THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY

ENTERPRISE ARCHITECTURE FRAMEWORKS USAGE

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Spring 2011

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Information Sciences and Technology
with honors in Information Sciences and Technology

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Alignment between the information technology and business strategy of an enterprise is crucial for growth and success. Organizations use Enterprise Architecture frameworks to help create that alignment. All frameworks attempt to accomplish the same goal but go about it in different ways. While framework usage continues to become more mature within industry, little research has been done to document the trends. This paper will examine Enterprise Architecture frameworks, why they were selected, and the people who use them. The discussion will be primarily based on a recent survey in which participants from industry tried to shed light on Enterprise Architecture framework usage. Based on the results of the survey a view will be provided of the current landscape of Enterprise Architecture frameworks and the organizations that use them. This landscape will serve as the foundation to further research in field of Enterprise Architecture and framework analysis.
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ACKNOWLEDGEMENTS

I would like to thank all of the following people for helping me with the writing of this thesis. This thesis would not have been possible if not for their willingness to go above and beyond the call of duty. This thesis is a culmination of efforts by to many people to name but I would like to personally thank the following:

• Dr. Brian Cameron, my thesis advisor, for helping me through the process every step of the way.
• Dr. Ed Glantz for taking time to be my thesis reader.
• Manasa Basavaraju for helping with the research and analysis of the survey.
• All of those who participated in the research study. There are to many to name but without your thoughtful participation none of this would have been possible.
• The Schreyer Honors College for giving me the opportunity to participate in undergraduate research.
• My family and friends for providing me with the support structure and motivation to continue this difficult and lengthy process.
Introduction

What is Enterprise Architecture?

“In one of the most recent studies of the Institute For Enterprise Architecture Developments (IFEAD), Enterprise Architecture was ranked near the top of the list of most important issues considered by top management, CEO’s and CIO’s” (Enterprise Architecture Definition, 2003). In today’s tightening economic times the role of enterprise architect is ever expanding and increasingly valuable. Although Enterprise Architecture continues to be integral to both industry and government, many people have a difficult time defining the term Enterprise Architecture.

“Numerous, conflicting interpretations of the term cause confusion and obstruct the benefits that a common understanding of the concept would enable” (Lapkin, 2006). “It is important to begin any architecture development effort with a clear definition of what you mean by “architecture.” Use examples to help clarify concepts and remember that roles and responsibilities will vary, depending on the type of architecture being developed” (Armour, 1999). Differences in definitions tend to focus on whether Enterprise Architecture should be defined based on the outcomes it produces or its process. An outcome-based definition would focus on quantifiable deliverables, but most definitions tend to be more process oriented. The reason for the trend toward a process-oriented definition is to avoid an exclusively technological definition of Enterprise Architecture. As Gartner explains the problems of outcome-based definitions, in a recent research study looking into the challenges of Enterprise Architecture, “In the past, enterprise architecture (EA)
efforts sometimes became overly focused on technology and the production of enterprise technology architecture (ETA) artifacts” (Lapkin, 2006). Enterprise Architecture is much more than technology, and its definition encompasses more than outcomes. A process-based definition would be that Enterprise Architecture is a management tool for coordinating activities and defining a support structure to achieve effectiveness and efficiency across the entire enterprise (Mayo, 2005). It is easy to see that this definition is focused on effectiveness and efficiency, which are process-oriented outcomes rather than specific deliverables. Gartner and Forrester Research have adopted a process-oriented definition that focuses on the verb or process rather than the noun or output, and this perspective leads to the highest benefit realization of Enterprise Architecture. Gartner specifically defines Enterprise Architecture as:

“the process of translating business vision and strategy into effective enterprise change by creating, communicating and improving the key requirements, principles and models that describe the enterprise’s future state and enable its evolution. The scope of the enterprise architecture includes the people, processes, information and technology of the enterprise, and their relationship to one another and to the external environment. Enterprise architects compose holistic solutions that address the business challenges of the enterprise and support the governance needed to implement them” (Lapkin, 2006).
Carla Pereira and Pedro Sousa defined Enterprise Architecture in their paper, *Enterprise Architecture: Business and IT Alignment*, as:

“a representation of the organization to enable the planning of the organization changes. It includes the current and future business objectives, goals, visions, strategies, informational entities, business processes, people, organization structures, application systems, technological infrastructures, and so on” (Pereira, 2005).

The IEEE defines generally the term "architecture" as "the fundamental organization of a system, embodied in its components, their relationships to each other and the environment, and the principles governing its design and evolution” (IEEE, 2000).

The Open Group also follows this definition but expands upon it to create a definition of Enterprise Architecture:

“Enterprise architecture (EA) therefore is understood as (1) the fundamental organization of a government agency or a corporation, either as a whole, or together with partners, suppliers and / or customers ("extended enterprise"), or in part (e.g. a division, a department, etc.) as well as (2) the principles governing its design and evolution” (The Open Group, 2003).
The focus on all of the components involved in the Enterprise Architecture is a common theme in these definitions. If enterprises focus on the process as well as the sum of all the components, it will allow information technology to be versatile and help the organization to continuously transform how it performs its business. Enterprise Architecture can produce greater efficiency, effectiveness, and versatility across an organization. While few would argue that effectiveness, efficiency, and versatility spanning an enterprise are extremely important, it needs to be understood that a quality Enterprise Architecture is the precursor.

**The Value of Enterprise Architecture**

A mature Enterprise Architecture is necessary for a successful business or government organization. Enterprise Architecture first became a career path in industry in 1992 at IBM, and the demand for quality Enterprise Architects continues to grow. In government, the law mandates that organizations practice Enterprise Architecture. This started in 1996, the Clinger-Cohen Act was enacted and it required government to align information technology investments with existing technology architecture thus making Enterprise Architecture a part of every organization (Frampton, 2009). While the Clinger-Cohen Act references technology architecture, Enterprise Architecture today encompasses more than just technology (Bredemeyer, 2004). Enterprise Architecture affects organizations on a much larger scale by attempting to mesh business strategies and designs with actual implementations. Enterprise Architecture has implications well beyond IT, and if utilized correctly can benefit enterprises more holistically. It is important to be
aware of the distinction between enterprise technology architecture, that only encompasses technology, and the architecture of the enterprise that contains technology, data, information, and application architectures (Mayo, 2005). An EA process that delivers business value to the enterprise produces several things:

- An articulation of the strategic requirements of the enterprise and the ability to align business and information technology.
- Models of the current and future states, which not only paint a picture of the enterprise but portray how to support business strategy.
- The requirements, principles, and standards that allow the enterprise to make informed decisions (Cameron, 2010).

Organizations with adaptive environments are more resistant to economic flux and deal more effectively with organizational growth or restructuring. They are timelier with the reporting of their business information and can much more easily justify money spent on information technology. The enterprise-wide coordinating of goals, not just at the IT level, will produce tangible results for organizations’ return on investment.

Alignment to Business Vision

Enterprise Architecture attempts to use tools, principles and methodologies in order to align the business vision with all other architectures of the organization. This includes the data, information, technology, and application architectures. Most organizations function in silos without thinking of the possible implications of their lack of alignment. "Enterprise Architecture facilitates the synthesis of all key
components of an organization, including the processes, policies, strategies, technologies and other assets of the firm” (Cameron, 2010). The illustration below shows the alignment of the architectures of your organization.

![Alignment Graphic](image)

**Figure 1: Alignment Graphic**

**Current and Future State of the Enterprise**

Enterprise Architects often talk about their practice as taking place around the evaluation of three areas. The first area is the current state of the enterprise. This is an analysis of what your organization is currently doing. The future state is the second part and that is an analysis of where the organization wants to go. “The enterprise architecture is most useful in understanding the current state of these components and in developing a desired future state known as the reference architecture” (Cameron, 2011). The third part of the analysis comes from what is called the transition plan. The transition plan is how is the organization going to get
from the current state to the future state. Enterprise Architects can establish real value by being able to provide a roadmap for that transition. Gartner reflects on the entire process that we just described in their roadmap.

**Enterprise Architecture Roadmap Process (Gartner)**

1. Assess Current State
2. Define Objectives
3. Develop “To-Be” Vision
4. Build the Roadmap
5. Manage the Portfolio

![Figure 2: Gartner Roadmap Model](image)

**Decision – Making**

Enterprise Architecture attempts to make help organizations make decisions. The way Enterprise Architecture can do this is by allowing for correct information to be in the hands of the right people at the right time. This allows for people to make decisions based on the most up to date and accurate information. Also this decision making structure manages the process of deciding who makes decisions and who can be held responsible for the decisions that were made. This overarching process of decision-making and managing responsibility is called governance. Governance “refers to the way the organization goes about ensuring that strategies are set, monitored, and achieved” (Rao, 2004). Many companies lay the burden of Enterprise Architecture governance on the information technology department and
neglect important business process groups from the equation. In describing data
governance in terms of data quality management, in an ACM article Weber, Otto and
Osterle describe what data governance can do:

“With data governance, ... companies may implement corporate-wide
accountabilities for data quality management that encompass professionals from
business and IT departments” (Osterle, 2009).

Governance plays an integral role in the management of decisions and
responsibilities. Within a solid Enterprise Architecture governance can facilitate the
cooperation between the IT and business aspects of an organization.

