem to me to have little, if anything, to do with one another. Simply consider a strategy of introducing unpredictability by using a random number generator to determine a component’s behavior. This won’t improve agility one whit. With respect to innovation, I observe that we don’t change things just to get any different result; we change things to get a specific kind of different result. Relying on unexpected behavior to get a specific kind of outcome seems to me to be a high risk proposition.

Change isn’t an end in itself; change is the necessary means to getting to a different place where we actually want (or are at least willing) to go. The conventional mantra is that change is difficult – but if I don’t care about the outcome, change can be arbitrarily easy. It’s not terribly difficult to change a crystal goblet into a random constellation of shards; just drop it on a hard surface from a sufficient height. What’s more, the arrangement of the shards will surely be unpredictable, and while the arrangement may be agile in the sense that it can be easily rearranged (there are no longer any connections to break and remake) that doesn’t make it any more useful.
CONNECTIONS AND AGILITY: COUPLING

So, we connect things to enable emergent behaviors of the kind that we want a system to exhibit. When we want the system to exhibit a different behavior, we have to, among other things, break existing connections and make new connections. This suggests that, to do so quickly and easily, we should minimize the number of connections that we have to make or break, and make it easy to make or break them. This in turn suggests the following two rules of thumb:

- Only make the connections that you absolutely must make.
- Don’t make necessary connections any stronger than they need to be.

There is a corollary to the first rule of thumb, which applies in dynamic contexts (such as the designing, making, and using of systems):

- Don’t make a necessary connection any earlier than you absolutely need to.

Historically this has been known as the principle of deferred binding, but that appellation has apparently been appropriated of late by the Google Web Toolkit.

It is important to note that these rules of thumb apply as well to self-adaptive systems as they do to “planned” systems.

Myers’ book is nominally about the design of software, but his ideas apply generally. He calls the nature of the connections between modules (system components) “coupling”, and the book describes seven different forms of coupling, how to recognize them, and their pros and cons.

MODULES

The behavior of a system derives from the behavior of its components; the connections between these components enable the system to exhibit emergent behavior, but the connections don’t themselves “behave”, though their properties (for example, latency, bandwidth, and error rate) can have a significant effect on how the components they connect behave, both individually and as a system.

For connections to be made between components, components must have interfaces. Identifying the boundary that defines a component, the interface it presents to other components, the behavior it exhibits, and what goes on inside the component to engender that behavior is the fundamental problem of system design. These four aspects of a system component (boundary, interface, behavior, mechanism) are inextricably linked. The general task of defining them for all the components of a system is called partitioning, and the specific task of doing so in a way that addresses a number of specific goals is called modularization.

System components are thus often referred to as modules. It is worth pointing out that the actual boundary, interface, behavior, and mechanism of a module may not be those that its designer intended or specified, for a variety of reasons.

As the connections between modules are made through their interfaces, one way to address the design rule of thumb to not make connections any more difficult to make or break than is absolutely necessary is to make a module’s interface as simple as possible. Indeed, many designers use a version of Occam’s Razor of the form that a complex interface is suggestive of a suboptimal modularization.

Another factor influencing agility is the ability to reuse existing modules, or to easily adapt them to new needs. The use of the term “module” often implies reusability and standardized, and thus compatible interfaces across a set of modules, such that they can be easily assembled in a variety of ways to achieve different results. Lego™ bricks are a classic example of such a system of modules.

Adaptability of complex systems can be achieved by considering a module as a system, and applying the design practices being considered here for a system as a whole to its individual modules. How we achieve reusability is less readily apparent, but there is widespread agreement that focusing on providing a single well-defined function (in the most general sense of the word) is a key part of it.

One way of doing this is to use the functional structure of a system’s desired behavior as a guide to the modular structure of the system. We can see this in the way the preferred form of modularization for IT systems has evolved since the early days of programming. Initially, it was very much IT-focused, as the subroutine, eventually formalized as procedures and functions. The next major step was object oriented design, which facilitated structuring programs around abstract models of the behavior they exhibited. The latest major era of modularization is based on services, a concept that, unlike subroutines and objects, is much more meaningful to the community of stakeholders most affected by the system’s behavior. When considered from this perspective, it is apparent that adopting services as the unit of modularization doesn’t by itself ensure agility; we still have to address the challenges of coupling and partitioning. I considered these issues in a talk (“SOA: Old Wine in New Bottles?”) I gave at the Service-Oriented Architectures Conference in Houston TX, October 2005.

MODULES AND AGILITY: STRENGTH

Myers calls the degree to which a module implements a single well-defined function its “strength”. In an earlier
(1975) version of the book, titled “Reliable Software through Composite Design”, he called it “cohesion”. The later book describes seven kinds of strength, and again, how to recognize them, and their pros and cons.

COUPLING AND STRENGTH: THE PARTITIONING PROBLEM

Myers’ book would be valuable if only for his treatment of the ideas of coupling and strength, which provide ways to gauge two important properties of a system design. But knowing that a design is suboptimal is not of much use if we do not also know how to push it closer to optimality. I use the word “optimality” more as a metaphor than a literal goal, because optimization in a multi-dimensional space requires that we be able to clearly answer the question “optimization with respect to what?”. The bulk of Myers’ book explores these issues – there are two chapters on coupling and strength, and 14 chapters on the design context, four of them on decomposition-based design methods.

CONCLUSION

I periodically buy another copy of this book so I’ll always have a spare copy or two to give away to someone who I think would profit from reading it and thinking about its applicability to enterprise architecture and design. Maybe someday we’ll all get together and write a book that explicitly applies these ideas to enterprise architecture.

ABOUT THE REVIEWER

Leonard Fehskens is the Chief Editor of the Journal of Enterprise Architecture.
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Four Questions

A Practicing Architect Asks and Answers Four Questions of Their Own Choosing

Joe Maissel

Question 1: Do you ever get asked “What exactly is enterprise architecture?”. How do you answer?

I get asked all the time! Friends, colleagues, family members, etc. all ask me what I do for a living. I always try to tailor my response to the audience. For those that know little about large companies or Information Technology, I say something along the lines of “I help big companies make sure they’re using technology as effectively as possible”. For those who work on the “business” side of a large organization, I get more specific. I say that I “help align goals and strategies of an organization with their execution on IT systems. There are tried and true methods for helping businesses become more effective in reaching their goals, be it top line growth, risk reduction, or cost savings. I have expertise in those methods.”.

For those with business management experience, this answer makes perfect sense. Business folks are all too familiar with information systems not meeting their organization’s needs for one reason or another. They love the idea that someone specializes in making sure what they’re trying to execute from a business strategy point of view, gets done successfully. In fact, based on my description, a friend of mine who manages part of a large insurance company, started asking for enterprise architects to attend his meetings with IT. Unfortunately, his organization does not have any enterprise architects on staff!

Ironically, I find IT professionals to be the toughest crowd for explaining the field of enterprise architecture. I think it has to do with the legacy of how IT departments have evolved and operated over the last 50 years. IT professionals often see their skills as independent of the businesses they serve. To some extent, they are right. To this day, a network engineer or a database administrator can be hired for just those skills in many businesses’ IT shops. These IT professionals find the notion of getting involved with the “business” either unnecessary or confusing and uninteresting. So when I try to describe enterprise architecture to IT professionals, I find myself describing TOGAF® or modeling tools or ArchiMate®. But frankly, it’s very often lost on them why any of this is necessary or valuable.

Question 2: What would you suggest to someone looking to become an enterprise architect?

Read! Read, read, read. There is so much good information about our field in the form of books, JEA articles, blog posts, and LinkedIn discussions. Want to understand what enterprise architects do in practice? There are books on that. Curious about business architecture? There are lots of books. Want to know what TOGAF, Zachman, DODAF, or FEAC is all about? You guessed it, there are books for all of them.

There is a fair amount of hand-wringing about “the value of enterprise architecture” among those new to the profession. New enterprise architects are often very concerned with explaining the value of our field to their organization’s senior management. I hear this concern voiced in LinkedIn forums, and during our AEA New York Chapter meetings. This is in part because many organizations have tried enterprise architecture only to jettison it during a downturn. It’s also partly because many organizations start an enterprise architecture program without a strong understanding of how to structure it or get the most value from it. So many new enterprise architects find themselves in a situation where the people around them, including senior management, don’t fully understand the enterprise architect’s role.

With this backdrop of many failed enterprise architecture practices, the hand-wringing is understandable. My suggestion is that reading is one of the best ways to cope with this reality. You will learn about what works and what doesn’t in our profession. If you are trying to transition into the field, knowing what successful enterprise architecture looks like is a huge help.

Question 3: What books on enterprise architecture do you recommend?

“Enterprise Architecture as Strategy” is a classic and a great starting point. “Collaborative Enterprise Architecture” by Bente et al. is great for providing concrete scenarios for valuable enterprise architecture work. Off the beaten path there are the iconoclastic works of Chris Potts who manages to turn IT strategy into fiction. The “FruiTion”, “RecrEAtion”, “DefrICtion” trilogy is worth your time. I’m interested in the ArchiMate
modeling language and found Mark Lankhorst’s book “Enterprise Architecture at Work” incredibly valuable. It helps you understand exactly where ArchiMate fits in the pantheon of modeling languages and when it’s a good fit for the architecture task at hand. I recently finished Gerben Wierda’s “Chess and the Art of Enterprise Architecture” (also the author of “Mastering ArchiMate”). “Chess and the Art...” has some excellent insights on the day-to-day realities of practicing our craft.

I would also recommend reading about business architecture. “Introduction to Business Architecture” by Reynolds is a great introduction. I’m currently reading “Business Model Generation” by Osterwalder et al. It’s about using the Business Model Canvas. I have yet to use it in practice, but it looks promising for getting to the essential elements of an organization’s business strategy.

**Question 4: Do you have any recommendations for enterprise architecture toolsets?**

Yes, I do. I recommend you spend as much time as you can understanding what tools are out there and how they help enterprise architects do their work. There are a wide variety of tools and they cater to different outcomes. There are a number of lists that have been compiled and are easily found with a quick web search.

