



Enterprise Architecture's Role in Aligning Business & IT

BY ALLEN BROWN

Machiavelli wrote in *The Prince*, “He who has not first laid his foundations may be able with great ability to lay them afterwards, but they will be laid with trouble to the architect and danger to the building.” While Machiavelli was drawing an analogy between building >

architecture and organized government, it applies to today's global business environment. Today, enterprises may have solid foundations, but they may be *too* solid and present a barrier to transforming the business to maintain or improve its competitive capability.

Good planning to create a strong foundation is the most effective way to build an organization, and a necessity to align IT with business goals. Whether the appropriate technological foundation is laid in the beginning, or later, the enterprise architect plays a critical role in the relationship between business and information technology.

The IT legacy we have today, and which we're not about to throw away, comes from the pre-e-everything era. It comes from a time when responsiveness to the customer was less critical, when efficiency and effectiveness emanated from departmentalized functions where specialists in a given area gained greater proficiency than their predecessors. Each operated in its own silo.

So how can a company maintain or increase its competitive advantage? Engineers would argue it's the quality of the product. Marketing professionals would acknowledge the product but lobby for a focus on its branding. Sales would likely say it's all in the pitch, and IT organizations would often argue that implementing, for example, the latest version of a certain Enterprise Resource Planning (ERP) system, or upgrading email servers could be the edge the company needs. While all these groups are correct, their laser focus on the things they can control as subject matter experts is the hallmark of any silo-oriented organization.

Silo-oriented business units have been the de facto operating standard for most large companies since Alfred Sloan, successor to GM founder William Durant, created decentralized divisions and departmentalized functions—improving on mass production in the automobile industry that Ford introduced—and subsequently dictated modern business as it exists today. Yet, the true way to maintain or increase competitive advantage is the ability to break down the barriers in and between these organizations, which many of us have been tackling in the past 20 years.

Getting people to work together was the first challenge. Each silo had developed its own culture, its own jargon and had little respect for others. Even the word “department” smacks of separation. Jack Welch created the concept of the Boundaryless Organization in GE as a way of thinking, creating new attitudes, and not letting boundaries—within GE or with its business partners—get in the way of business.

GE wasn't alone. Many of the more than 300 member organizations of The Open Group have also worked on this issue. The challenge they're now addressing is that, having broken down the people-related barriers and with staff working effectively in multi-disciplinary, multi-enterprise teams, the IT infrastructure remains a major barrier to success. Just because people can work cross-functionally doesn't mean the systems can: they've been conceived and built individually to service their departmentalized masters and could not easily communicate with applications in other areas. Teams need to pool their skills and expertise to remain competitive; they also need to integrate information.

While information continues to be isolated, we can't achieve the full benefits of a boundaryless organization, yet most companies must do so to gain agility, increase innovation, and achieve a sustainable competitive advantage.

So how can an organization achieve this? The answer is in three parts; there's a need for:

- Technical standards to enable integration of legacy applications with each other and with new applications, a good deal of which now exists.
- A new type of individual can take a “city planner” view (further detailed as follows) across the entire enterprise: the enterprise architect.
- Standards that support the enterprise architect: frameworks, methods, models, and tools.

Enterprise architects are in great demand right now, yet there are relatively few who can fulfill that need. There are many who, like a building architect, can do what's required at the solutions level, but few are able to graduate to what's needed at the enterprise (city planner) level. Without enterprise architects, there's a gap in the chain of business/IT alignment.

When we focused on silo-oriented applications, it was relatively easy to set out the business requirements, translate them into technical requirements, and implement a new application. Today, we face a more complex situation. Now there's a requirement to understand the business drivers and be able to communicate with all stakeholders in their own language. Often, this breaks down due to a lack of “interoperability.” For some reason, some people think everyone else can speak their language, talk in their own jargon, and show models in their language, and these people are unable or unwilling to communicate with non-technical stakeholders—which is really just creating another silo.

The enterprise architect needs to be bilingual and bicultural to communicate effectively with the technical and business communities. It's important to evaluate the enterprise architect's role in driving business transformation, explore the profession's evolution, and examine one of the key enablers of an effective enterprise architect: architectural frameworks.