**Central Components to an Enterprise Architecture**

Enterprise Architecture can be very difficult to understand so sometimes it is
better to try and understand the components that make one up. Many of the
definitions out there talk about the different things that should be included in the
enterprise architecture discussion. It is important to remember that when we are
talking about enterprise architecture we are focusing on the architecture of the
whole enterprise not just the technology assets. Central components of the
enterprise include information specific to that enterprise but are comprised of
common categories. Models must be created for these categories in order to
successfully build an Enterprise Architecture:

- The objectives and goals of the enterprise
- The process organization of the enterprise
- The system and data architecture models of the enterprise
• The technology used by the enterprise
• The organization of the people involved in the enterprise

Enterprise Architecture Frameworks

What are Frameworks?

In general frameworks are a skeletal structure by which an organization can be built upon. “Enterprise architecture frameworks are used to ensure interoperability of information systems and improve the effectiveness and efficiency of business organizations” (Zandi, 2010). However, in the context of Enterprise Architecture frameworks have not been around for a long time. Figure 3 below should help to visually represent the history of some of the major frameworks and help make clear how we got to where we are today.

The History of EA Frameworks

Beginning with publications in the late 1980’s J.A. Zachman started to discuss Enterprise Architecture frameworks. He published “A Framework for Information Systems Architecture” in 1987 in the IBM Systems Journal with the goal of the article to stress alignment. The way Zachman purposed to do this was through encouraging a very holistic approach to system architecture. “The intent was to manage the growing complexity from distributed systems, as well as provide real business value from systems in a more efficient and effective manner” (Cameron, 2011). Zachman was on to something big because in 1994 the Department of Defense created The Technical Architecture Framework for Information
Management (TAFIM) that was an approach used to harness Zachman’s ideas for large-scale systems. In 1996 congress decided that it was important that there be a law regulating how organizations managed their technology. This decision stemmed from the inability by the executive agencies to manage their information efficiently. The result was the creation of the Clinger-Cohen act in 1996 that established “a comprehensive approach for executive agencies to improve the acquisition and management of their information resources, by:

- focusing information resource planning to support their strategic missions;
- implementing a capital planning and investment control process that links to budget formulation and execution; and
- rethinking and restructuring the way they do their work before investing in information systems.

As organizations began to understand the mandates they were given through the Clinger-Cohen act more and more architecture frameworks popped up to prove compliance as well as deal with information management. In 1998 TAFIM was retired by the Department of Defense and was morphed into the public sector by The Open Group and became TOGAF, or The Open Group Architecture Framework. The Open Group Enterprise Architecture Framework remains one of the most widely used frameworks today. The Federal Enterprise Architecture Framework was released in 1999 and changed the next few years to drop the ‘Framework’ portion of its name and is now just called the Federal Enterprise Architecture. The framework is used by sections of the federal government. The Department of Defense was not done after their retiring of TAFIM and released their own
architecture framework, DODAF, in 2003. DODAF. As well as DODAF the research and advisory organization Gartner released its own framework focusing on the process of doing Enterprise Architecture in 2005. The five frameworks that were discussed still remain the most widely adopted and commonly used today. The next section will describe how they are used and the differences between them.

Figure 3: History of Enterprise Architecture Frameworks

**Frameworks Value**

Within the field of Enterprise Architecture, frameworks play a very important role. Enterprise Architecture Frameworks describe the fundamental elements of an EA and the relationship between them (Department of Treasury,
Most organizations rely on their EA frameworks to do two things (Shah, 2007):

- serve as documentation and component-specification tools, and
- facilitate enterprise planning and problem solving.

There are currently many different frameworks being used by organizations with different needs. The most popular in industry is The Open Group Architecture Framework that over 70% of organizations are using. However, the trend we observed in our survey was that most industries (57%) used a hybrid approach to their EA frameworks. This means that instead of relying solely on a specific framework, organizations can pull parts of multiple frameworks to create a framework that is most effective for their business.

**Frameworks vs. Methodologies vs. Taxonomies**

The words framework, taxonomy and methodology are often used in the context of Enterprise Architecture. A lot of times these words will be used interchangeably but there are differences in how they will be used in this paper. A taxonomy is a system used to classify objects (Taxonomy, 2010). In the context of Enterprise Architecture the term taxonomy could be used to classify key documentation objects or stakeholder groups. A key difference between taxonomies and frameworks is that taxonomies are not going to guide you in the development process. A methodology can be defined as a body of methods, rules, and postulates employed by a discipline: a particular procedure or set of procedures (Methodology, 2010). The key part of that definition is the last portion about the
procedure or set of procedures. A methodology refers to the process of doing something that can be repeated for similar results. A methodology will give you the necessary steps to create an enterprise architecture an organization does not already have one in place. The Gartner model emphasizes the importance of having an enterprise architecture methodology. A methodology is only a generalized set of instructions and will not always lead an organization to where they need to go if followed blindly (Sessions, 2009). Lastly frameworks are a skeletal structure by which an organization can be built upon. Frameworks dictate the ends and allow the organization to chose the means as best fit (Sessions, 2009). They work by showing the organization a structure that can then be interpreted and molded to fit the needs of each specific organization.

Discussion of the Frameworks

There are five main frameworks that are used by more than 85% of organizations. This section will describe the main philosophies of those five frameworks as well as how they were created and have evolved over time.

The Zachman Framework

The first thing that should be noted is that the Zachman Framework is a taxonomy that is used to categorize documentation objects. “The Zachman Framework is actually a generic classification scheme for design artifacts of any complex product, such as building, airplane, information system or enterprise” (Varga, 2003). The Zachman Framework is broken down into a six by six matrix for classification. The columns represent the who, what when, where, why and how.
The rows go from the most vague at the top to the most concrete at the bottom. The goal of the Zachman framework is to be able to provide a complete definition of every single entity in your enterprise. It can be adapted and modified to fit any organization and is a great tool for describing an organization. It is important to keep in mind however that the Zachman Framework is not a methodology but and taxonomy and will not help organizations that are dealing with transformation (Cameron, 2010). To the right is an example of two cells of Zachman’s Framework.

**The Open Group Architecture Framework**

The Open Group Architecture Framework (TOGAF) is the most widely used framework in the world. More than 75% of respondents in the survey claimed that they used TOGAF as the primary framework for their organization. The Open Group created TOGAF in 1995. They used the model of the recently retired TAFIM from the Department of Defense to form TOGAF at its inception. The goal of TOGAF is to design, plan, implement and govern the current and future states of the enterprise. It has gone through many revisions and is currently on Version 9, which was released in 2009. TOGAF typically divides the architecture into four categories.

As shown in the figure, TOGAF divides an enterprise architecture into four categories, as follows (Sessions, 2009):

### Table 1: Example of Zachman Framework

<table>
<thead>
<tr>
<th>framework</th>
<th>DATA</th>
<th>What</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCOPE (CONTEXTUAL)</td>
<td>List of Things Important to the Business</td>
<td></td>
</tr>
<tr>
<td>Planer</td>
<td>ENTITY = Choice of Business Thing</td>
<td></td>
</tr>
<tr>
<td>ENTERPRISE MODEL (CONCEPTUAL)</td>
<td>e.g. Semantic Model</td>
<td></td>
</tr>
<tr>
<td>Owner</td>
<td>Ent = Entity or Entity Role = Business Relationship</td>
<td></td>
</tr>
</tbody>
</table>
1. **Business architecture**—Describes the processes the business uses to meet its goals

2. **Application architecture**—Describes how specific applications are designed and how they interact with each other

3. **Data architecture**—Describes how the enterprise datastores are organized and accessed

4. **Technical architecture**—Describes the hardware and software infrastructure that supports applications and their interactions

The real secret to TOGAF being so widely adopted is its architecture development method (ADM). This allows an organization to use TOGAF to create an architecture that fits their organization. This is extremely enticing to organizations that are trying to build an Enterprise Architecture framework for the first time. The goal of the Architecture Development Method is to allow an organization to
integrate the different parts of the architecture and build from scratch. Figure 6 shows TOGAF ADM.

**The Department of Defense Architecture Framework**

The Department of Defense Architecture Framework (DoDAF) was started under the name TAFIM in the early 1990’s and evolved to become DoDAF in 2003 when version one was released. DoDAF is currently on version 2.02, which was released in August of 2010. DoDAF is mandatory for all Department of Defense projects that deal with weapons and information technology. “DoD Components are expected to conform to the DoDAF developing architectures within the Department. DoDAF Conformance ensures reuse of information and that architecture artifacts, models, and viewpoints can be shared with common understanding.” (DODAF, 2010) While mostly used in the government DoDAF could also apply to the public sector. The main goal of DoDAF is to “ensure that architecture descriptions can be compared and related across organizational boundaries, including Joint and multi-national boundaries” (Mosto, 2004). The architecture also helps to facilitate the use of common principles and terminology, basically the development of some standard language that can be used across the Department of Defense.

**The Federal Enterprise Architecture**

The Federal Enterprise Architecture (FEA) has really only been around since 2006 and thus is still very much in its infancy. The goal of FEA is to provide a way to integrate all the different pieces of the federal government. “The Federal Enterprise Architecture (FEA) is the latest attempt by the federal government to unite its
myriad agencies and functions under a single common and ubiquitous enterprise architecture” (Sessions, 2009). FEA will allow the organization to process and create the enterprise architecture, transition from pre to post Enterprise Architecture, create a taxonomy for cataloging Enterprise Architecture Assets and provide success metrics to measure success in creating business value. “FEA is a methodology for the U.S. Government (probably one of the most complex enterprise ever) that includes both an architectural taxonomy (like Zachman) and a process (like TOGAF)” (Cameron, 2010). FEA produces a model that defines the pieces of the organization as either core mission area or business service segments. The segments are then defined on an organizational level. In the figure below you can see how FEA is attempting to show how different agencies within the federal government fit into their model.