Enterprise architecture tools have evolved organically over a long period of time, and no single player has come to dominate the market. As a result, we have no de facto standard for tools in our profession. We have standard methodologies and frameworks. We have standard languages like ArchiMate, UML®, and even the BMM. But we have no “IT4EA”. The downside of this is that there is no one, or even common, way to use a tool set in an enterprise architecture practice. It can make tool selection confusing and a bit overwhelming. The upside is that there is a rich vendor landscape, and if you look carefully, you are likely to find a solution for what you’re trying to achieve.

I find it a bit ironic that there are no established reference architectures for enterprise architecture tools. Of all the communities out there, wouldn't enterprise architects be the FIRST to establish a reference architecture for the IT tools they use!? But as far as I know, there is nothing of the sort out there accepted as the standard set of functions that any decent enterprise architecture toolset should contain.

I’ve been working on just such a reference architecture and plan to submit an article about it to this very Journal. Stay tuned!

**ABOUT THE ARCHITECT**

Joe Maissel is a recognized expert in enterprise architecture tools, and the current Chair of the AEA New York Chapter. With a long career in many facets of architecture, systems engineering, and education, Joe feels at home teaching TOGAF courses and providing training on enterprise architecture toolsets.

Joe started his career as an entrepreneur. His groundbreaking website work on soundwire.com was featured in numerous books, magazines, and periodicals including Wired Magazine and The New York Times. Joe was a featured speaker at conferences focused on Internet and entertainment. Joe parlayed his passion for the web into an IT Infrastructure and Systems Architecture career, building Middleware and Unified Communications systems for Investment Banks such as Credit Suisse and JP Morgan Chase. He was selected to chair the Financial Services Instant Messaging Association (FIMA), which he led for three years, and became an elected member of the XMPP Standards Foundation (XSF). Joe was the creator and primary instructor for “Web Architecture and Infrastructure” which was offered at NYU from 2001 through 2008. The course became required curriculum for students pursuing certification in Web Programming. Recently, Joe led Western Union’s effort to adopt enterprise architecture tools and methodologies. He introduced the use of UML tools and worked to build a full enterprise architecture modeling practice based on the industry standards TOGAF and ArchiMate.
INTRODUCTION
This year was again a busy one for the AEA Hungarian Chapter. We organized eight interesting club meetings and sent out monthly newsletters. The objective of this article is to inspire other chapters and to show future members reasons for joining our Chapter.

The Hungarian Chapter of the AEA started in 2012. There was no such civil organization in the country for the enterprise architect profession, so joining a prestigious international association was a big advantage. After a short preparation period, the new Chapter could start active operation.

AEA CLUB EVENTS
AEA Club events are organized monthly. Each event starts with a presentation and continues with a Q&A session and conversations that can be even longer than the presentation that introduced a topic. The speakers are from various companies. This is also a great opportunity for the attendees to make new contacts for further cooperation.

Participation in these events is free for members of the Chapter and for other interested colleagues with pre-registration. This is an important way to build the Chapter's contact database. We also acquire new contacts via the short questionnaire used in the download section of the AEA Hungarian Chapter's webpage.

LOCALIZATION AND DOCUMENT TRANSLATION
In this region in some cases a foreign language can make it difficult to use methods, frameworks, and best practices. It is also true for enterprise architecture documents, and for TOGAF® or ArchiMate® literature.

In this situation members of the AEA Hungarian Chapter decided to take the first steps and translated the basic documents that are important foundations for any other localizations. We are proud to say that the TOGAF® 9.1 Translation Glossary: English – Hungarian and also the ArchiMate® 2.1 Translation Glossary: English – Hungarian were elaborated by our Chapter members and are accessible as Open Group Publications.

With the support of the local chapter a TOGAF PowerPoint slide deck was also created in the Hungarian language. This is a collection of 800 slides where everything, including the diagrams and illustrations, is in our language.

CONFERENCES
It is important for the AEA Hungarian Chapter to be present at certain professional conferences in Hungary. Representatives of the Chapter visited conferences like CIO.hu, HOUG (Hungarian Oracle Users Group) conference), INFOhajó (conference of the Hungarian CIO Association), and also the Parliament of the Information Society.

A sign of recognition is the fact that several organizations offered discounts for the members of the AEA Hungarian Chapter for their local conferences.

In addition to participating in conferences we also gave presentations as part of the program at professional events. The last AEA presentation was part of the HOUG (Hungarian Oracle Users Group) conference program. There was also a conference presentation given by the AEA Hungarian Chapter for CIOs with the
title: “Win the war not the battle” explaining the importance of enterprise architecture methods and tools.

**TRAINING**

Education is extremely important at some companies where there is not even consensus about the usefulness of the enterprise architecture approach and methods.

There is good cooperation with the Education Services at HP Hungary. The Chapter members receive a 15% discount for regular TOGAF training and workshops organized by HP Education in Hungary. The association supports this training with continuous evangelism regarding the advantages of enterprise architecture methods through its communication channels and the regular trainer who is actually the author of this article.

**GOOD RELATIONSHIP WITH OTHER ORGANIZATIONS**

It is a good practice for the Chapter to have partners. We have good relationships with other professional organizations at the local level. PMI Budapest, Hungarian Chapter, member of PMI, the worldwide organization of project managers, works very efficiently as a local community. The two organizations work together in many ways. We promote each other’s events on our channels. We had an interesting AEA Club event where the president of PMI Budapest was our guest to discuss the viewpoints of project managers and enterprise architects.

HOU (Hungarian Oracle Users Group) was already mentioned as partner of the AEA local chapter. We plan a joint club event for the coming year. The prestigious John von Neumann Computer Society (NJSZT) has included AEA events in their event calendar and other local organizations have also published AEA events to their contacts.

The Chapter has good relationships with local organizations of the most important IT vendors too. We had AEA Chapter events at HP, IBM, and Microsoft.

**SUMMARY OF AEA CLUB EVENTS IN 2015**

**EA (Enterprise Architecture) and BA (Business Analysis) Relations**

The questions we discussed in this event were: Where and how is BA and EA information linked? What can be used in each area and what expectations do EA and BA practitioners have of one another? If you know more about the methods and approaches of a connected domain, you can cooperate and use the methods of the other domain and even substitute for each other at some level. BABOK, the "bible" for Business Analysis, that is also useful for enterprise architects, was introduced at this event.

**Enterprise Architecture**

The models and documentation of the architectures in an enterprise are important tools for different professional areas of the company. The typical mistake is handling different components of the architecture separately in different departments with different IT tools. The enterprise architecture approach means integrated management of all the different components of the architectures and use of consolidated high-level models to improve the efficiency of decision-making processes and to reduce the risks caused by the lack of information during decision-making.

**Projects and Architects**

The Project Manager (PM) and Enterprise Architect (EA) professionals work in close collaboration for successful projects. The activities of PM and EA professionals are connected at a number of points. The presentation highlighted these connection points based on the key methodologies and also on best practice. Participants had the opportunity to discuss their personal experiences, and to ask questions as well.

**Enterprise Architecture of the Future**

The presentation outlined the main trends from which you can forecast the future. Cloud and mobile architectures were discussed as well. Participants shared their ideas and their expectations regarding future enterprise architectures.

**Evolution of Architectures – In a Unique Environment**

This Chapter event was organized in a very special, unique environment: the two levels of the Albert Szent-Györgyi Agora building that display real “relics” of computers such as the M3, URAL2, RAZDAN, MINSZK 22, “Ladybird from Szeged”, etc., up to almost the present day, in a world-class collection.

No other museum in the world owns such a diverse collection of computing equipment. Dr. Daniel Muszka and Dr. Mihály Bohus, leading professional advisors, provided a unique and unparalleled guided tour, sharing their personal experiences.

**Application Areas of Enterprise Architecture**

This Chapter event started with a question: Is it useful for a Hungarian company to follow TOGAF? The presentation gave an overview of the most important areas where enterprise architect activities can support the mission of a company. In addition to the overview, real project results were also shared. The participants discussed their experiences.
**Enterprise Architecture Implementation Project**

**Experience at Hungarian Roads Management Company**

The participants heard about the experiences of the phased enterprise architecture introduction/design project that took place at the Hungarian Roads Management Company. The speakers presented the chosen framework, methodology, documentation tool, and modeling language customization. A pilot project and possible future steps were also presented.

**Art of Architectures**

The guest of the last very special AEA Chapter event in 2015 will be Péter Pozsár, senior designer at the Újirány Group. The group gathers architects and landscape architects, who realize projects that include both functions together. Péter is founding curator of Hello Wood that is an independent, international educational platform of design and architecture and a design studio based in Budapest. Their work integrates various fields of art, design, and science. The main activities of Hello Wood are the international art camp every summer, the architecture and design studio, and the research program. Hello Wood is a profoundly democratic opportunity to connect different generations, designers, and artists with various cultural, academic, and professional backgrounds.

**SUMMARY**

There are many advantages of being a member of the AEA Hungarian Chapter that has operated since 2012. The monthly professional events called AEA Club, the access to translations (TOGAF, ArchiMate), support for training, monthly newsletter, discounts for conferences and training, and last in this list but most importantly the networking opportunities with experts on similar topics are reasons to belong to this professional organization. Hopefully, we will see some of you JEA readers as new members of the AEA Hungarian Chapter!


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**ABOUT THE AUTHOR**

Tamás Virágh, MSc in mathematics (program designer) and TOGAF 9 Certified, is president and founding member of the AEA Hungarian Chapter. Tamás is business consultant at Hewlett-Packard Enterprise, working as a member of the regional Enterprise Services Practice Advisory and Consulting Team. He is also a guest lecturer at Budapest University of Technology and Economics (BME).
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Article

Enterprise Architecture Metrics

Dr. Gopala Krishna Behara and Prasad Palli

Abstract

Most organizations have been driving Enterprise Architecture (EA) initiatives across the enterprise for the last few years. Successful implementation of EA is crucial for business and IT alignment. Today, there exists no tool which measures the success of EA implementation. Based on our experience in the EA consulting space, we described a model for metrics identification, objectives, metrics parameters, and their benefits in the EA context. The success of EA implementation can be measured indirectly by measuring the achievement of the objectives set for the implementation. It also depicts the details of the recommended roles and responsibilities for EA metrics measurement, communication, and reporting.