Driving Business Transformation

“Business transformation” is an often used, yet seemingly vague term. So what does it mean, and why should either “the business” or IT really care about transforming anything? Even in this era of global competition, organizations within a company pride themselves on maintaining a level of independence. Being the keeper of their own kingdoms, with corresponding, independent, enterprise applications and services, is a treasured ideal of these silo-oriented lines of business. Of course, this often equates to duplication of efforts, cost overruns and massive process inefficiencies—across multiple lines of business. All this independence would make even the strongest business leader feel faint when it's time to report that quarterly earnings fell short due to these inefficiencies.

According to Wikipedia, business transformation is a key

executive management initiative that attempts to align the technology initiatives of a company more closely with its business strategy and vision. The degree to which a company can implement new initiatives to support changes in business strategy is known as business agility. Business transformation is achieved through efforts from the business and IT sides of the company.

Within the Open Group member community, the number-one requirement, as it relates to the development of the next version of The Open Group Architectural Framework (TOGAF), is greater support in business alignment and relevance to the business. As one of our members said, "... We need to understand from the corporate strategy what the IT function needs to deliver in the future, and then link it with the enterprise architecture to answer the question of how we're going to do it."

With the emergence of enterprise architects as a prevalent IT role, these same architects also find themselves increasingly tasked with one of the most critical roles. They're often thrust into the spotlight—at the forefront of an IT organization, and seen as a key figurehead and the bridge between business and IT. They're responsible for bridging the gap and communicating in and between the different businesses as well as fostering adoption of an effective enterprise architecture. To break down barriers within and between enterprises demands a city planner perspective of the enterprise architecture. City planners view a city and its infrastructure components at

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a high level yet provide simple, detailed diagrams that explain its various components and their relationships to the services provided in a manner that makes it understandable and actionable for everyone.

Enterprise architects must increasingly adopt this city planner perspective of the enterprise to ensure the necessary and appropriately solid foundation is put into place. Only then can enterprise architects, with the support from business and IT, proceed to drive business transformation. But here we are again—back to the buzzword. We often hear from organizations that are experiencing challenges concerning the business transformation process. Typically, these companies pose a myriad of questions, such as:

- “We need reference architectures for what it looks like today and for the target architecture in the future. What’s the target platform architecture in the future?”
- We have to be able to build up the changing landscape as we move from the current to the future space. How do we map to the application perspective?
- How do we define this?
- How do we drill through from the corporate strategy all the way down to the standards to be used?”

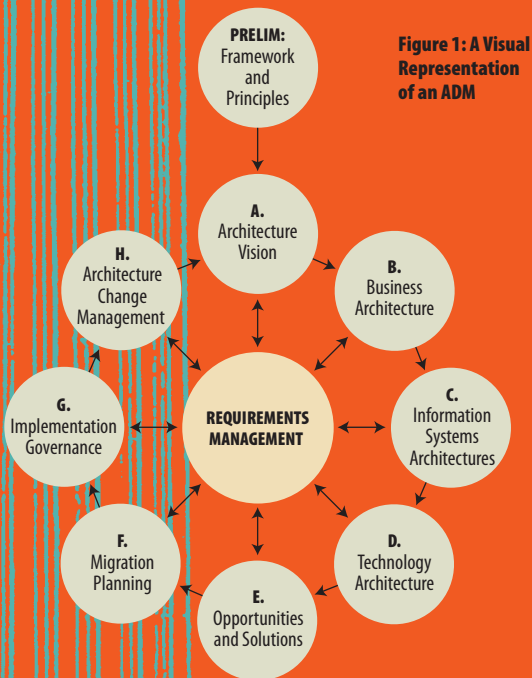
What’s usually relevant from the questions, however, is that this journey leverages IT, and especially enterprise architecture, to meet the businesses goals, mission statements, and vision of that particular company. When the company finally reaches the future space—it’s then that the business has “transformed.” This is something that will keep the company and its shareholders looking to the future, investing in its existing value, and acknowledging that the future will be sustainable—that is, until the business requires yet another transformation.

Some Real-Word Examples

With more than 2,800 hotel properties in 67 countries, Marriott International provides one example of using enterprise architecture as a conduit to achieve business transformation. Marriott recently established an enterprise architecture practice. Marriott technology executives realized that by embracing enterprise architecture, they’d achieve the necessary business transformation to solidify preference leadership, drive profits, and optimize the company’s growth. This meant that IT would need to gain efficiencies via centralized processes and systems, deliver the right information to the right people at the right time, and help enable multiple, customizable options for customers to use the Marriott network.