![FEA Segment Breakdown](image)

Figure 5: FEA Segment Breakdown
The Gartner Practice

Gartner defines the practice of Enterprise Architecture as a verb not a noun. The distinction contributes to their opinion of how a framework should be defined. The Gartner Framework attempts to show how an enterprise architecture should work throughout its entire lifecycle. As was already discussed in Figure 2, Gartner defines their roadmap as a process. The first step in the process is to assess the current state of the organization. It is impossible to get to where you want to be without first understand where you are. One of the best ways to do that is for their to be defined metrics that would evaluate your business processes from an EA perspective. Second the organization should attempt to make decisions of objectives based on the results of step one. This all leads to the third step of defining the “to-be” vision. This is the most important part according to Gartner. “This shared future vision of the business, technical, information and solutions architectures dictates needed changes and priorities of these changes, both grounded in business value” (Cameron, 2010). The fourth step in the Gartner Roadmap is to build a roadmap of how to get from the current state to the desired future state. Once this roadmap has been made and projects have been created to help get from the current to the future state, the fifth step is managing the portfolio. Proper management of the portfolio can make sure there is correct financial distribution to the projects that are obtaining meaningful results.
Justification for Research

The area of Enterprise Architecture is a field of great importance to all organizations today. Efficiency and alignment have never been more important than in today’s economic climate. While there continues to be stress on the importance of Enterprise Architecture in practice there is little research being done into the current state of the profession. In order to understand where Enterprise Architecture needs to go and how to get there, as all Enterprise Architects should know, it is extremely important to acquire a snapshot of what the profession looks currently. This research will do exactly that in the organizational make up of Enterprise Architecture practices as well as the use of EA frameworks. This research will make evident trends that can then be acted upon to provide recommendations to the profession of Enterprise Architecture as a whole. It will demonstrate in an aggregated form what the most experienced and knowledgeable Enterprise Architectures think should be focused on as the profession moves forward. The survey methodologies as well as supporting organizations are located below.

Survey Methodology

The number of organizations involved in this survey is unique in that the responses come from a broad cross-section of individuals and organizations. There were 280 valid responses in total. The data will be a starting point in our understanding of how enterprise architecture is practiced and how value is currently measured. We believe that this data will undoubtedly spawn future research projects of benefit to the field.
This survey is designed to gather information that is important to the Enterprise Architecture profession. It has the support and participation from several leading EA industry associations and research firms: The Open Group, The Association of Open Group Enterprise Architects (AOG EA), The Association for Enterprise Integration (AFEI), The Industry Advisory Council (IAC) - Enterprise Architecture Shared Interest Group (SIG), The Object Management Group (OMG), The National Association of State Chief Information Officers (NASCIO), and Gartner. We would greatly appreciate your thoughtful and timely completion of this survey.

The survey was based on two major areas.

1) EA Framework Usage – a profile of how the popular EA frameworks and methodologies are used in a large cross-section of organizations and industries and how these frameworks have been adapted and modified into “hybrid” approaches

2) EA Value Measurement – a profile of how the value of enterprise architecture is measured in a large cross-section of organizations and industries

The survey instrument for EA was designed to investigate and capture details regarding various constructs of an EA program in organizations. The survey was conducted online between April 2010 and June 2010. It received a huge response of around 600, out of which 50 respondents mentioned their organization does not have an existing EA program, around 200 responses were incomplete and 280 were deemed useful for our study.
The target population consisted of individuals who lead the EA function in their organization. Participants were solicited from around the globe. The survey was also unique because of the participants who were experts from a broad cross-section of industries ranging from Government (Federal, State, Local) to IT organizations, from banking & financial services to healthcare. Contacting the experts was made possible through industry association’s list serve. The responses from these experts are crucial to this research study, and they form the basis for understanding and explaining various constructs of EA. It is difficult to report an accurate response rate because of the reach of these associations and also because the sampling method involved is the snowball sampling.

The EA survey questionnaire was generated based on the literature review and on an understanding of the current trends and interests in EA. In order to enhance the clarity and accuracy of the content, we carried out approximately 8 rounds of pilot testing. The pilot testing panel constituted EA experts from the Open Group, the Industry Advisory Council (IAC) - Enterprise Architecture Shared Interest Group (SIG), Gartner, National Defense University and survey experts from the Survey Research Center at Penn State University.

The survey had three sections: EA framework usage, EA value measurement and the demographics/ organizational structures of people who lead the EA function. The average time to complete the survey was about 30 minutes depending on the open-ended response. This paper will focus solely on the Framework Usage and Organizational Structure sections of the survey. For all survey questions and responses for the frameworks section please see the Appendices.
Survey Results and Discussion

Description of Organizations EA Approach

Which of the following best describes your organization's enterprise architecture framework approach? (Please select only one)

- Primarily one of the popular EA frameworks
- Hybrid framework (framework consisting of elements of different popular EA frameworks and perhaps custom elements developed by your organization)
- Developed an original EA framework from scratch
- Utilize a framework from an outside consultant firm

This graph shows that organizations utilize EA frameworks in a variety of different ways. We asked respondents to select from the four choices graphed above, and the most popular method is using a hybrid framework. A hybrid framework is a variety of different framework components pulled together to create a framework that is specific to the needs of their organization (56.0%). The second most popular method is to use a pre-existing popular framework as the organization's main tool (28.7%). Hybrid frameworks are a growing trend in
Enterprise Architecture. Organizations feel the need to mold their architectures using different components from one of the popular frameworks.

**EA Frameworks that Organizations Primarily Utilize**

As this graph illustrates, TOGAF is by far the most widely adopted primary framework. TOGAF dominated responses with 76.30% saying that they used TOGAF as their primary framework. Many respondents in the write in portion of this section stated that they use TOGAF Architecture Development Method. “The TOGAF ADM is the result of continuous contributions from a large number of architecture practitioners. It describes a method for developing an enterprise architecture, and forms the core of TOGAF.” (The Open Group, 2010) DODAF was second with 10% of respondents saying they used it as their primary framework. Both Gartner and FEAF were used by 2.5% of respondents. From our results discussed earlier, we know that
most organizations are using a combination of more than one of these popular frameworks or a custom model to create a hybrid framework.

**Organizations Top 3 Criteria for Selecting an EA Framework**

<table>
<thead>
<tr>
<th>Criteria Selections</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>A clear process for developing the architecture</td>
<td>38.8%</td>
</tr>
<tr>
<td>Consistent and structured</td>
<td>29.9%</td>
</tr>
<tr>
<td>Customizable and able to be augmented with elements from other frameworks</td>
<td>27.7%</td>
</tr>
<tr>
<td>Business-strategy-driven approach. Simple and natural</td>
<td>26.6%</td>
</tr>
</tbody>
</table>

Respondents were given the option to choose three different criteria that they believe are most important in selecting an Enterprise Architecture framework. The results showed that a very clear, consistent, and simple framework was preferred. This reinforces why so many people are using TOGAF and specifically its ADM capability. Organizations need a development process that is available in a clear and standardized way. The results also showed a preference for frameworks
that undertake a business-strategy-driven approach. Organizations are attempting to align information technology and business with their Enterprise Architecture Framework. They need a framework that is customizable, yet clear, to fit their specific business needs.

Elements of EA Frameworks used in Organizations

When developing the survey, it was anticipated that most organizations were going to respond that they pulled framework elements from a variety of pre-existing frameworks. In this question, it was measured which frameworks they were pulling elements from. The question did not limit the number of frameworks that could be selected. TOGAF, as expected, remained the most selected option, which follows logically as the majority of respondents use it as their primary framework. However, Zachman, which was selected by 0% of respondents as the primary framework, was
partly utilized by 52.7% of organizations. So this leads us to the conclusion that while it is not a standalone framework, Zachman, along with Gartner, which also showed a sizable jump from 2.5% primary to 26.7% partial, both offer useful components.

**From the frameworks selected, please describe the elements utilized from each framework and how these elements are used.**

The most overwhelming response to this question once again aligned with the TOGAF framework and specifically the use of their Architecture Development Method (ADM). You can see the different steps in the TOGAF ADM model shown below. The model allows for an organization to create an architecture while following those nine steps which can be rearranged and broken out into more detailed sections. Respondents also showed that in the hybrid framework realm, a lot of organizations are blending the use of TOGAF, Zachman, and Gartner to create a more complete framework. FEAF is also used in lines of business, and MoDAF is used in certain situations for strategic alignment.
What custom elements, not adapted from the frameworks selected were developed? Please describe how these custom elements are used?

The survey showed that custom elements were used for a variety of different reasons. Some organizations used the elements to extend current popular frameworks, specifically TOGAF. Other organizations created elements specific to their stakeholder groups such as financial or business-related capabilities. Some organizations created their own data dictionary and governance sections for their Enterprise Architecture. In general, organizations created ways to evolve their Enterprise Architecture to make it specific to their business needs. There were not conclusive results from this question as to trends of all organizations developing specific parts of their Enterprise Architecture.

What was the motivation for selecting this EA approach in your organization?