Keywords

Enterprise Architecture (EA), Value Measurement, Strategic Alignment, Metrics

INTRODUCTION

As organizations grow bigger and more complex, it becomes difficult to meet business expectations and achieve alignment of business and IT. Measuring the performance and progress of an organization’s Enterprise Architecture gives the Enterprise Architecture (EA) Team an opportunity to identify areas where they need to focus in order to ensure that EA is functioning properly and delivering the intended value.

“One cannot manage what one cannot measure.” [1]

The goal of deriving value from an EA initiative can only be achieved when the value of EA to the organization can be measured effectively and tangibly. For an EA program to be successful, it must be periodically monitored and measured with respect to a set of defined EA metrics.

Today, most organizations have no mechanism to measure the effectiveness of EA, there being very little guidance on the measurement of EA effectiveness. Most organizations focus on the definition and completeness of their EA and the maturity of their EA development processes rather than measuring the effectiveness of their EA. Based on a survey conducted by Gartner, less than 44% of organizations [2] are defining key metrics associated with their EA efforts. 48% of EA practitioners [3] stated that one of their top three challenges is: “How do EA practitioners engage senior management to support/continue supporting the EA program in order to achieve the full value from the program and deliver this value to all stakeholders?”.

To ensure that EA is progressing well, and is also adding value to the organization, there is a need to define metrics for measuring its effectiveness. However, EA metrics is still an emerging field and there are no defined standards. Also, the current literature does not describe any tools to measure the success of EA implementations.

This article describes how EA metrics help measure both the progress of an EA implementation and its maturity. It covers the benefits of having EA metrics and also captures an approach used for defining EA metrics. It describes metrics for measuring the progress of EA in the short term and for measuring the value delivered by EA in the long term.

WHY MEASURE?

Traditionally, EA has been measured on the immediate benefits that it provides to the organization. Although EA has a significant impact on how the IT organization aligns with business, if EA metrics are only limited to measuring business-IT alignment, they will fail to measure the long-term effect of EA and more importantly its effect on business, as an enabler and catalyst of change.

Based on the authors’ interactions with various customers, the following are the practical challenges that they encountered in measuring the effectiveness of EA:

- Effectiveness of EA is rarely assessed.
- There are no established industry standard metrics for measuring EA effectiveness.
- EA context significantly differs between and across organizations and also within organization units.
- Different stakeholders have different perceptions and expectations of EA.
- Most EA metrics aim to measure EA value in IT terms, not in business terms.
• Measurement data concerning EA often does not exist within the organization.
• Objectives of EA change during the implementation path – this is not a challenge. In fact, EA should be more agile in adopting changes.
• Most employees of an organization do not know about architecture.

EA effectiveness is the degree to which the objectives of EA are being attained by means of EA. EA metrics not only help gauge the long-term effect of EA, but also help measure the true value of EA. This will enable the organization to plan more effectively and efficiently.

Measuring EA effectiveness is necessary to:
• Determine how effectively and efficiently a process or service satisfies the customer
• Improve the organization’s ability to seize new business opportunities
• Make decisions based on data
• Improve agility
• Extend systems to meet increasing demand
• Provide opportunity for innovation

Measurement should:
• Translate customer expectations into goals
• Evaluate the quality of processes
• Track improvements
• Support enterprise strategies

These are key areas that an enterprise should have visibility into. Each area of measurement will have multiple parameters/attributes and provides multi-dimensional views of how an organization is performing.

**Approach for EA Metrics Identification**

EA should be measured in a manner which reflects its effect on the business. Also, it is important to measure and monitor the progress of EA while EA is being implemented, until the time it reaches a level of maturity that delivers the desired value to business. Also, this measurement process will be continuous.

EA metrics estimate progress during the early stages of EA implementation. They also help recognize the efficiency and effectiveness of EA to ensure that the true value of EA is delivered to the business. A number of models with similar objectives are developed and proposed, like EA balanced scorecard [4], EA maturity models [5], [6], [7], [8], and EA analysis approaches [4], [3].

For an EA program to be successful, it must be periodically monitored and measured with respect to a set of defined EA metrics. The status of these metrics can be captured, presented, and communicated effectively to the relevant stakeholders at regular intervals. Since EA goals and processes are very broad, YoY (Year on Year) measurement comparisons for all EA metrics would be a good indicator of EA program penetration across the organization. The identification of EA metrics will be done by adopting the EA Value Score Card Method (EAVSCM) which is shown in Figure 1.

![Figure 1: EAVSCM Approach to Identify EA Metrics](image)

As Figure 1 shows, the business strategy of the organization is the preliminary input to the EA metrics model consisting of EA Metrics inputs and EA planning inputs. These inputs would be used in all planning activities across the organization. Measuring the planning effectiveness and efficiency would clearly represent the value of EA to business, as these planning activities affect all four aspects of the organization; i.e., finance, customer, growth, and processes.

The most commonly used EA metrics for an organization are defined in the table below. These are purely based on these authors’ experience. Again, these vary from domain to domain and customer to customer.
### Table 1: EA Metrics Details

<table>
<thead>
<tr>
<th>Objective</th>
<th>Metrics</th>
<th>EA Involvement</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer Metrics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Business Value due to EA</strong></td>
<td>Business process efficiency: Improvements made to the business process (quality, costs) through architecture initiatives; e.g.:</td>
<td>Enable simplified and standardized solutions that are modular</td>
<td>Improved reliability, quality, and efficiency</td>
</tr>
<tr>
<td></td>
<td>- % reduction in product errors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- % of delivered capabilities <strong>versus</strong> proposed capabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Number of Operational Alignment (OA) <strong>versus</strong> total OAs for the EA program</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Number of business processes improved/reorganized</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Business Risk Management</strong></td>
<td>Risks addressed through architecture initiatives; e.g.:</td>
<td>Helps in establishing a Risk Management Framework covering processes and technologies</td>
<td>Potentially avoid situations that damage the organization’s reputation due to hardware or software failures</td>
</tr>
<tr>
<td></td>
<td>- Mitigation of hardware and software obsolescence risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time to Market</strong></td>
<td>Improvement in decision-making cycle (product/business) due to the alignment of business processes and goals with the application and technology components</td>
<td>Improve the business – IT alignment</td>
<td>IT is agile and meets the business needs quickly; e.g.:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Quick introduction of new products/offerings into market</td>
</tr>
<tr>
<td><strong>Operational Integrity</strong></td>
<td>Impact of architecture initiatives on the Operational Integrity aspects:</td>
<td>Facilitate the architecting and design of reliable solutions that are easy to operate</td>
<td>Reduces downtime of IT applications</td>
</tr>
<tr>
<td></td>
<td>- Application availability statistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Trending of high-priority incidents</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Financial Metrics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capital Expense Reduction</strong></td>
<td>Capital expense reduction through the prevention of non-standard, one-off solutions Business process optimization:</td>
<td>Demonstrate the benefits of cross-functional Initiatives</td>
<td>Avoid duplicate projects/investments</td>
</tr>
<tr>
<td></td>
<td>- % of processes reduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- % reduction in average time taken for process execution</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- % improvement in process efficiencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Enabling Organization Use of Latest Technologies</strong></td>
<td>Benefits from using the latest technologies; e.g.:</td>
<td>Innovation driving efficient investments through the use of new technologies</td>
<td>Ensure better ROIs and minimum technical debts</td>
</tr>
<tr>
<td></td>
<td>- Reduce capital expense through the usage of SaaS, PaaS, IaaS solutions and new technologies</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Infrastructure consolidation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Cloud enablement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- % of server consolidations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- License optimization</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- % reduction in licenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Adoption of open source</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Financial Metrics

<table>
<thead>
<tr>
<th>Objective</th>
<th>Metrics</th>
<th>EA Involvement</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset Reuse</td>
<td>Maximize IT asset reuse (applications and servers):</td>
<td>Improve the IT asset reuse through better governance</td>
<td>Application and server infrastructure reuse has a significant positive impact on the organization</td>
</tr>
<tr>
<td></td>
<td>• Number of shared services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sharing of server infrastructure and application reuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of projects leveraging enterprise solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of components deployed and used by projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of projects using the services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cost reduction (due to reuse)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Project development lifecycle time reduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Licensing cost reduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Reusability:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % increase in reusable services across the organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sharing of server infrastructure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Application reuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>EA repository:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of accurate data captured in EA repository wrt business, applications, information, and technology components</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of relevant reports used as part of strategic decision process</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Integration (two-way) of various enterprise systems with EA repository</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational Expense Reduction</td>
<td>Portfolio simplification:</td>
<td>Support rationalization to simplify the portfolios</td>
<td>Portfolios are easier to manage and are less expensive to support</td>
</tr>
<tr>
<td></td>
<td>• Operational expense reduction through the simplification of application and server portfolio</td>
<td>Bring cost transparency to run IT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Better visibility into operating costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Application portfolio rationalization and management:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of application decommission</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of application consolidation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of legacy transformations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Shared services:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of FTEs shared across resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of shared services across the organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Application health analysis:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of reduction in ticket volumes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Transformation Initiatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of transformation initiatives executed within defined SLAs (on time delivery, within budget, etc.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Growth Metrics