Identifying this as a journey, not an event, Marriott’s enterprise architecture practice saw the value in working with business units to overcome skepticism. The group emphasized that this was not just about this next technology wave and that the upfront investments associated with this would pay off. Marriott also realized that to get to their “future space,” they needed to educate without using technical jargon.

Ultimately, Marriott was able to author and publish revised principles and frameworks, adopt relevant operating



and maturity models, architecture frameworks, and complete initial Service-Oriented Architecture (SOA) proofs of concept as part of the overarching enterprise architecture. Ultimately, the company achieved business and IT convergence and made enterprise architecture a core tenet of its future.

Many organizations have similar goals for their businesses. They strive to provide better quality products and services in a faster, more cost-effective manner. They must be able to respond faster to business problems, anticipate customer needs, and identify and act upon revenue-generating opportunities before their competition.

At Con-way Freight and Transportation, a \$2.8 billion dollar transportation and services enterprise, creating a solid foundation is all about enterprise architecture. In their journey to establish a successful SOA, Con-way quickly recognized that the business didn't care about SOA. On the contrary, they were chiefly concerned with IT's ability to deliver what they want, when they want it—all while maintaining a cost-effective model.

Con-way ultimately identified three important steps for delivering business value from their enterprise architecture:

- Using a systematic approach to results in software components' reuse
- Automated uncoupled business processes initiated by triggered events in an Event Driven Architecture (EDA) to enable real-time operations
- Using published business events to provide a look at the current state of affairs via complex event processing.

Each of these steps builds on the previous one and enables the next value increase.

That Con-way's successful business transformation was a result of their enterprise architecture implementations can be seen in their ability to reduce Canadian/U.S. border crossings from two to three hours to less than a minute. This kind of tangible result is evidence of the power of enterprise architecture.

The commonality in the Marriott and Con-way examples is that while the need for technology is still great, and will never go away, the need for information to flow freely across an entire organization is even greater.

The champions at the heart of all this success are the organizations' enterprise architects.

Broad Support Required

Change is constant, but that doesn't mean people easily embrace it. Not surprisingly, many people ask about the role of the CIO in business transformation. Because the CIO is ultimately responsible for the IT organization and is often the enterprise architect's boss, he's viewed as a primary supporter of melding IT initiatives with business needs. Often, the CIO may be a once-practicing or currently practicing enterprise architect.

Here, let's assume the CIO isn't an enterprise architect. As most CIOs do, he has recognized the value and extraordinary abilities an enterprise architect possesses. But it's often not that easy to be perceived as neutral enough to

really meld IT with "the business." The CIO, as a leader, has an agenda but remains an important player when establishing an enterprise architect's reputation. This kind of executive-level support is key and the CIO holds the door open for others to support enterprise architecture-based initiatives.

Faced with the task of designing, implementing, and communicating the realities of effective enterprise architecture, including securing buy-in from C-level executives down through the ranks, most individuals, but not the enterprise architect, would be tempted to run away.

The Evolution of Enterprise Architecture

Today, we're in the middle of the next information revolution—not a revolution in computer hardware, semiconductors or software, but one that's driven by the need to put the right information in the right people's hands at the right time. Some might argue that all this is the key to business transformation. This new kind of information flow requires a technical infrastructure built on open standards—one that's designed to enable individuals, and their distinct IT systems, to work together. This new revolution also requires a new breed of professional: the enterprise architect.

This revolution also impacts the software industry. Enterprise architects could emerge as one of the main customer targets for enterprise software companies; their role encompasses using the products and making software purchasing decisions.

With great power comes great responsibility, yet enterprise architects pride themselves on embracing a generally more holistic enterprise view—as they're held accountable and must make decisions addressing both business and IT benefits. Software vendors must understand what's important to the enterprise architect and sell accordingly.

The Role of Architectural Frameworks

An enterprise architect needs the right set of tools. There are several useful architecture frameworks, such as:

- The U.S. Department of Defense's Architecture Framework (DoDAF)
- Federal Enterprise Architecture Framework (FEAF)
- TOGAF
- Zachman Framework.

Architecture frameworks transform the enterprise architect's vision and city planner view into a viable, long-term enterprise architecture that can be clearly defined so everyone can embrace it.