Respondents to this question typically described why their organization chose the direction for their Enterprise Architecture. Overwhelmingly, organizations either picked a known framework because it was the most widely adopted (TOGAF or DoDAF), or they selected a framework based on a few general characteristics. Those characteristics include wanting to improve business – IT alignment, better governance, reducing cost, increased interoperability, flexibility, and ease of use. Others had a specific framework mandated to them by their organization.
Aspects of EA that Organizations are Most Satisfied With

From these results, organizations are most satisfied with their ability to align business and IT. However, only 24.8% of respondents selected that category. What this means is that organizations are inconsistent about what they do well in Enterprise Architecture. Whether respondent’s frameworks are clear and transparent, flexible, or easy to use, there is not one thing that the entire Enterprise Architecture community does well. All organizations are striving to say that their Enterprise Architecture practice possesses all the attributes included on this chart. This chart also shows that the Enterprise Architecture community is not mature enough to be able to say that any one of these attributes doesn’t need to be developed and matured. A sharing of knowledge could be an initial step in order to
mature all of the traits in organizations because there are groups that are doing some things well.

**Aspects of EA that Organizations are Least Satisfied With**

<table>
<thead>
<tr>
<th>Elements</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Proper Tools/ Tool Support / Repository / Templates / Resources</td>
<td>21.29</td>
</tr>
<tr>
<td>Lack of Business Architecture Methods / Business Process</td>
<td>13.86</td>
</tr>
<tr>
<td>Lack of Governance</td>
<td>9.9</td>
</tr>
<tr>
<td>Lack of quality Data Information Architecture</td>
<td>7.92</td>
</tr>
</tbody>
</table>

Organizations are least satisfied with their access to materials. Materials can include the actual tools themselves, support for those tools, or the proper repositories and resources. Repositories could be created with tools and methods for the Enterprise Architecture community on the whole which would level the playing field. An open source Enterprise Architecture resource repository would be an interesting idea moving forward. It should be noted that governance was the only category that showed up on both the satisfied and unsatisfied portions of the survey. Governance then becomes low hanging fruit for those organizations that do not do it well because there are others that are claiming it is the best part of their Enterprise Architecture approach. Governance information sharing would be one key to
improving the Enterprise Architecture field without the development of new information.

**Top Three Priorities in EA for the Next Year**

Education in the field of EA is the number one thing organizations are trying to accomplish in the next year. This area of education could be broadened to include information sharing and the development of an Enterprise Architecture Community. Areas like developing standards and better governance which also make the list, could be addressed in the structure of this community. The goal of all of these priorities is to continue to increase the maturity of Enterprise Architecture within the organization and the development and continued maturity of an Enterprise Architecture Community. The community would be able to offer standardized training, an open source tool repository and help to develop standards. Just those
three things would help to support three of the five top priorities for organizations in the coming year.

**Demographics of Participants**

The last section of the survey was based around the various demographics of the respondents and their organizations. For each of the demographic groups seen in the Demographics Table, respondents were asked to provide information about themselves and their organizations. For each question, the respondents were given ranges or categories of possible answers. Of these options, each respondent was asked to choose the range that best suited their person or organization.

From a demographic standpoint, the professionals that participated in this survey come from diverse backgrounds. The age of participants ranged from 21 years old, to over 60 years old. Although ages were distributed across this range, the majority of the respondents fell between the ages 36-55. Most of the respondents were male. From an educational perspective, many of the people involved with this survey received either a Bachelor’s degree or a Master’s degree. Some respondents also mentioned work in both Master’s programs and Doctorate programs during the time this survey was being conducted. Doctorate degrees and Associate degrees had been achieved by some of the participants but they were a minority. For those that followed a different form of education, most provided the English equivalent. The degrees received were primarily in fields such as Computer Science, IT, or Business. To compliment these degrees, many of the participants have obtained a number of different certifications such as TOGAF, PMP, and Six
Sigma certifications. Finally, in terms of experience within the field of EA, the range of experience was between less than three years and more than 30 years. The majority of respondents have between 3 to 6 years of experience. For all survey questions please see Appendix A.

**Demographics Tables**

**Participant Gender**

Overwhelmingly the majority of participants in the survey were male. This would lead us to conclude that the vast majority of people in the field of Enterprise Architecture are male. Further research could be done into why this is the case. Initial thoughts would be that it has something to do with a perceived technology focus in the field or the majors that architects are being pulled from. The Women in
Enterprise Architecture Group at Penn State University is investigating this very question.

**Participant Age**

The ages of the participants in the survey varied greatly from 21 to >60. The largest section of participants were between 36 and 40 with 41 through 45 and 46 through 50 being tied at a very close second. This makes sense because Enterprise Architect trends towards being a more senior level position. Enterprise architects have a lot of responsibility within the organization and it makes sense, especially without formal education available, that they tend to be more senior.
The respondents of the survey got their degrees primarily from five fields. The largest percentage of participants got their degree in computer science (30.2%). The science technology engineering and math (STEM) fields make up the majority of participants. Drawing on majors from information technology, computer science, and engineering STEM majors account for 68.4% of participants. Another 20% come from a business background while 3.4% got a degree in public administration or public policy. 8.0% of respondents have degrees in a different field.
Most members of the Enterprise Architecture community have achieved at least a masters degree. This follows logically with the age groups that we discussed earlier where the majority of respondents were senior level employees. 90.3% of participants have obtained a bachelors degree or higher. The “other” section could be comprised mostly of participants who had a law or JD degree. In general the Enterprise Architecture community is comprised of well educated members that are leading their organizations.
The participants in the survey have worked in enterprise architecture for a variety of different lengths. While the greatest response was with people that have worked in enterprise architecture for 3 to 6 years (25.4%) there were many people that have been working in the field for much longer. 57.1% of participants have been working in enterprise architecture for longer than 6 years while 7.1% have been in the field for over 20 years. It seems as though the field of Enterprise Architecture is hard to break into based on the age of participants that we discussed earlier but one you are able to get in it becomes a field that few leave.
**Organizational Statistics of Participants**

Respondents were also asked to provide information concerning the organization they represented. Organizations reported on the size of their staff, to whom they report and what their revenues were. We also tried to determine where their businesses were located around the globe. This information is important to understanding the current landscape of enterprise architecture. Organizations ranged in size from less than 100 employees to more than 10,000 employees. The most common response was that the organization in question was comprised of more than 10,000 employees. Specifically in terms of information technology, participants stated that their organizations were comprised of 25 IT employees to more than 1,000.

The revenue or operational budgets of the participant organizations were assessed. The revenues or operational budgets ranged from less than $1 million to more than $100 billion. The most common response was that organizations fall into the range of $1 billion up to $10 billion. The participants in the study are from organizations that are headquartered all over the globe. The regions included the six continents as well as the Middle East, and the Asia Pacific. Although there were organizations based in all of these regions, the most common region for an organization to be headquartered was North America. For all survey questions see Appendix A.
The numbers of employees that make up the participant’s organizations are shown in the chart above. The largest section of participants, 41.3%, comes from organizations with over 10,000 people making them extremely large. The next largest sections fall between 1,000 and 5,000 people (27.2%). They would make up the medium sized organizations. This means the survey targeted the correct group as large to medium sized businesses are the main users of Enterprise Architecture Frameworks and methods.
The numbers of IT employees that make up the participants organizations are shown in the chart above. It is interesting to note the discrepancy of responses. While 27.2% of organizations have more than 1,000 IT employees, 33.6% claimed to have 100 – 500 employees. While the IT department is not the only important factor in Enterprise Architecture this chart does give you an idea of the sizes of the organizations that are doing EA. Since a lot of times Enterprise Architecture still originates from the IT department it should be noted that organizations of this size still do have a reasonable representation of IT employees.
Enterprise Architecture programs within the respondent’s organizations are not very robust, especially when compared to the size of the organizations they are representing. The majority of organizations have between one and twenty members in their Enterprise Architecture programs. In most of the organizations surveyed the Enterprise Architecture programs are accounting for less than 1% of all employees. Future research could be done to determine if this is a concern for the Enterprise Architecture profession. This research could focus on if Enterprise Architecture jobs need to be created or reduced in organizations.
Most Enterprise Architecture programs are in their infancy. As Enterprise Architecture continues to be an emerging trend in the next few years more and more EA practices will pop up across organizations. 48% of all Enterprise Architecture practices have existed for less than three years and 69.3% have existed for less than six. These are exciting numbers because it means that the entire discipline of Enterprise Architecture is evolving and growing right before our eyes. Practicing Enterprise Architects have an opportunity to shape their field and develop consistent and valuable best practices that will be used for years to come.
Enterprise Architects report to the C-suite level in organizations almost exclusively with 70.6% of programs reporting to that level. While in different organizations the boss might have a different title they essentially report to the highest level of management. The most common person that Enterprise Architecture programs report to is the Chief Information Officer, which is the case for 45.3% of organizations.
Organizations in large part that had individuals respond to the survey are located in North America (49.4%). There were five total continents represented in the study including Central America, South America, Europe, and Africa. 27% of all the organizations were headquartered in Europe. The Middle East and Asia Pacific were also represented. It would have also been interesting to know where the respondents are currently stationed.
The graph above shows the respondent’s organizational revenue. The revenues or operational budgets ranged from less than $1 million to more than $100 billion. The most common response was that organizations fall into the range of $1 billion up to $10 billion with 20.8% of respondents in that category. Once again this graph shows that the organizations the respondents work for are extremely large.
Conclusion

There are some broad conclusions about frameworks, the characteristics of enterprise architecture professionals, and their organizations. Enterprise Architects are primarily male (89.9%), have earned a master’s degree, and work for large organizations (10,000 or more). The majority of the organizations they work for have revenues of greater than a billion dollars. Enterprise Architecture is a priority of these organizations but is also in its infancy. The majority of Enterprise Architecture programs have been established for less than six years.