<table>
<thead>
<tr>
<th>Objective</th>
<th>Metrics</th>
<th>EA Involvement</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning and Capability</td>
<td>Increased capability of project teams to take up bigger activities due to learning and capability improvements</td>
<td>Mature team capabilities through clear definition of roles and responsibilities</td>
<td>Motivated team with clear career paths that can successfully deliver</td>
</tr>
<tr>
<td></td>
<td>Capability maturity of teams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td>Training/learning opportunities provided/utilized both internally and externally</td>
<td>Facilitate team collaboration and knowledge sharing</td>
<td>Avoid reinventing the wheel and repeated costly mistakes</td>
</tr>
<tr>
<td></td>
<td>Participation in training Number of certifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workforce Effectiveness</td>
<td>Productivity gain due to the deployment of standard solutions and functioning of architecture:</td>
<td>Common and consistent architectures, interfaces, and components</td>
<td>Significant productivity gains through the use of standard/factory model</td>
</tr>
<tr>
<td></td>
<td>- Number of projects reviewed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Number of review requests pending</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Review cycle time</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Average time of an EA issue resolution</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Number of issues with which EA Core Team assisted PMO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accelerated Growth</td>
<td>Accelerated growth through improved decision-making facilitated by the EA framework and models (e.g., M&amp;A, divestment decisions)</td>
<td>Assist in dependency management, impact assessment to support accelerated growth</td>
<td>Easier decision-making due to better understanding of impacts</td>
</tr>
</tbody>
</table>

## Process Metrics

<table>
<thead>
<tr>
<th>Objective</th>
<th>Metrics</th>
<th>EA Involvement</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory Compliance</td>
<td>Regulatory Compliance Number of instances that audit teams have consulted EA/referred to EA repositories for legal, regulatory compliance documentation</td>
<td>Support legal/regulatory compliance through EA repositories/activities</td>
<td>Provide an insight into the IT controls that are in place</td>
</tr>
<tr>
<td>Project Architecture Assurance</td>
<td>Architecture risks:</td>
<td>ARB reviews catch architecture/design risks early in the project lifecycle</td>
<td>Potential avoidance of costly mistakes during the later stages of the project lifecycle</td>
</tr>
<tr>
<td></td>
<td>- Number of audits that EA have conducted and audit statistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Number of project/application risks found by the EA review board</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- % projects with architecture risk mitigation in place</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risk reduction due to the presence of architecture controls (e.g., stage gate findings):</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Number of audits that EA Core Team have conducted and audit statistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Number of project/application risks found by the EA Core Team</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- % projects with architecture risk mitigation in place</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risk reduction due to architecture controls</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mitigation of hardware and software obsolescence risks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Table 2 (below)**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Metrics</th>
<th>EA Involvement</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Standards and Process Compliance</td>
<td>IT standards and process compliance:</td>
<td>Drive behaviors toward adopting relevant IT standards and complying with the processes</td>
<td>Minimum number of dispensations</td>
</tr>
<tr>
<td></td>
<td>• # of dispensation requests reviewed/approved</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduction in the % deviation from standards due to the collaboration with the partners and suppliers:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of projects developed using defined standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of applications compliance with principles, policies, and best practices</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % reduction in non-standard technologies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimizing Rework</td>
<td>Collaboration with suppliers and partners:</td>
<td>Improve collaboration through stronger compliance with IT standards and processes</td>
<td>Robust internal processes avoid potential rework and thereby save costs and time</td>
</tr>
<tr>
<td></td>
<td>• Timely and economical delivery, complying with the applicable specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of applications complying with defined non-functional requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of applications/technologies adhering to defined IT standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• % of projects conforming to defined templates</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduction in the % deviation from standards due to collaboration with partners and suppliers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EA Metrics Capturing Methodology**

Figure 2 shows how to capture the metrics of a typical enterprise and the stakeholders involved in capturing these metrics.

Some of them like cost, time, and effort-related metrics require careful tracking from the project initiation phase to show the effectiveness and value of the EA to the organization.

The EA metrics will be used for measuring and monitoring the development and performance of EA at the organization, and thus the implementation of EA metrics would be within the EA practice of the organization.

Table 2 (below) gives details on the recommended roles and responsibilities for metrics measurement, communication, and reporting of EA metrics.

---

**Figure 2: EA Metrics Capturing Methodology**
### Table 2: EA Metrics Roles and Responsibilities

<table>
<thead>
<tr>
<th>Task</th>
<th>A: Accountable</th>
<th>R: Responsible for Development/Execution</th>
<th>PS: Performs Execution</th>
<th>D: Provides Decision/Approval</th>
<th>I: Is Informed of Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gather data for EA metrics</td>
<td>A</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generate EA metrics and populate the dashboard</td>
<td>A</td>
<td>R</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communicate EA metrics</td>
<td>A, R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze the measurements and identify recommendations for improvement</td>
<td>A, R</td>
<td>R</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify changes or additions to EA metrics</td>
<td>A, R</td>
<td>R</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report EA metrics and improvement initiatives (if any)</td>
<td>A, R</td>
<td></td>
<td>I</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* CXO could be CTO or CIO

### CONCLUSION

Establishing an EA function helps organizations keep complexity and misalignment at bay. But it is not inconceivable that EA may itself fall prey to this complexity trap if it is not well defined, managed, and maintained. Even if it is, it may be of little or no value to the organization if the well-defined artifacts are not used by the organization or if the EA processes are not adhered to.

To ensure that EA is progressing well and is adding value to the organization, there is a need to define metrics for measuring the progress and performance of EA.

The EA metrics should measure the implementation of EA and are thus governed by the concept of EA maturity. The long-term metrics are defined in terms of effectiveness, agility, and alignment to business goals and strategies. Once EA architecture is properly implemented and business entities are engaged, it will improve the overall planning activities of the organization and not just IT.

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### REFERENCES


[2] Gartner conducted this survey in May and July 2012 of 134 attendees of Gartner's EA Summits in London and the US, as well as attendees of Gartner's webinar on enterprise architecture best practices, which asked: "What are the top three challenges your organization has had with enterprise architecture over the past year?".

[3] Gartner conducted this survey in August 2011 with 360 participants, which asked: "Does your organization currently have a formal enterprise architecture measurement program in place?".


### DISCLAIMER

The views expressed in this article are the authors’ alone and do not necessarily reflect an official position of Wipro or any other organization.
Len’s Lens

Is versus Does

Leonard Fehskens, JEA Chief Editor

Abstract
There is a widespread tendency within the EA community to mix up the concepts of an organization (an identifiable structured group of people and resources) and an enterprise (an ambitious undertaking). This failure to distinguish between what something is and what it does unavoidably leads to confusing cause and effect and their respective architectures.

Keywords
Architecture, enterprise architecture, meaning, frame, perspective, assumptions, ambiguity, overloading

INTRODUCTION
Some time ago (December 2012), I wrote a three-part series for The Open Group Blog titled “Different Words Mean Different Things”. My main concern in that piece was the widespread tendency to use words like “organization”, “enterprise”, “business”, and “corporation” or “company” as more or less interchangeable synonyms.

I am mildly distressed to note that people continue to blur these distinctions, so I think it is worth revisiting the subject.

I’ll come back later to the specific reasons I think we need to keep the ideas of enterprise and organization distinct from one another, after exploring the issue more generally.

PROFESSIONAL VOCABULARIES
Let me first make some observations about the way the EA community tends to approach the problem of developing a professional vocabulary.

Sometimes (actually, frequently nowadays) I wonder if we’re approaching this problem the wrong way round, “putting the denotational cart before the semantic horse”. We start with the words we think we need to use and then try to “define” them.

Shouldn’t we instead start with the concepts we need to successfully practice our art (the “definitions”) and then choose the words best suited to denote them? Ultimately it isn’t the words that matter, it’s the concepts they denote that matter. Our use of specific words is important only to the extent that they consistently suggest the concepts we need them to denote.

I have argued elsewhere that the words we use to denote concepts carry “connotational baggage”, and that a big part of our problem with correctly understanding one another is the fact that while we can nominally agree on what a word denotes, its connotations are generally more personal, if not at the individual level, surely at the cultural level. Again, this is a feature of sorts in the context of the expressive arts, but in a professional language it can be catastrophic. This is why, for example, though the international standard for the language of air transport is English, there are still problems with crew members misunderstanding one another and with aircraft crew and ground personnel misunderstanding one another.

Ideally, the mapping between words and concepts would be one-to-one, with different words denoting different concepts, but there are only so many words to go around. We have to balance the use of a single word to denote multiple concepts against the opportunity for confusion that doing so creates. As I noted in the previous installment of this series, “a single word having multiple meanings is not uncommon in English; it’s called polysemy”. But in the controlled language of a profession, one word to one concept should be our aspiration. In the expressive arts polysemy is a feature, but in a professional conversation, any ambiguity can lead to misunderstanding, which can create challenges to effective collaboration and thus achievement of the mission. In a surgical suite or on the flight deck, expressive richness is a luxury that is more of a liability than an asset.

When we communicate with one another we have a natural tendency to assume that others understand the words we use the same way that we do. This assumption is so common that we are often unaware that we are making it, and the implications of doing so.

When an assumption is so widely made, the solution in critical contexts is not likely to be insisting that people stop doing so (which doesn’t solve the problem of
ambiguity, only makes people more aware of it), but rather to render the action innocuous; hence the development of controlled vocabularies.

Multiple words denoting the same concept waste a precious resource, but more importantly, may obscure the fact that we have overlooked a concept essential to the successful practice of our art, a concept that one of those words could be used to denote.

Finally, if we start with the words, how can we be sure that we have identified all the necessary concepts?

As long as we persist in starting from the words as givens and trying to fit our concepts to them, we are going to have frustrating debates about what the words we use “really” mean.

AN ILLUSTRATIVE ASIDE


While they are all ostensibly “About the Relative Size of Things in the Universe” (the subtitle of the Eames film and Morrison book; the “Forty Jumps” of Boeke’s book refers to the span of forty powers of ten, from $10^{-13}$ meters to $10^{26}$ meters, while the Morrison book covers $10^{-16}$ meters to $10^{25}$ meters, and the Eames film $10^{-15}$ meters to $10^{24}$ meters), what is immediately obvious is that different structures dominate at different scales. Professor Morrison makes the following observation midway through his narration to the film:

“Notice the alternation between great activity and relative inactivity, a rhythm that will continue all the way into our next goal, a proton in the nucleus of a carbon atom beneath the skin on the hand of the sleeping man at the picnic.”