An enterprise architect's framework should ideally include a standard set of functions, such as a way to describe methodologies for defining IT systems as they relate to the necessary building blocks. It also should demonstrate how these blocks should fit together, and contain a set of tools and a common vocabulary. These architecture frameworks also should include an overview of recommended standards and compliant products that can

be used to build the “house.”

Another important consideration is the Architecture Development Method (ADM), which is typically used to develop the enterprise architecture but is always tailored to meet a particular organization’s needs (see Figure 1). ADM also is used to manage the actual implementation of architecture activities, and is one of the enterprise architect’s most valuable tools.

TOGAF

TOGAF, a detailed method and set of supporting tools for developing an enterprise architecture, is free to any company wishing to use it; more than 60 percent of the *Fortune* 50 and more than 80 percent of the *Global Forbes* 50 businesses have downloaded it.

The Open Group, composed of representatives from end-user organizations and vendors alike, first published TOGAF in 1995, basing it on the Technical Architecture Framework for Information Management (TAFIM), a series of architecture guidance documents provided by the U.S. Department of Defense (DoD). The DoD spent millions of dollars and several years evolving TAFIM before passing it to the Open Group for its ongoing maturation and dissemination across government and other various industries. At the core of TOGAF is the Architecture Development Method (ADM), a step-by-step instruction guide on how to build an enterprise architecture. TOGAF was developed by and for enterprise architecture practitioners and it comprises several parts.

TOGAF Version 8 Enterprise Edition (TOGAF 8 for short) represents an industry consensus framework and method for enterprise architecture that is available for use internally by any organization around the world. TOGAF 8 spans four areas: business, data, applications, and technology architectures. This collection of architectures is commonly known as enterprise architecture—the interrelation and integration of business and technology.

There are four main parts to the TOGAF standard:

- Part I introduces some of the key concepts behind enterprise architecture and the TOGAF approach.
- Part II describes the TOGAF ADM—a step-by-step approach to developing enterprise architecture.
- Part III describes the TOGAF Enterprise Continuum, a virtual repository of architecture assets, which includes the TOGAF Foundation Architecture and the Integrated Information Infrastructure Reference Model (III-RM).
- Part IV comprises the TOGAF Resource Base, a set of tools and techniques for use in applying TOGAF and the TOGAF ADM.

Takeaways

- Good planning to create a strong foundation is the most effective way to build an organization, and a necessity to align IT with business goals.
- As they continue to build relationships that bridge the gap between business and IT, enterprise architects will continue to gain ground as the go-to leaders for the next IT generation.

DoDAF and TOGAF

Recently, an industry Working Group within The Open Group was formed to analyze and document the relationships between TOGAF and DoDAF. The resulting findings, available for download from The Open Group Website, emerged in a document titled “TOGAF and the U.S. Department of Defense Architecture Framework (DoDAF).”

DoDAF is focused on architecture description via a set of views without specifying any methodology. The primary focus of DoDAF is architecture description. It prescribes a specific set of models that illustrate the architecture of concern. This particular framework defines more than 25 products that reflect three different architectural viewpoints: operational, systems, and technical standards.


DoDAF was developed to support interoperability between systems whose architectures are described with this framework. It’s easier to determine how to integrate systems when they’re modeled in a common language so system interfaces, data formats and exchanges, implemented standards, etc. can be analyzed with the operational and system behaviors and structure.

This particular framework formed the basis for several other frameworks such the U.K.’s Ministry of Defense Architecture Framework (MoDAF) and the soon-to-be-published Standardization Agreement (STANAG) NATO Architecture Framework.

DoDAF is comprised of two volumes: “Definitions & Guidelines” and “Product Descriptions.” A supplemental DoDAF Deskbook also has been published to provide guidance to DoDAF users. This deskbook consolidates supporting information such as white papers, case studies, discussion on the Core Architecture Data Model (CADM), architecture tools, Universal Reference Resources (URRs), and the Federal Enterprise Architecture (FEA) reference models.

Conclusion

With the strong enterprise architecture foundation as the basis for the house IT builds, enterprise architects could potentially rest on their laurels. The quality of the work can speak for itself based on the actionable ROI that’s typically generated. However, with every great structure, there are ways to hone its implementation—producing future iterations that improve upon the current architecture and match technological advancements.

As enterprise architects increasingly shoulder more responsibility for this critical and core IT foundation, the role will continue to mature. As they continue to build relationships that bridge the gap between business and IT, enterprise architects will continue to gain ground as the go-to leaders for the next IT generation. 

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