In terms of Frameworks that are being used in the profession today TOGAF is the most widely used primary framework. It is being used by more than 75% of organizations as a primary framework and by 82% of organizations at least in part. While most organizations are using TOGAF a significant trend to note is the use of hybrid frameworks that blend the popular frameworks together. Hybrid frameworks do this in order to customize the primary frameworks to fit their needs. Only 28.7% of organizations are using one of the primary frameworks as their only source for Enterprise Architecture framework development. In the survey organizations also commented on their current Enterprise Architecture practice and what they are doing well or poorly. Organizations are least satisfied with their access to materials. Materials can include the actual tools themselves, support for those tools, or the proper repositories and resources. Organizations are most satisfied with their ability to align business and IT. Although those were the most selected answers they were only chosen by about a quarter of participants. This leads to the conclusion the Enterprise Architecture community needs governance,
education and standardization. Education in the field of EA is the number one thing organizations are trying to accomplish in the next year but the education of the community could be the most crucial. This area of education could be broadened to include information sharing and the development of standards. Standards development about ways to develop, govern and convey value are all important aspects of Enterprise Architecture that will continue to be discussed and pursued in further research.
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<http://www.opengroup.org/architecture/togaf8-doc/arch/chap03.html>.

<http://www.opengroup.org/architecture/togaf8-doc/arch/chap03.html>.


Contingency Approach to Data Governance." Journal of Data and Information 

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Appendix A: Survey Questions

Participant Information

1) Please indicate your current job title.

Section 1 – Enterprise Architecture Usage

This section captures information regarding EA program, EA framework and its usage in your organization. Please answer in terms of the organization where you have primary EA responsibility.

2) Does your organization utilize (or plan to utilize within the next year) an enterprise architecture (EA) program?

   a) Yes
   b) No
   c) Don’t know

3) If you answered ‘No’ to Question 2, please explain why an EA program is not employed in your organization and the future plans (if any) for enterprise architecture in your organization.

   --------------------------- End Survey -----------------------------

   If answered ‘Don’t know’, end survey; If answered ‘Yes’ to Question 2, continue survey.

1.1 EA program

4) How long has your organization had a formal Enterprise Architecture program? (Please select only one)

   a) Less than 1 year
   b) 1 year to less than 3 years
   c) 3 years to less than 6 years
   d) 6 years to less than 10 years
   e) 10 years to less than 15 years
   f) More than 15 years
g) Don’t know

1.2 EA organization structure
5) Where in the organization does the EA program report directly? (Please select only one)
   a) Chief Information Officer (CIO)
   b) Chief Technical Officer (CTO)
   c) Chief Executive Officer (CEO)
   d) Chief Operating Officer (COO)
   e) Chief Financial Officer (CFO)
   f) Head of IT planning
   g) Head of application development
   h) Head of infrastructure/operations
   i) Head of corporate strategy/planning
   j) Other (please specify)

1.3 EA program budget
6) Please indicate the overall budget for enterprise architecture in your organization? (in US dollars)

1.4 Size of EA program
7) How many people are employed in the EA program in your organization? (Please select only one)
   a) 1 – 3
   b) 4 – 6
   c) 7 – 9
   d) 10 – 14
   e) 15 – 19
   f) 20 – 29
   g) 30 – 39
   h) 40 – 49
i) 50 – 99

j) 100 or more

k) Don't know

1.5 Organizational goals for EA

8) Which of the following are top three organizational goals for the Enterprise Architecture program in your organization? (Please select only three goals from the following)

a) Strategic alignment of business and IT

b) Better communication with stakeholders

c) Enable greater flexibility in business processes

d) Efficient and effective business operations (improved ability to seize new business opportunities, flexible outsourcing capabilities)

e) Legacy transformation which include technology convergence

f) Cost savings through shared infrastructure and services from standardization, consolidation of application and component reusability

g) Better predictability of project costs (acquisition cost, operation and maintenance costs)

h) Protection of intellectual property

i) Better governance

j) Early risk mitigation

k) Satisfy compliance requirements

l) Deliver applications and new IT services faster (enhanced service delivery) to facilitate technology leadership

m) Improve management decision making

n) Improve cross governmental interoperability

o) Improve interoperability with business partners

p) Innovation exploration

q) Adaptability / fluidity of organization

r) Other (please specify)
1.6 **EA framework**

9) What were your organization’s *top three* criteria for choosing/developing an EA framework? *(Please select only three criteria from the following)*

a) Ease of Use

b) Consistent and structured

c) Incorporates a variety of constructs at multiple levels of abstraction.

d) A clear process for developing the architecture

e) Ease of Communications

f) Describe the deliverables that will be produced and their relationship to each other

g) The selected deliverables are valid, useful and support governance mechanisms

h) Customizable and able to be augmented with elements from other frameworks or methods

i) Addresses business architecture

j) Addresses technology architecture

k) Addresses information architecture

l) Addresses solutions architecture

m) Addresses intersection of various architectures

n) Business-strategy-driven approach — simple and natural

o) Matches the goals of your organization

p) Alignment with culture

q) Access to a knowledgeable user community

r) Mandated by management

s) Availability of training and certification

t) Other (please specify)
10) Which of the following best describes your organization’s enterprise architecture framework approach? (Please select only one)

a) Primarily one of the popular EA frameworks

b) Hybrid framework (framework consisting of elements of different popular EA frameworks and perhaps custom elements developed by your organization)

c) Developed an original EA framework from scratch

d) Utilize a framework from an outside consultant firm

11) If you answered ‘a’ to Question 10, please answer the following question and then proceed to Question 15:

Which popular EA framework do you primarily utilize? (Please select only one)

a) TOGAF

b) DoDAF

c) MODAF

d) FEAF

e) Gartner

f) Zachman

g) NASCIO

h) Other (please specify)

If you answered ‘b’ to Question 10, please complete questions 12 - 15 and then proceed.

If you answered ‘c’ or ‘d’ to Question 10, please proceed to question 15.

12) Which of the following popular EA frameworks contain elements that are currently utilized in your organization? (Check all that apply)

a) TOGAF

b) DoDAF

c) MODAF

d) FEAF
13) From the frameworks selected in Question 12, please describe the elements utilized from each framework and how these elements are used.

14) What custom elements, not adapted from the frameworks selected in Question 12, were developed? Please describe how these custom elements are used.

15) What was the motivation for selecting this EA approach in your organization?

16) What are the three aspects of your EA approach that you are most satisfied with?

17) What are the three aspects of your EA approach that you are least satisfied with?

18) What are the top three priorities in your organization for improving the effectiveness of your EA program over the next year?
Section 3 – Individual demographic information

3.1 Education

19) What is your highest level of formal education? **(Please select only one)**

   a) Associates degree  
   b) Bachelors degree  
   c) Masters degree  
   d) Doctorate  
   e) Other (Please specify)

20) In what field is this degree? **(Please select only one)**

   a) Business  
   b) Computer Science  
   c) Engineering  
   d) Information Technology  
   e) Public administration / Public policy  
   f) Other (please specify)

21) Do you hold degrees in other fields? 

   a) Yes  
   b) No  

   If yes, check all that apply:  
   a) Business  
   b) Computer Science  
   c) Engineering  
   d) Information Technology  
   e) Public administration / Public policy  
   f) Other (please specify)

22) Please indicate any professional certifications that you hold

3.2 Gender
23) Please specify your gender. (Please select only one)
   
a) Male
b) Female
c) Decline to answer

3.3 Age
24) What is your age group? (Please select only one)
   
a) 18 – 20 years
b) 21 – 25 years
c) 26 – 30 years
d) 31 – 35 years
e) 36 – 40 years
f) 41 – 45 years
g) 46 – 50 years
h) 51 – 55 years
i) 56 – 60 years
j) > 60 years
k) Decline to answer

3.4 EA Experience
25) Please indicate your total years of experience in enterprise architecture related roles (Please select only one)
   
a) Less than 3 years
b) 3 years to less than 6 years
c) 6 years to less than 10 years
d) 10 years to less than 15 years
e) 15 years to less than 20 years
f) 20 years to less than 30 years
g) 30 years or more
Section 4 – Questions about your Organization
Please answer in terms of the organization where you have primary EA responsibility

4.1 Industry

26) Which of the following is your primary industry of operation? (Please select only one)

a) Automotive
b) Banking & Financial services
c) Biotechnology & Pharmaceuticals
d) Chemicals
e) Construction & Engineering
f) Consulting & Business Services
g) Consumer Goods
h) Distribution
i) Education
j) Electronics
k) Energy & Utilities
l) Food & Beverage Processing
m) Government – State and Local
n) Government – Federal defense and intelligence agencies
o) Government – Federal civilian agencies
p) Health Care & Medical
q) Hospitality & Travel
r) Information Technology
s) Insurance
t) Logistics & Transportation
u) Manufacturing
v) Media & Entertainment
w) Metals & Natural Resources
x) Non-Profit (Non-Government)
y) Professional services
z) Retail
aa) Telecommunications
bb) Other (please specify)