These different structures are the subjects of different sciences, from the physics of subatomic particles at the smallest scale to cosmology at the largest scale. In addition, at any given scale, we see sciences differentiated by their specific sets of concerns. For example, at around the one meter scale, we have neuroanatomists concerned with the structure of the nervous system, and behaviorists concerned with the behavior manifested by living things with such nervous systems.

DOMAINS OF DISCOURSE

The set of things that a science concerns itself with is called its domain (or universe) of discourse. The domains of discourse of closely-related sciences (for example, organic chemistry and biochemistry) overlap to some extent, and such sciences often have a relationship with one another that is something like the relationship between cause and effect. Ideally, what we know about organic chemistry should provide some insights into what we know about biochemistry, specifically the reasons we see the biochemical behaviors that we do. These relationships are relative; what is a “cause” when considered within one domain of discourse may be an “effect” when considered within a closely-related domain of discourse, which may in turn be thought of as a cause when considered within a third domain of discourse. This is one of the reasons we distinguish domains of discourse; doing so allows us to keep these relationships clear, in much the same way that modeling and abstraction deliberately and usefully suppress information not immediately relevant to the concerns at hand.

WHY, WHAT, AND HOW

Enterprise architects often use a similar set of relationships to help them structure their understanding of systems of systems. Many enterprise architects consider the roles “why”, “what”, and “how” to be absolute, but it was made clear to me a long time ago that they are in fact relative, and are a much more powerful structuring concept when thought of as relative, just as the roles of “cause” and “effect” are relative to the domain of discourse being considered. In their article “Structured Analysis for Requirements Definition” appearing in “IEEE Transactions on Software Engineering” (Volume SE-3, No. 1, January 1977), Douglas Ross and Kenneth Schoman include a figure that nicely illustrates the idea (see Figure 1).

![Fig. 9: System development is a chain of overlapping questions, documented at each step.](image)

**Figure 1: Why, What, and How as Relative Roles**
IS AND DOES

A recurring pattern that we see in examples of “cause/effect” and “why/what/how” relationships is the relationship between the structure of something (“what it is”) and the way it behaves (“what it does”). In a crude way, this is what the recent appearance of the debate about whether architecture should be thought of as a “noun” or as a “verb” is about. I explored this issue at length in the previous installment of this series “Eight Ways We Frame Our Concepts of Architecture” in the September 2015 issue of the JEA. As I noted then, these frames, and the concepts they denote, are not only equally valid, they are, more importantly, equally necessary to the successful practice of our art.

A similar debate about what “service” means provides an example of the difference between “what something is” and “what something does”. Assuming that only one of these possible frames can be “right” (and thus that the other must be “wrong”), or that a single word should be used to denote both frames (each of which represents a distinct concept) ensures that this debate will never be amicably resolved.

The irony is that most enterprise architects are not only probably familiar with but more importantly also comfortable with the ideas of domains of discourse and the relative roles of cause and effect in the relationships between these domains in the physical sciences. Despite this, they seem unable to see the relevance of these ideas to the ways they think about enterprise architecture.

ENTERPRISE AND ORGANIZATION

Finally, the example of this that Tom Graves and I harp on incessantly is the willful confusion of the concepts we use the words “organization” and “enterprise” to denote. The conventional wisdom is to use the two words almost as synonyms, but in doing do we lose the ability to clearly distinguish between what something is (one or more organizations), and what it does (the one or more enterprises they undertake and participate in). What would medicine be like if neuroanatomy and behavioral psychology were thought of as the same thing? They are clearly closely related, but, in language familiar to enterprise architects, they address different “levels of abstraction” (though I’d argue that they’re not different levels of abstraction, they’re different domains of discourse).

Tom and I have been arguing for some time now that using enterprise as a synonym for (perhaps certain kinds of) organization(s) only leads to confusion, and adds little (if any) value other than to sound more impressive to the uninitiated. It provokes the question “what makes an organization an enterprise?” which then engenders a lot of fruitless debate.

The original meaning of enterprise (from the 15th century) is some form of ambitious undertaking, typically a concerted endeavor involving multiple people, and it is only in the past century that the word has accreted the meaning of “commercial business organization”. The etymology of this new meaning is debatable, but my impression is that it is a consequence of dropping the qualifier “business” from “business enterprise” (a term introduced by writers like Thorsten Veblen (an economist and sociologist) and Alfred Chandler (a professor of business history) early in the twentieth century) as a kind of shorthand.

Regardless of the words we use, there are two distinct concepts here. The structure of an organization (what it “is”) and the structure of its behavior (what it “does”), though closely related, are not the same. Mixing the two up, an unavoidable consequence of not clearly distinguishing them, is like mixing up cause and effect.

Because the EA community does not have a commonly used term for what an organization does, in what follows I will use “enterprise” to denote “whatever it is that an organization does”; i.e., whatever ambitious undertakings it applies its capital assets, intangible (especially intellectual) assets, and people to.

A suggestive analogy is the difference between a program and the machine (processor) that executes it. They are distinct entities and, more importantly, have different purposes, different structures, and different architectures. The purpose of the processor is to execute programs. The purpose of the program is to “compute” something. A single program might be executed by multiple machines in coordinated parallelism, and a single machine might be executing multiple programs at any given time.

Such is the relationship between organizations and enterprises – it is many-to-many. A single enterprise (i.e., ambitious undertaking) may involve the participation of multiple distinct organizations, while a single organization may be involved in multiple distinct enterprises. Addressing these realities in a conceptual model that doesn’t clearly distinguish between organization and enterprise requires the creation of additional concepts (for example, “shared enterprise”) that needlessly complicate things, somewhat like the introduction of epicycles to explain the actual motion of the planets in a geocentric model of the solar system, unnecessary in a heliocentric model.

Pursuing the earlier analogy further, an organization, like the processor, has physical existence (people, capital

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assets, and some representation of its intangible assets). Like the software, the enterprise (ambitious undertaking) itself only “exists” when it is “running”; when it is not “running” it “exists” only as some representation of it as a concept.

And, like the processor and the software running on it, organizations and enterprises, and more importantly, their architectures, represent distinct, though closely-related, domains of discourse. Given the current obsession with enterprise architecture’s role in ensuring that enterprises are agile, not confusing the enterprise with the means by which it is realized would seem to be an important first step.

ABOUT THE AUTHOR
Leonard Fehskens is the Chief Editor of the Journal of Enterprise Architecture.

ACKNOWLEDGEMENTS
Material for this article has been adapted from multiple earlier pieces by the author, including replies to other people’s blogs.
Four Questions

A Practicing Architect Asks and Answers Four Questions of Their Own Choosing

Robert Weisman

Question 1: How did you become involved with enterprise architecture?

After 14 years as a civil and military engineer, specializing in plans and operations, I became involved with defense science in the digitization of the battlespace. As a requirements manager (de facto Business Architect), I was part of a team investigating how to transform the business in order to leverage the new technologies. We had to throw the books away. With the buzz of Artificial Intelligence (AI) piquing my curiosity, I worked in an amazing prototyping facility by day and attended university at night. The prototyping environment was created through the disciplined application of strict business and software architecture principles and I have yet to see it replicated. It was enterprise architecture before the term existed.

Graduate studies in AI and then an Assistant Professorship at the Royal Military College of Canada followed, which allowed me to research decision support and how military techniques could be readily adapted for other environments, such as environmental management and crisis control. Suddenly I was posted to Ottawa, as part of the Plans and Programs cell for the newly formed Defence Information Services Organization.

Personally in charge of integrating the Command and Control portfolio, we (the portfolio managers) had to integrate (and create) the land, maritime, air, and corporate services information systems as well as absorb 25% cuts. Within six months the Architecture cell was merged with Plans and Programs to create a Strategic Direction cell. All of the plans were architecture-based as it was the only way that we could meet the very aggressive goals.

Subsequently, Steven Spewak published his Zachman inspired book “Enterprise Architecture Planning” giving a name and more structure to what we had been doing. Enterprise architecture was logical to a civil engineer schooled in urban planning and an IT professional brought up in a formal architected environment in defense R&D. After five years of applying enterprise architecture as an adjunct to planning, I retired from the military and joined CGI for ten years, where I started the global enterprise architecture practice. I was fortunate to be involved in using enterprise architecture to enable major transformations in governments and industry in Canada, Australia, Europe, and the US. I left CGI to start Build The Vision and increase the “pro bono” time available (~50%) to work on international standards mainly in enterprise architecture (with The Open Group). For me, enterprise architecture is a sound and rigorous planning methodology that addresses many of the issues associated with the creation of the digital enterprise. It was a logical extension to my previous experience.

Question 2: Why are not more enterprises using enterprise architecture?

There are actually several explanations. For one, enterprise architecture and IT have been too tightly coupled. Enterprise architecture, if taught, is normally considered a computer science offering, but nowadays there is no business or manufacturing process that does not involve IT. An understanding of technology should be a mandatory requirement for business/public service leadership but the universities are too specialized.

The IT-related faculties, departments, training institutions, and professional associations have filled the vacuum giving enterprise architecture an IT flavor and vocabulary. This has created an IT/Business language barrier and has led to constant angst about IT/business alignment. In short it has become an IT planning methodology, with a systems engineering mindset and documentation that is not consumable by the business.

Currently 20% of the global IT spend is wasted (COBIT® 5) or some $600 billion annually. This is a business issue any digital enterprise has to address. Furthermore, there is an equal responsibility of the business to align with new technologies as well as vice versa. Business schools have to become involved.

The second issue is the professional career structure of the IT-related services. In other engineering disciplines there are professionals and tradesman; in IT there is no distinction. Personnel have to weigh investing in a five-year engineering, information, or computer science degree or in a certification in five to six months or in as little as five days. Enrollment in many universities has
plummeted as a consequence. Part of this is due to the fact that initially in the 1980s and 1990s many IT positions were filled by retrained business folks, who retained their understanding of the business and their networks; they have retired. The impact of the new inadequately educated IT cadres is a lack of understanding across the array of IT services from operating systems to decision support and analytics, leading to “infrastructures” that are indeed not fit for purpose.

As enterprise architecture is so closely aligned with IT, enterprise architecture is sometimes seen as part of the problem and not part of the solution.

Question 3: What can be done to increase the use of enterprise architecture?

It is a board responsibility to protect the interests of the shareholders, which are normally return on investment-oriented. In government, many have created legislation to make enterprise architecture mandatory. Generally speaking, enterprise architecture is not understood and is reluctantly used at the project level to get funding and ensure IT interoperability. I am surprised why boards are not more demanding; the only rationale is that they are not aware of the bottom-line impact of effectively applied technology. In both government and business, most senior executives are frustrated by the amount of money spent in IT and the relative business value delivered.

Everyone is saying that IT is new, but information sciences have been around for millennia (e.g., The Royal Library of Alexandria in 3rd Century BCE.). The educational institutions have to change their perspective and increase the Science, Technology, Engineering, and Mathematics (STEM) taught to non-science students especially in the humanities and business faculties. Similarly, STEM students have to be more socially aware so that they can understand the implications of technology as well as grasp new opportunities. In some business schools they call it “integrative thinking” and “business design”, but these are synonyms for enterprise architecture in a business context.

Question 4: What can one do to increase enterprise architecture understanding and use?

This is a question of walking the talk. At my ripe young age I am back in school (University of Ottawa) taking a PhD, to refresh my knowledge base and to teach enterprise architecture. The attraction was a visionary graduate program called e-Business. This program addresses “e-Society”, “e-Management”, and “e-Technology” and crosses all faculties. It is the logical home for inculcating the effective use of enterprise architecture to create the digital enterprise.

Senior enterprise architects can give back to the profession by contributing their time and experiences to organizations such as The Open Group and taking on guest lecture/teaching assignments in educational institutions, be they universities, colleges, institutions, or schools.

Enterprise architecture will become more and more relevant to enterprises wanting to succeed in a knowledge-based economy (and virtually all industries are now knowledge-based.) The future is bright indeed for the enterprise architect profession; the only frustration is that life is too short. Maybe The Open Group Healthcare Forum and leaders such as Jason Uppal can help work on that.

ABOUT THE ARCHITECT

Robert Weisman MSc, PEng, PMP, CD has been working with enterprise architecture since 1985 and in Military/Civil Engineering since 1971. He served 30 years with defense (28 in uniform), 10 years as an executive management consultant at CGI, and 6 years as CEO Build The Vision, Inc. (www.buildthevision.ca).

Since 2004, he has been a proud member of The Open Group, was awarded an outstanding contribution award for TOGAF® 9, and is working on the next version of the TOGAF standard and supporting knowledge architecture. He founded and is President of the AEA Ottawa Chapter and is Vice-President of the ISACA Chapter.

Currently, Bob is studying, teaching, mentoring/consulting part-time and setting up an enterprise architecture program, specializing in e-Government. He can be reached at robert.weisman@buildthevision.ca.
Talking Shop

A Conversation with Jeff Scott

Jeff Scott and Leonard (“len”) Fehskens

Abstract

Two architects talk shop and let the conversation take them wherever it will.

INTRODUCTION

The conversation began with a comment Jeff made about my observation in the first installment of an AEA webinar series (“Enterprise Architecture 3.0: Designing Successful Endeavors”) that the one thing common to all of the many and varied concepts of enterprise architecture currently in circulation seemed to me to be that enterprise architecture is ultimately about some form of facilitating the success of an enterprise.

THE CONVERSATION

Jeff Scott: Len, I think this is the wrong way to position this. Isn't every function facilitating success?

Len: Uhm, where’s my “Yes, but …” rubber stamp? Yes, ideally every function facilitates success. But what reason do we have to believe that every function is actually doing this, in some reasonably acceptable approximation of the “optimal” way? What can you do to increase the likelihood that this is in fact the case? Do you just trust that each of the individual functions has the design expertise and global perspective for it to be fit for purpose in playing the role necessary for the endeavor as a whole to be successful?

Sally Bean also noted “we need to be able to articulate what distinguishes enterprise architecture from management”. Indeed we do. For me it is very simple – management is about operational success; enterprise architecture is about designing for success. Show me an MBA program that teaches prospective managers to be designers or better yet, architects, and I’ll admit we have a problem distinguishing the two roles.

The fact that most managers get by (i.e., that management as a sort-of-profession is not viewed as a total failure) suggests to me that most managers don’t routinely face challenging design problems that require novel solutions, and whatever design problems they do face they can address with straightforward adaptations of historically successful solutions. In my review of “Managing as Designing” (Bolland and Collopy, eds.) in the August 2011 Journal of Enterprise Architecture, I wrote:

The Preface and the first paper “Design Matters for Management”, both written jointly by the editors, make an interesting point. Quoting from the Preface:

“The above characterization refers to the professional managers who are trained by schools of management and their MBA programs to take a place in the corporations, consulting firms, and financial houses that make up the most visible and powerful bulk of our global economy. Those are the sites of design mediocrity created and sustained by a culture of management education that focuses on training students to make choices among the alternatives presented to them, rather than training them to design new alternatives.”

I.e., management has become too much about analysis at the expense of synthesis, and redressing this imbalance would significantly improve the quality of management in general.

I strongly suspect that many managers would reject this accusation. After all, in its most general sense design entails the explicit consideration of how to achieve some goal, and analysis and decision-making clearly play an important role in such explicit consideration. I think the point the editors are making is that analysis and decision-making are not of themselves sufficient to qualify as design, let alone good or great design.

Indeed, I would argue that this observation is not limited to managing, and applies much more generally. Much of what passes for design, especially in situations driven by short time constraints, is more like improvisation or the rote application of templates or patterns. To say this is not to belittle the importance as design skills of analytic decision-making, improvisation, and the use of patterns, but to recognize that without a methodical approach to design synthesis, sole reliance on these [analytic] skills rarely leads to truly fit for purpose solutions, and increases the influence of chance rather than intent on outcomes.

Jeff: As always, I really enjoyed your webinar and thought processes. I am really interested in seeing where this is going. I have been thinking more about human-centric architecture and am developing a culture and context mapping process that identifies which elements of the environment are helpful and which provide challenges to the current “endeavor”. (I like this term and will start using it.) Once you understand the contextual enablers and constraints, then you can design for them.
On a related topic – your comment “The practice of architecture is not generally considered to include the realization of an architecture” is exactly right, but I also think it presents one of the biggest challenges for architects. Building architects get paid for blueprints regardless of whether or not the building is actually constructed. I realize enterprise architects can’t be totally accountable for implementing the architecture, but they need to be more engaged. One of the reasons I like working in the business architecture space is that the architects there are more outcome-oriented (or at least most of them are).

**Len:** I think we as a community too often obsess about the implications of what building architecture is and what a building architect does for our own still emerging profession. I have come to think of these as a suggestion of things we should consider, not as constraints on how we must think about our profession. We are ultimately free to define our profession however we see fit, ideally in a way that makes sense for us as practitioners, for our clients, and for the world/societies in which we practice. I’m getting tired of hearing about what enterprise architecture can’t be, “because whatever”. These supposed inviolable limitations are almost always a manifestation of some local convention, which is ultimately arbitrary, because it’s “just the way we do it (have always done it) here”, not because there’s a compelling, never mind irrefutable, logical argument for it. And we as a community tend to confuse job descriptions with the definition of a profession. The former certainly draw from the latter, but shape it only in the sense that the idea of the profession derives from what is common to all the job descriptions that are relevant.

**Jeff:** I am glad that you continue to try and solve the “EA conundrum” – the rigor of your thinking is far beyond anything I could do. I have pretty much given up on enterprise architects, having more hope for the business architecture group – but it seems the issues are pretty much the same. I don’t think it is so much not knowing what is essential for success (though there is some of that) as it is an unwillingness to accept the responsibility for them.

Yes. Everybody defines their role so the really hard problems (the ones that have to do with people) are not part of their responsibility. And since there is no one who defines their role as making sure that everything that is essential to success is in fact someone’s responsibility, important things are left to chance.

I don’t think the business architecture perspective is going to do a better job of this. In fact, one might argue that the people issues are both more prevalent and more important from the business architecture perspective than from the IT perspective, where most of what needs to be addressed is in fact “mechanical”, and thus the failure of business architecture to successfully use architectural thinking to make enterprises successful is even more likely. My sense is that the business architect community is trying to avoid the hard problems by defining business architecture as a mostly analytic “decision support” function that catalogs everything but the stuff that has to do with people, and the design responsibility will be someone else’s (the “decision-makers”).

Until people start thinking about whatever we call “enterprise architecture” as being at the intersection of the “social sciences” and the “design sciences”, and treat “people” as attentively as they do “process” and “technology”, we’re really not doing much more than what I call “making recipes for mud pies”; i.e., applying pseudo-rigor to everything but the stuff that really makes the difference.

**Jeff:** You may be right about business architects having a larger people issue and for the most part I don’t see them creating more effective approaches to driving change. I would disagree with your statement regarding decision support. I am sure many are focusing on that element but most of the business architects I am working with are working in the strategy execution space, trying to figure out how to unpack strategy and develop the strategic portfolio of investments. I need to do some survey work around this to get some data.

**Len:** I am sure there are many people who call themselves business architects who are actually doing what you and I think of as business architecture, but I think your perception may be the result of a sort of selection bias arising from the circles you run in. I have seen a similar effect with respect to thinking about enterprise architecture as not IT-centric; most of the people I talk to about enterprise architecture agree with that premise, but that’s clearly not the case for the vast majority of practitioners who consider what they are doing to be enterprise architecture. The Business Architecture Guild, in particular, who are promoting their idea of business architecture as the basis for
certification, is very much in the decision support (analytic rather than synthetic) camp.

I’ve had some interesting conversations with Chris Potts about the professional liability concerns of CEOs and would-be CEOs – a few more 2008-like meltdowns and CEOs could find themselves if not criminally perhaps at least civilly liable for the damage they wreak on society at large when their “enterprise” blows up in everyone else’s faces. So far, they’ve been extraordinarily lucky that society’s predisposition seems to be to leave unexamined the de facto practice of socializing the losses while privatizing the gains.