4.2 Size

27) For the organization being described, please indicate the number of employees
(Please select only one)

  a) Less than 100
  b) 100 - 249
  c) 250 - 499
  d) 500 – 999
  e) 1000 - 2499
  f) 2500 – 4999
  g) 5000 – 9999
  h) More than 10000
  i) Don’t know

28) For the organization being described, please indicate the number of IT employees
(Please select only one)

  a) Less than 25
  b) 26 - 50
  c) 51 - 75
  d) 76 - 100
  e) 101 - 200
  f) 201 – 500
  g) 501 – 1000
  h) More than 1000
4.3 Geographic Distribution
29) In which part of the world is your organization headquartered? *(Please select only one)*

a) North America
b) Central America
c) South America
d) Europe
e) Middle East
f) Africa
g) Asia Pacific
h) Other (please specify)

4.4 Annual Revenue/Sales/Operating Budget in US dollars
30) What is your organization’s Annual Revenue (if a company) or Operating Budget (if Government or Non-Profit Organization)? *(Please select only one)*

a) Less than $1 million
b) $1 million to less than $5 million
c) $5 million to less than $10 million
d) $10 million to less than $25 million
e) $25 million to less than $50 million
f) $50 million to less than $100 million
g) $100 million to less than $250 million
h) $250 million to less than $500 million
i) $500 million to less than $1 billion
j) $1 billion to less than $10 billion
k) $10 billion to less than $100 billion
l) More than $100 billion
m) Don’t know
## Appendix B: Full Framework Responses

### Which of the following best describes your organization’s enterprise architecture framework approach? (Please select only one)

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primarily one of the popular EA frameworks</td>
<td>28.3%</td>
<td>91</td>
</tr>
<tr>
<td>Hybrid framework (framework consisting of elements of different popular EA frameworks and perhaps custom elements developed by your organization)</td>
<td>57.3%</td>
<td>184</td>
</tr>
<tr>
<td>Developed an original EA framework from scratch</td>
<td>9.0%</td>
<td>29</td>
</tr>
<tr>
<td>Utilize a framework from an outside consultant firm</td>
<td>5.3%</td>
<td>17</td>
</tr>
</tbody>
</table>

### Which popular EA framework do you primarily utilize? (Please select only one)

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOGAF</td>
<td>73.6%</td>
<td>67</td>
</tr>
<tr>
<td>DoDAF</td>
<td>8.8%</td>
<td>8</td>
</tr>
<tr>
<td>MODAF</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>FEAF</td>
<td>3.3%</td>
<td>3</td>
</tr>
<tr>
<td>Gartner</td>
<td>3.3%</td>
<td>3</td>
</tr>
<tr>
<td>Zachman</td>
<td>1.1%</td>
<td>1</td>
</tr>
<tr>
<td>NASCIO</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>9.9%</td>
<td>9</td>
</tr>
</tbody>
</table>

### Which of the following popular EA frameworks contain elements that are currently utilized in your organization? (Check all that apply)

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOGAF</td>
<td>82.2%</td>
<td>139</td>
</tr>
<tr>
<td>DoDAF</td>
<td>16.6%</td>
<td>28</td>
</tr>
<tr>
<td>MODAF</td>
<td>5.3%</td>
<td>9</td>
</tr>
<tr>
<td>FEAF</td>
<td>21.3%</td>
<td>36</td>
</tr>
<tr>
<td>Gartner</td>
<td>23.7%</td>
<td>40</td>
</tr>
<tr>
<td>Zachman</td>
<td>54.4%</td>
<td>92</td>
</tr>
<tr>
<td>NASCIO</td>
<td>5.3%</td>
<td>9</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>18.9%</td>
<td>32</td>
</tr>
</tbody>
</table>
From the frameworks selected above, please describe the elements utilized from each framework and how these elements are used.

<table>
<thead>
<tr>
<th>Number</th>
<th>Response Text</th>
</tr>
</thead>
</table>
| 1      | Value proposition, Vision and Technology Segment Architecture  
        TOGAF - ADM is basis of process                                                                                                                                                                                                                                              |
| 2      | FEAF - supports commercial style                                                                                                                                                                                                                                                                                                       |
| 3      | The elements are being used based on the size of the project                                                                                                                                                                                                                                                                         |
| 4      | We are FEAF-based but tailored to be applicable with our strategic goals and direction  
        Adopted TOGAF, but had created an architects guide book using Zachman which have now been blended. Also looking at using DAMA for the data architecture component                                                                                                                                 |
| 5      | Building Block definitions, Multiple Views of EA, Impact Assessment, Architecture Contracts  
        Principles, Vision, business capability, standards setting  
        TOGAF - architecture development method  
        Gartner - business architecture development                                                                                                                                                                                                                       |
| 6      | Zachman - overall framework  
        Largely based on TOGAF but augmented with ABACUS concepts to support analysis (we are using ABACUS) and then of course configured to match the data that was available. From Togaf we use the ADM and from Zachman we use the frameworks as analytical and classification systems. Osterwalder gives us the business modelling and Archimate gives us the notation. - Logical heirarchy of architecture like Business architecture, solution architecture |
| 7      | - Reference Architecture  
        Methodology for Bus. Arch.,                                                                                                                                                                                                                                                                                                       |
| 8      | Methodology for selecting Enterprise services and interop.  
        Mostly TOGAF, though using Zachman grid to ensure completeness of classifications; We use part of TOGAF ADM where appropriate, but it's nowhere near actionable.                                                                                                                                                   |
| 9      | We use almost all elements of TOGAF9  
        UML tools: Class, Package, Collaborations, UseCases, Sequence/Activity Diagrams, ...  
        DMTF: Common Informaton Model + WBEM protocols  
        DMTF/SNIA: standard Profiles (service interface definitions)  
        most from DYA and Archimate, proces elements from TOGAF Zachman Framework  
        DoDAF Metamodel                                                                                                                                                                                                                                                   |
| 10     | TOGAF Methodology  
        Modelling of use cases to reflect customer workflows  
        Modelling the system context to determine system boundaries  
        Top-Down Analysis of the use cases and requirements to break system into subsystems  
        Bottom-Up Analysis of existing functionality and aligning it with the results of the top-down analysis  
        Definition of interfaces between the subsystems |
TOGAF - Standards Information Base and ADM for much of the methodology; Gartner - EA viewpoints (domains) and supporting toolkits and application portfolio management; Zachman - a catalog of deliverables/artifacts aligned to specific facets/questions

20 Overall structure is used with primary focus on the business-side elements
Gartner for executive buy-in, approach and selling.

Zachman for analyzing and defining roadmaps using goals, processes, data, location, technology, events.

22 DoDAF1/1.5 Products mandated by CJCSI 6212.01F: AV-1, AV-2, OV-1, OV-2, OV-3, OV6c, OV-7, SV-1, SV-2, SV-5, SV-6, SV10c, SV-11.
Gartner - Process flow, Review board and check points, documentation templates on strategy, conceptual, logical and physical models

23 TOGAF - Business alignment, touch points with COBIT and use of business architecture elements
Viewpoints and components are used to build reusable architecture elements at different layers

24 (strategic, business, technical....)

25 n/a

26 Baseline Architectures
We use all the dimensions of the framework to plan our business and to assess the potential areas of interest where we should invest our resources.

27 Stakeholder analysis
Gap analysis

28 Governance Framework

29 Architecture continuum
All TOGAF threads and elements.

29 Certain governance threads of NASCIO

30 Certain governance threads of DoDAF

30 Mostly for conceptual purposes, not formally applied

31 Method, deliverables, artifacts

We are mostly informal currently. We are planning on adopting the ADM mostly as is on projects as well as strategic planning. We will have a Continuum but likely will only have a subset of the artifacts. Mostly our repository currently consists of Standards, Principles, Solution Architectures, Current State Enterprise Architecture.

We will use the Gartner Governance framework inserted into the Governance phase of TOGAF ADM. Right now it is still mostly informal.

32 We also use a decision log to record all Architecture Decisions made.
TOGAF - ADM
FEAF - Reference Models

33 Gartner - Targeting / Maturity Assessment

34 NASCIO - Adaptive Practices / Roles

35 Sorry, this will take a long time.

35 Togaf/Gartner for EA processes

35 Zachman based documentation
ADM from TOGAF, New Technology Selection criteria from Gartner and Architecture Solution implementation from Zachman

TOGAF is used for defining the methodology, processes. Zachman is used for artifact catalogues, alignment of artifacts with ITIL change management processes. ITIL is being used for service alignment.

ADM
Governance
Standards
Principles
Business Architecture
Application Architecture
Data Architecture
Technology Architecture

EA Maturity Model

TOGAF’s ADM and Gartner’s Principles

Framework, I/O, Templates, Available Industry tools

EA Processes from TOGAF

Architecture to program costs from FEAF

Relevant information to find in AE deliverables

FEA--For the Lines of business

TOGAF for the processes on doing architecture

MODAF for the strategic alignment

DoDADF due to the existing knowledge base

Reference Architectures, Roadmaps, Principles

Model, Framework of represent de AE, best practice

TOGAF, ADM

Business Architecture

Information Architecture

Technology Architecture

From Gartner we use the technology bricks, from togaf we have the general idea of an EA cycle, and we pick some of the building blocks from Zachman.

TOGAF ADM, DODAF artifacts

Operational View, System View, Technical View and their respective Sub-Views

Zachman is the primary influence, especially for time and location dimensions.