**Jeff:** We could have an interesting conversation about CEO liability. My take is that CEO action is a symptom – not the problem. The problem is investors that are not satisfied with profits, but demand growth. This drives more and more risky behavior by CEOs and their executives. Yes some are guilty of illegal dealings, poor judgment, immorality, and being just plain stupid, but the majority are driven by what the “market” demands – that would be us by the way. I would say that this means capitalism is bad but it seems that socialism drives similar if not worse behavior. The glass-Steagall act originally kept banks from growing but congress did away with that in the 1990s believing that bigger banks could serve their customers better. I think the core of the problem is letting the market drive companies into unrealistic growth. So more government oversight might be the better answer than making CEOs liable, as much as I hate to say it.

**Len:** But government oversight has to ultimately depend on accountability – either by convicting people who violate the regulations and sending them to jail or levying fines that are an actual deterrent to the behavior that is ostensibly being discouraged. So far, we as a society seem to have been unwilling to do either.

Chris’ idea was not that CEOs would be made directly liable for malfeasance or incompetence, but that they would resist professionalization because that would as a side effect make them accountable, the most persuasive form being the loss of the right to practice.

**Jeff:** We have been working at enterprise architecture for more than 20 years. We don’t seem to be close to creating a true profession. Why do we need one? Who gains from having a profession and how?

Despite my comments above regarding banking, I am a capitalist. I believe that endeavors that create value will be rewarded. While some enterprise architects have created value for their companies, the “profession” as a whole hasn’t demonstrated significant value creation. So does the enterprise architecture approach create value or do a small number of talented practitioners create value?

**Len:** I’ve tried to address these issues in a talk (“Profession, Practice, and Specialization”) I gave at The Open Group Conference Boston in July 2014. The simple answers are we need a profession because the need for this discipline is real and we need to properly educate people to increase the likelihood of their being competent practitioners. The current situation is anarchy – the only competency standards we currently have are a crazy quilt of certifications, and there’s no way for someone serious about becoming a competent practitioner to get the necessary education other than by the equivalent of home schooling.

Who gains? Primarily, society at large, and secondarily, the practitioners themselves. The explanation for this conclusion is in the talk.

**Jeff:** Let me take a different tack.

Maybe professions develop this way: a significant number of practitioners become “professional” and effective. They see that what they do WORKS based on empirical evidence. They want to protect themselves against the less professional practitioners who hold on to outdated principles and techniques that don’t work.

So they are willing to subject themselves to certification and accreditation to weed out the “bad” practitioners and enhance their own standing.

If this were true, then the best course of action would be to help create successful practitioners and eventually, when their numbers grew large, they would drive a professional standard based on what actually works.

Are we trying to professionalize a group of people who are not ready to see the empirical evidence of what works and what doesn’t and are fundamentally protecting their own view by resisting a common view of the “profession”?

**Len:** I think there is more than a little “I don’t want to have to change the way I do things”, and an equally prevalent but much less acknowledged “I don’t want to find out that what I have been doing isn’t right”. I don’t see so much outright resistance to professionalization as passive indifference to professionalization.

**Jeff:** This fits right in with my informal “enterprise architect personality profile”. Enterprise architects (for the most part or stereotypically) would rather be right than successful, hence they don’t want to listen to anyone else. They are largely introverts who enjoy working autonomously. The current enterprise architecture paradigm fits well for these guys, so why screw it up?

**Len:** Most people who call themselves “professionals”, but are not part of the “traditional” (medicine, law, architecture, the clergy, engineering to some degree)...
professions actually have little understanding of what a profession is and what it means to be a professional. The most widespread assumption seems to be: “I’m already a professional, what more is there to do?”. The most common reaction I get when I give the “Profession, Practice, and Specialization” talk is some form of “I had no idea …”. 

While I agree with you in principle about the idea of an empirical filter on what enters our “body of practice” (a phrase that just occurred to me as perhaps preferable to the traditional “body of knowledge”), the reality seems to be that we don’t yet have any effective way to do this. In lieu of relying on something that we can’t yet do, I think we need to start by giving practitioners the intellectual tools to practice more effectively in this space; i.e., educate them about what we know about design and what we know about people’s behavior. Both seem to me to be seriously lacking in the backgrounds of the current enterprise architecture and business communities, and I think I can make a convincing case that successful enterprise architecture is dependent on competence in these two realms – design and sociology/psychology.

Jeff: I like the body of practice much more than body of knowledge. And I couldn’t agree more with your comments in this paragraph – design and human behavior to which I would add culture or organizational dynamics. I have been preaching this for the past four or five years, but haven’t made much traction with business architects. They all agree that it is important, they just aren’t ready to sign up to change.

Len: This might also help address a bootstrapping problem that we have – the lack of serious academic research into “practices that work”. Until there’s a thriving academic ecosystem around enterprise architecture, there’s not going to be much groundbreaking research into enterprise architecture.

Jeff: You are correct but it isn’t going to happen any time soon – if ever. Research is largely based on funding and enterprise architecture just doesn’t drive that level of interest.

So here is where I got to with enterprise architecture and business architecture. Enterprise architecture is a great concept but the past and current practitioners don’t seem to be interested in listening to anything outside of their current paradigm. I rarely interact with them as it is just too frustrating. I have done enough organizational change projects to know that thinking shifts come very slowly, if at all.

I think the business architect group has a slightly larger group of enlightened thinkers (not by much, but bigger). And many of them understand “enterprise architecture” from a business perspective. I am with a client this week who is doing almost all of what you would think of as enterprise architecture EXCEPT the IT part. So maybe it will work like this. Business architects will leave IT/EA and create a non-IT EA and then fold IT EA into the model. Everybody wins. YEA!

Len: A lot of ideas in there. Let me take them up one by one.

“EAs (for the most part or stereotypically) would rather be right than successful, hence they don’t want to listen to anyone else”.

The irony is that I believe an appropriate concept of enterprise architecture would include what they do under its umbrella. For whatever reason, the EA community seems to be predisposed to pitting what any other profession would consider specializations against one another as defining the entire profession (i.e., only one can be “right”, and all the rest are “wrong”), rather than looking for the commonalities. And it’s compounded by the fact that a big part of “being right” is doing it the way the “founding fathers” “meant” it to be done, regardless of whether or not that leads to success.

“They are largely introverts who want to work autonomously”.

Yes, an important insight that we have to always keep in mind when dealing with the community in its current incarnation.

Jeff: Enterprise architects and business architects see sociology, psychology, culture, soft skills, etc. as not having the rigor to be considered a worthy focus. This is not the only problem but it is the BIG problem. Consider this:

Forrester research points out that the number one challenge for business architects is culture and politics. My guess is that the same is true for enterprise architects. Yet, architects have put almost no energy in understanding or modeling culture.

Architects agree on almost nothing. Yet, I have asked over 2,000 enterprise architects and business architects which is harder: building architectural models or getting buy-in from the organization. Every single one agrees that buy-in is harder. Yet, how do architects spend their time? Trying to build better models.

Architects have their collective heads in the sand. Until they recognize that their job is creating consensus they will flounder. Their view is that the business just doesn’t understand. The reality is that architects are the ones that don’t understand.

The soft skills are the difficult skills. Until architects, both enterprise architects and business architects get that, they will not be successful. To create a profession you have to have a successful model to follow. Until architects get that their role includes influencing others, we won’t see the success.
In the immortal words of Pogo: “we have met the enemy, and he is us”.

Len: I agree with everything you said. In a practical sense the “design sciences” and the “social sciences” may be “softer” than physics or chemistry, but that does not make them any less useful, and discounting them as not worthy of our attention because they are insufficiently rigorous “throws the baby out with the bathwater”. The irony lies in the extraordinary lack of rigor that this community applies to their thinking about enterprise architecture itself.

People do what they think they’re good at. I too am frustrated by the obsession with modeling that seems to characterize much of the EA community, but a big part of it seems to me that they model the stuff that’s easy to model. One way to think you’re good at something is to only tackle the things that are easy to do.

I thought a bit more last night about how I see the difference between the “hard” (physics, chemistry) sciences and the “soft” (design, social) sciences. It’s less about rigor (which seems to me to be more about methodology than knowledge, and there’s no inherent lack of rigor in the methodologies of the soft sciences) than it is about the kind of knowledge. It’s not that we know any less about the soft sciences than we do about the hard sciences, it’s that the knowledge is of a different kind, and as such has to be understood and used in a different way. It seems to me that the knowledge of the hard sciences comprises statements about what will “always” be the case (within a specified context) and that are “certain” in some sense, while the knowledge of the soft sciences comprises statements about what will “likely” be the case (within a specified context) and that are “possibilities”, rather than “certainties”.

Again, it’s ironic that the EA community, whose architects are supposed to be comfortable with ambiguity and uncertainty, would devalue rigorously obtained knowledge that is ambiguous and uncertain.

Jeff: You hit on a pretty important point here. Architects do what is easy. My anecdotal experience is that the biggest differentiator between poor or mediocre teams and excellent ones, is that the excellent ones have a leader that is willing to tackle the hard stuff. The problem with this model is that when the leader leaves, it all collapses.

I think this is true for most other roles with the difference being the proportion of hard versus easy stuff you need to do to succeed. Business analysts, for example, have a role (for the sake of illustration I’ll make up some numbers here) where 90% of what they need to do to succeed is the easy stuff – just follow the process. If they ignore the 10% that is hard, not too much harm is done. Architects on the other hand have something more like 70% hard stuff so ignoring that (which they do) results in failure.

My other observation here is that the people who rise up to top leadership positions are willing to do the hard stuff, whatever that might be for their job.

If architects redefined their role from modeling the organization to driving consensus on a common way to operate/execute strategy/invest/etc., they MIGHT realize they are not doing the work. I can see a blog post shaping up on this.

[Note: In the following discussion “new EA” refers to true enterprise architecture practiced in a way that creates the business impact enterprise architecture was meant to deliver.]

Proposition:

- People tend to select jobs/roles that have attributes that are attractive to them.
- Current enterprise architects have selected for current EA attributes not new EA attributes.
- I think the attributes of the current enterprise architect that they are selecting for are: problem solving, autonomy, and control (yes, I know they don’t have it, but they think they can get it). Of course there are others such as modeling, etc.

Len: I agree. One of the things about modeling is that it affords the experience of complete control – the model is a “world” for which you are a god. This experience is so compelling that many otherwise competent modelers become completely addicted to it, or worse, corrupted by it to the point that they believe their models are better representations of the real world than their perceptions of the real world itself. Hence their ability to ignore anything in the real world that deviates from the model – the model is correct, it is the real world that is at fault.

Jeff: Oh, man – really insightful and almost as cynical as me. Continuing the proposition:

- The majority of current enterprise architects would not select the new EA role because they don’t resonate with the attributes of that role.
- The attributes of the new enterprise architect are design, collaboration, and influence. Again many other attributes.

Len: I agree, though I’d put it a different way – competence in the “new EA” requires mastery of the design and social sciences. I think even “current EA” requires the ability to collaborate and influence.

Jeff: I would agree that current EA requires the ability to collaborate and influence, but I don’t see current enterprise architects do it.
Len: I think this may be another case of selection effect. The enterprise architects that I hang out are often Open CA certified, and the Open CA program very deliberately emphasizes the role of “soft skills” as a necessary competence. I agree that, as we have already discussed, enterprise architects, like most people, look for ways to make their jobs simpler, and not dealing with people is a huge simplification.

Jeff: I have had more than one tell me that what they need is a governance process “with teeth”, not influence. And my take on collaboration is this. Current EAs typically build their models in a vacuum. Here is the question. How many non-enterprise architects participated in developing the models – not just providing information, that isn’t collaboration.

Len: Again, my experience at HP Services was that our architecture methodology was critically dependent on collaboration with stakeholders, and when I taught the methodology we relied on role-playing exercises so students could experience it first-hand. I think this aspect of the methodology was why it was so successful in the field. The most common reaction from customers after an engagement was “will you please teach us how to do this”. So you may be right.

Jeff: Continuing:
- Those that would not select new EA attributes will continue to resist a move to new EA.
- Despite often stating a desire to be new EAs, they want the benefits of the new EA package (business and strategy connections, etc.) but want them in the current EA box.

Len: In my experience “those that would not select new EA attributes” will not express “a desire to be new EAs”. To them, “new EA” is not only not “current EA”, it is simply “not EA”.

Jeff: Agree. I cannot see any major (outside EA) hurdles that current EAs face to move to new EA. It seems to me that if they want it, they can get it. The reality is they don’t want it.

Len: As I noted earlier, the only way someone who wants to develop “new EA skills” can do so is by “home schooling”. There is no “new EA ecosystem” for them to avail themselves of. This includes opportunities to practice, as most of the enterprise architecture consumer community is also mired in “current EA” thinking.

Jeff: I think the problem goes back to my first statement. People who think about enterprise architecture see it as current EA. This is part of why I think business architecture is the answer. Business architects seem more open to new paradigms.

But I agree, there is no path through current EA but it isn’t like there are hordes of current EAs looking for ways to develop new EA skills.
- The majority of current EAs will never make the jump to new EA because they don’t want to. They will continue to attract others into the profession based on current EA attributes. The cycle will continue.
- The answer is (at least for me) – you have to break the cycle.
- I think the answer is business architecture that resides outside of current EA. At least many of these architects “get it”.

Len: I agree. What I’ve mostly seen amongst the business architects I’ve interacted with is “business-centric” thinking as opposed to “IT-centric” thinking. I don’t (yet) see the synthesis of the design and social sciences in a fully general “enterprise” context. This could very well change.

Jeff: I would challenge your statement “business-centric thinking as opposed to IT-centric thinking”. This puts IT on equal footing with business.

Len: I didn’t meant to imply that. My point is that “business” is not “enterprise”; it, like IT, is just one aspect of an enterprise. There is no implication of “equality” in any respect; they’re just two different perspectives that people adopt. This may be an idiosyncrasy of mine, based on my perception that too many people see “business” as “whatever’s not IT”. We need a word for the concept of “the exchange of goods and services for some form of compensation for the costs and risks of doing so”, which is an activity that one can make a strong case that all enterprises must engage in. The ideal word to denote that concept is “business”, but if we use the word to denote some other concept, we must find another word to denote the concept. “Commerce” might work, but it has other connotations.

An aside on professional vocabularies. I’ve gotten into some discussions lately with thoughtful people who seem to have given up on the idea of being more rigorous about the language we use to talk amongst ourselves (i.e., within the EA/BA community). This is not about talking with clients and other stakeholders; it is analogous to the language doctors use to talk to one another, that lawyers use to talk to one another, that an aircraft cockpit crew uses to talk to one another. These professional languages use words in very specifically defined ways, and those ways are designed to bring precision to and eliminate (as much as possible) ambiguity in our conversations, so that we can be confident that we correctly understand one another, without having to continually confirm that we in fact do. My experience has been that in far too many (i.e., the
vast majority of) conversations between members of the EA community, parties to the conversation are not using the same words to mean the same things, even though they assume that they are. Until we, as a community, explicitly address the language problem (i.e., the inherent ambiguity of the language that we routinely use to talk to one another), I don’t see how we’re going to get to a place where we can be confident that we’re all talking about the same things. I wrote at length about these issues in an unfinished (and thus unpublished) paper that I was working on back in 2012. I abandoned it because it became clear that the approach I was taking was not getting any traction with anyone else. I suspect I sent you a copy of this back then, but I’ve attached it for reference. It still reflects the way I think about these issues. End of aside.

The point is that “business-centric thinking” is not “enterprise-centric thinking”, unless you are using “business” as a synonym for “enterprise”. This is as much an error as using “enterprise” to mean “the IT part of a commercial business organization”, which is what I have found most “current EA” practitioners mean when they apply their concept of “enterprise”.

**Jeff:** IT is one small part of the business model on par with process, strategy, organization, non-IT technologies, etc. I may be behind on the new wave of digital everything thinking but IT supports the business so business-centric thinking is what new enterprise architects should be doing.

**Len:** I agree that IT is but one of many contributors to a business. But recall that my goal is to define an “umbrella” profession that is based on the idea of enterprise as any ambitious human endeavor. “Business” is one form of such an endeavor. This is why I prefer to talk about “enterprise-centric thinking” rather than “business-centric thinking”. Business-centric thinking is certainly appropriate for business architects, but I believe that business architecture is a specialization of “new-EA”, just like “business law” is a specialization of the profession of law. I would expect most graduates of a “new EA” degree program to go into (i.e., specialize in) business architecture, just as until recently the largest fraction of MBAs went into finance; it’s where the money and power are (or were, or will be).

**Jeff:** Also, I have current business architects who help with the IT view. Business architects are not out to supplant current EAs, but to augment them with the business perspective they (current EAs) don’t have.

**Len:** Not at issue. Specializations of an umbrella profession do not compete with or supplant one another; they complement one another.

**Jeff:** My answer to the problem is to work with those that have a chance of success so they can create the new EA model and attract new enterprise architects that resonate with the new EA model.

**Len:** I agree, I’m just not sure it will come from the business architect community. I fear that in many respects they are just as blinkered as the “current EA” community, just in different ways. To strain the metaphor, it doesn’t make much difference whether you look at the world through rose-colored or clover-colored glasses, you’re still not going to see things as they are. I’m very sympathetic to your optimism, but if I had to put my money on an existing or emerging community it would be the enterprise design or design thinking communities.

**Jeff:** I don’t know enough about what is going on in the design thinking communities, so you might be right. The design thinking work I have seen has been fairly narrowly focused on solving specific problems.

**Len:** That’s certainly the case right now; it’s very much focused on customer-centric product design, and it doesn’t rely on the idea of architecture as a specific form of design. But it is gaining traction within the business community, and people are starting to suggest that it needn’t be solely about products, and customers aren’t the only stakeholders that matter. See, for example, the September 2015 issue of the Harvard Business Review.

**Jeff:** There are many good reasons to have architects and create an architecture, but the big one is to enable change. Business change is driven by strategy (and I am using that word to encompass all forms of strategy).

**Len:** I think the EA community has become too focused on architecture being about enabling change, and especially “agility”, at the expense of how it might do so, among the many other things that it also has to do. I have repeatedly, though perhaps not loudly enough, pointed out that an at least as important function of architecture is to ensure that things that must not change don’t change, because if they do, important things will stop working correctly, and making them work correctly again will likely require more change than can be managed or afforded.

The idea of change is “built into” the idea of design. We design when something needs to change. We don’t (re)design things that are already working just fine. So saying that design (and architecture is a kind of design) is about change is really little more than a tautology. It’s not hard to change something if you don’t care what you change it to – just break it. What matters is understanding what we need to change to, and how we get there without breaking things that have to continue to work along the way. This is why I harp on the idea of fitness for purpose, because it incorporates the two things that really matter – fitness (i.e., it works) and purpose (i.e., it results in the desired outcome).
Jeff: The majority of business architects I work with are focusing on strategy execution – designing the change we need to move the strategy forward, to attain our goals. This requires touching most of the organization including IT.

Len: Again, not at issue.

Jeff: So, the question is what is wrong with my logic or assumptions?

Len: Nothing really. I think we have some minor differences about the details, but we pretty much see eye-to-eye on the big picture.

I’m increasingly accepting of the notion that I am probably tilting at windmills trying to get the community to think seriously about a profession that’s about more than business/IT alignment. I persist because I believe the scale of the problems we as a species have created for ourselves requires such a profession lest civilization as we know it collapse in the next century or two. Also, it’s led me into a lot of very interesting areas of exploration.

Jeff: I have narrowed my ambitions a good bit. I just want to help a few business architects be successful. And occasionally be a pain in the ass to the more rigid thinkers out there.

THE TALKERS

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