Building Capability

Reference Models
- Strategic Planning (Business/Program strategies, linked to focus areas in the following 4 architecture layers)
  - Business Architecture (organization, roles/responsibilities, process/value stream, etc.)
  - Information Architecture (Information models, data models, transformation, deliverables, etc.)
  - Application Architecture (Applications, interfaces)
  - Technology Architecture (servers, networks, etc.)

51 - Technology Architecture (servers, networks, etc.)
52 TOGAF-ADM is used and some of the Zachman cells are used
   Togaf - Bus Info and Tech Arch

53 Zachman - context level views
54 NA
   Zachman - Cells
   TOGAF - ADM

55 FEAF - Segmentation
   NGOSS: eTOM, TAM and some SID

56 TOGAF: Practice guideline and templates
   Zachmans columns for classification in our meta-model, Togaf Cropcircles as basis for our
   methodology, MODAF's vies as basis
   TOGAF Terminology to have a consistent structure across different line of business

58 TOGAF service decomposition to be aligned with the main external architecture practices
   DYA: project start architecture,

   SCORPIO: alignment chain of strategic principles, information principles and technical principles

gartner: governance

59 Togaf: architecture process
60 layers, slices, domains
61 All phases of TOGAF
   toagf for process and Architectural Segmentation

62 FEAF and Zachman for Taxonomy Definition
   TOGAF-architecture process
   Gartner-value driven approach

63 Zachman-some methodology
64 unknown
   We are currently realign the frameworks TOGAF and Zachman. The objective is to be fully aligned
   with them to come as close as possible to the standards.
65 enterprise continuum
66 Architecture Vision
68 Use the Business Architecture element to optimize processes. We are at this stage currently.
Zachman - the various layers of abstraction

FEAF - Reference Models

NASCIO - Provides a Comprehensive View of EA
Vision, Business Processes, Application Portfolio, Integration
Architecture concepts and domain alignment

TOGAF - ADM
Gartner - Activity Cycle

Zachman - General
Gartner - For the approach
Zachman - For the taxonomy

TOGAF - Process structure
Zachman for model development and quality checks. TOGAF for communication and coordination

Togaf Layers + Life cycle + TRM
Zachman: type of modeled artifacts
ADM, TRM of TOGAF

Governance FW of IBM EA
Domain structure

TOGAF is the base. The FEA reference models will be used for taxonomy and integration between state and corresponding federal agencies. NASCIO will be used to integrate nationally (across states). Additional integration is contemplated with other jurisdictions (county, municipal). BPM practices (Lean / Six Sigma) will be integrated. The Rational Unified Process or the Enterprise Unified Process will be integrated.

All views are MODAF compliant
Zachman provides the approach to our 12 box model

GLUE Reply help develop the roadmap and convergence plan
Methods from TOGAF, artifacts from DoDAF
EA views from DoDAF, ADM from TOGAF, practices from multiple of these and others
Can't comment as is confidential
ADM

Reference materials
From Zachman, we adopted the idea of having different perspectives at different levels of abstraction. TOGAF provided the idea of an enterprise continuum that needs to be managed and governed based on project deliverables. Gartner provided the idea business, information, technology all intersecting to deliver solutions. PEAF contributed the idea of small, bit size deliverables in the architectural space.

basically these frameworks provided the architectural containers
TOGAF: ADM
Zachman: Content Structure
FEAF: Content Structure
TOGAF is used as a basic outline for guiding enterprise architecture development process and methodology. Zachman is used to identify and define the key artifacts, end-deliverables and milestones for architecture development
ABB
TOGAF - ADM, metamodel, reference models and architecture landscape and continuum; DoDAF - selected views related to government contracts; Zachman - entire framework
TOGAF - the general process and the reference model structure.

Zachman - some of the artifact formats
TOGAF is used in much higher degree than the use of Zachman. Various architecture artifacts, enterprise continuum etc., are being used.
TOGAF: architecting process, requirement-driven; DODAF: various viewpoints; FEAF: Layers and segments; Zachman: 6 perspectives and attributes (5W1H); eTom: strategic, business-driven architecture; EAMG Intergrated: 5 dimensions that integrate and encompass all frameworks.
Overall structure is TOGAF. It is primarily used to determine the "how", while Zachman is used to determine the "what". Gartner's model is overlayed for business language and context.
Technology Layer = Togaf

Strategy = Zachman

Business = Gartner
Business layers with information technology layers capable of defining all necessary artifacts from UML models to operations maps
TOGAF process wheel
DoDAF views and models
FEAF for taxonomy development

Zachman conceptual model (first two rows)
Zachman: structure (cells)
TOGAF: ADM
FEAF: Segmentation

Gartner: Maturity Assessment
TOGAF - ADM, metamodel, reference model, and architecture landscape and continuum; DoDAF - selected views related to government contracts; Zachman - entire framework
layers, slices, domains
Process from TOGAF
Deliverables from Zachman

Communication/Selling & Templates from Gartner
1. BMM: BUSINESS MODEL METHOD FOR ENTERPRISE INFORMATION SYSTEM (EIS).
2. ZACHMAN: MULTI VISTAS COMPLEX.

2. FEAF: SCALAR IMPROVEMENT.
ADM
Foundation architecture
SOA
Business, Information, Application & Technology Classification frameworks from QGEA.

Some artefacts where there is clear alignment (work still proceeding)

Use of BPMN as a standard for more detailed levels of business architecture (Value Chains at higher levels)

As our customer base is primarily DoD, the DoDAF framework provides the basic system, technology, and operational (business) views. The MODAF views that were incorporated into DoDAF 2.0 (e.g. capability and project) are also a component. The FEAF evaluation criteria are used and the Zachman Framework is used as a Rosetta Stone for translating between frameworks.

ADM, Enterprise planning from Business goal to realisation

All three inspired construction of the approach, definition and meta-model.

That's a thesis topic.

Traceability - mapping business goals to IT assets

Application Architecture - used for categorizing capabilities of IT assets

Business architecture from TOGAF to develop business process reference arch

Zachman's concept about that every item must reflect every stake holders objective

core strategic areas like Workforce management that are not clearly identified in FEAF

Teradata's Ref Arch was developed by Lynn Hedegard. It is a Service Oriented Arch that is used to illustrate how various Data Warehouse services and subsystems interact in the enterprise

layers, slices, domains

FEAF: EBA, EIA, ESA

Gartner/Meta: ETA

Technical layers

as prescribed

From ITAP: capability modeling

From Gartner: principles

What custom elements, not adapted from the frameworks selected above, were developed? Please describe how these custom elements are used.

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Value assessment, Planning for Architecture</td>
<td>100</td>
</tr>
<tr>
<td>variable 'plug' structure to more easily integrate with our clients’ (usually foetal)</td>
<td></td>
</tr>
<tr>
<td>efforts at EA development</td>
<td></td>
</tr>
<tr>
<td>EA Artifacts</td>
<td></td>
</tr>
<tr>
<td>We've taken the FEAF and developed a hybrid segmented framework focused on the 8 core areas of interest within our organization</td>
<td></td>
</tr>
<tr>
<td>Adopted TOGAF as standard</td>
<td></td>
</tr>
<tr>
<td>Strategy &amp; Vision Documents to set direction, Change Roadmaps for the building blocks, various governance forums</td>
<td></td>
</tr>
<tr>
<td>Business Process Improvement, management</td>
<td></td>
</tr>
</tbody>
</table>
Technology Lifecycle

Application Portfolio

8 Technology Investment Matrix
9 Too many to list here - keep an eye out for an upcoming Gartner presentation.
10 Mostly elements related to financial, portfolio and project management
11 Mapping of architecture with solution development processes and roles required
Methodology for Bus. Arch.,

12 Methodology for selecting Enterprise services and interop.
Technology Investment Management Method (TIMM) provides Capability-Based
Business Architecture and Financial Processes that complete the gaps in TOGAF
9 when it comes to completely tying processes & technology to financial (or other
KPIs) and communication with appropriate stakeholders.
14 We combine TOGAF 9 with CBDI SAE and add our own content
15 Code to put together and drive code and documentation artifacts
16 Many, all customized to organization perception and governance
17 Integration with CMDB
Requirements engineering and use case modelling are aligned differently

Not everything adopted yet due to time constraints; iterative approach of
framework introduction
Industry vertical change planning and prioritization instruments (not so much
custom, but adaptations from others or specializations unique to this industry).
Industry-specific master data management architectures are developed to
support business/IT alignment and technology convergence
We track probability/severity of competitive threats, SLA threats, we track the
lifecycle (emerging, current, twilight, sunset) of each asset leveraged throughout
the IT organization and business units

Equipment by Organization Graphic (aka the Horse Blanket); SV-1/SV-2
Composite (aka the netViZ model) and a variety of locally developed textual,
tabular, and graphical reports.
Existing TAC - Technical approval committee process in addressing business
needs and funding for program as well as projects, SDLC methodology especially
in terms of documentation and processes.

23 n/a
25 Telco Process Frameworks, i.e. eTOM, TAM & SID
26 IAF
Methodology and deliverables aligning with the framework were adopted from
existing methodologies within the firm.
28 Custom methodologies interact with elements of these frameworks
29 Mapping to packaged solutions (SAP)
30 Use of "skill disciplines" instead of business function, actors, roles
We will customize the governance process and most of our deliverables are
customized slightly.
32 The concept of "Business Capabilities"
Business requirements gathering in the form of BRD 100, initial analysis in the
form of MD 50 and design artifacts in the form of MD70.
Integration with project SDLC deliverables

34 Sox IT controls
Project management methodology, funding process, quality assurance processes
to meet the technology landscape and migration path.
Integration Architecture

Extra layer - to indicate data movement between applications, messaging and development of a Common Data Model (CDM).

Conceptual, Logical and Physical Architecture Templates - Diagrams to be aligned with Project Life Cycle Gateways

TOGAF is used for defining the methodology, processes. Zachman is used for artifact catalogues, alignment of artifacts with ITIL change management processes. ITIL is being used for service alignment.

Deliverables

Data Dictionary Framework, Reference Architecture Structure
Linking the EA process with the PMO process, estimation, business case, measure business value

Linking EA with Operation Model (ITIL) like processes
We linked the framework into the rational unified process
Common View, Security View, Capability View and Information View
Still in development
Transition Planning (Transition plans for 4 architecture layers, integrated/aligned for business transformation)
The ADM was customized and simplified.
Z - all six columns
NA
Developed our own metamodel and Infrastructure domain. Also customized the domain of customer to include internal and external entities
Extension MODAF to provide different views
Modeling, some of the modeling have been tailor made to be more aligned with internal practices

Governance and processes have been modified to be better fit for the IT organization
the Overall metamodel (based upon ArchiMate
Aligning the Business & IT strategy
Adaptation of RUP into the Architectural Framework as a method for delivery of architectural segments both vertical (business domain) and horizontal (technical domain)
None
For the remaining part, NGOSS was also customized.
No custom elements developed at this point of time
NASCIO Enterprise Architecture Value Chain
We use the EAM Pattern Catalog as an additional aid, and have made that finetuned to EA purposes, and are now looking to add Project Architecture context to the catalog.
We are much more focused on best practices and collaborative solutions than defined standards
We more or less utilized the frameworks to gain knowledge and understanding and fully customized a company specific framework based on that vs. specific elements.

Communication with stakeholders and extensions to the framework built to gaps in projects, programmes, operations, and strategy areas.

Data harmonization used through ISO11179 service model used through SOA orchestration and choreography and coordination pattern (end of MVC model!)

Need the more detailed IT governance Deliberables - what they look like for different domains and views (standards) to be valuable/useful to stakeholders.

We have applied what is probably best thought of as Lean practices to the statewide Information Resource Management Strategy. Additional custom efforts have evolved around the common requirements vision. Specifically, we used the CRV process to develop technical architecture requirements and business information requirements but with a focus on the future state that placed people's awareness at the point of completion for all strategic goals. In that state, we brainstormed the implications of having arrived and examined the kind of organization we had become. What things must be true, for example, after the goals had been accomplished. From this effort we were able to extract a set of initial architecture principles. A previous broad-based examination of architecture principles across a wide range of government agencies informed that effort. We have also used capability mapping to add a higher level flavor to the TOGAF views. An organization's capabilities fall between the lines of business and subfunctions in the FEA business and services reference models and the architecture view defined in TOGAF (or so we think at this point). In other words, we have innovated when bringing the various components together.

Custom elements are all from legacy process descriptions and an existing Architecture for applications held in TROUX metaverse data repository.

EA compliance assessment
Can't comment as is confidential
reference models
the actual artefacts and models used within the model are custom built. We use, for example, a conceptual solution model that contains the what, why and when viewpoints of Zachman.

Custom meta-model
enterprise architecture governance mechanism and value measurement framework (value-driven enterprise architecture governance)
Process layers
UNSW has a best of breed approach to EA in that we utilise whatever tools and artifact formats necessary to achieve the desire outcome. "Custom" elements may be derived from any number of sources or approaches.
artifacts from the custom software delivery process are still being used, such as the requirement specifications, use-case specifications etc.
Patterns are used to align with development processes for infrastructure (servers, network, security), & application
none.
A full enterprise process map that was then related to the process functions, and ultimately to process flows and activities were created specifically for this organization.

extra attributes on business elements and new elements for resources

WIP
We are encouraged to develop unique views to address specific customer requirements; e.g., cost model, risk model.

Defined customized version of framework with contextual, conceptual, Logical & Physical level and customized version of ADM with 5phases, which is inline with other best practices like SDLC, ITIL and COBIT.

See www.NIEM.gov for DHS semantic efforts. We are custodians of one NIEM domain. We use some DODAF at the systems level (lowest level of EA practice).

IAW OMB EA practice guidance).

Deviation process & document

Standards process

EXTENDING THE BUSINESS RULES MODEL UNDER IN *.GOV ENTERPRISE.

Artefacts and contents

Our own Architecture Based Design process for defining the structure, behavior, data, and user views for custom development and our ABD infrastructure products for documenting in a common set of products the computing infrastructure for projects. ABD is now owned by Penn State.

Project Management, PMO involvement and their role in EA

Trying to pull together FEAF and TOGAF was difficult in terms of how to link business processes and the IT architecture

Some from DAU Deskbook, & internal policies

Transition Plan - how to get from current state to target state

Systems architecture mapping to business architecture. We map and match the key elements of strategic business decisions to business architecture and in turn to systems architecture

Semantic web relationships-modelling environment.

Data Acquisition, Real Time analytics, Automated Event Processing... All with the goal of automating business processing in the enterprise

domain names and meanings - used to classify assets in each layer

Process layers

layers, slices, domains

What was the motivation for selecting this EA approach in your organization?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better understanding of the business from a standpoint that is familiar to the business</td>
<td>216</td>
</tr>
<tr>
<td>Integration of IT with the Business</td>
<td></td>
</tr>
<tr>
<td>Primary benefit is to cross cut IT Silos pragmatism - we are a consultancy and not 'big', so minimising all aspects of overhead are crucial</td>
<td></td>
</tr>
<tr>
<td>Flexibility to meet strategic objectives but still includes the tieback to the FEAF from a familiarity standpoint</td>
<td></td>
</tr>
<tr>
<td>Growth of TOGAF - good documentation, worldwide adoption, open standard approach</td>
<td></td>
</tr>
<tr>
<td>Open Standard, training availability, in-built process framework, previous experience</td>
<td></td>
</tr>
<tr>
<td>it fit what the business would let us do</td>
<td></td>
</tr>
</tbody>
</table>
Industry standard that was proven and somewhat consistent with our previous, internal methodology

Don't understand question

Originally, exposed to Zachman FW and used it to formulate ideas about EA. Recognizing that the ZFW does not prescribe how to create architecture is created, we looked at TOGAF and Gartner.

Standard across industry. Breadth and depth. Adaptability

We had a good relationship with experience EA consultants

Support decision making of management and best align IT to business.

Experience

"de-facto" standrad. Available training and certification.

Best fit for culture

Increase agility, reduce cost, wide adoption

Not sure

Interoperability with other similar organisations

entitlement requirements

TOGAF allows us to develop our methodology and is very prescriptive like ITIL.

Business mandatory, solution oriented

Business Strategy Alignment

Dissatisfaction with incompleteness and specific blinders of existing approaches

We want a content-rich, prescriptive reference architecture that is close to complete prior to adaptation to our clients. We do NOT want to do full, synthetic EA on engagements.

There is a need for an approach that enables the representation of the enterprise for what it is - a system in the general systems theoretic sense.

Mandated Standard

Interoperability across internal product lines and interoperability across external vendors

To make efficient and effective the it development and the infrastructure

previous experience

Need simple, natural, precise and extensible semantics across all levels of abstraction.

Mandated

SAP has delivered EA content based on TOGAF pragmatics, need to get integrated process running, kill discussions on framework

The hybrid approach was selected as part of a “best of breed” mindset and to get buy-in from various stakeholders who each had their favorite framework.

Effective Governance and Application Standardization

Better IT Business alignment

Nearly all departments can get used to EA

We not only consider software, but the complete system. So we started using SysML, not just UML. SYSMOD was suggested in the SysML book we used and matched our requirements very well.

Developed in-house

We have chosen this TOGAF for it's flexibility.

Coverage and consumability

unknown...

Developing an IT-Strategy which is derived from the business strategy and buisness drivers focussing derived architecture requirements.

ea approach

Cost of siloed approaches
The driver was providing value to the organization from day 1 of the creation of the EA practice. We drove immediate value, and then backed into the disciplines of the EA practice to drive maturity.

We support an element of the Department of Defense (DoD). DoD mandates the use of DoDAF.

Business efficiency

Cost savings

Consistent Structure

Business buy-in

It is based on the existing people, skill set and a newly modified operating model that address the following: reduce costs, retain intellectual capital and increase existing maturity levels along with enhancing business and IT alignment.

Alignment

Business need

We had no experience

n/a

Open Standards

with Telco applicability

To have a clear and overall view of the organization and also to better align the business strategies with the business goals.

Availability of training on the job

Government wide required

Proven on many clients

The firm had invested in several frameworks, methodologies and custom tools that had proven themselves with our clients. The next logical step was to tailor them into an industry approved framework without sacrificing the experience quals we had gained with these tools while gaining efficiencies.

Based on IBM EA Best Practices

Adopted from Joint Venture partner

TOGAF - seems to have gained industry acceptance and followed our "preconceived" beliefs around the domains of architecture. It seemed to be a very practical framework to start with.

Gartner's framework is also very practical and seems to have a fairly good governance approach and also aligns with our thinking around domains of architecture and current vs. target states and roadmaps.

Exposure / evaluation / experience / business needs

Mandated by Law

Trying to be practical not studying methodologies

Government Contractor with Department of Defense

It was the best fit for our needs. We needed something flexible.

To bring discipline, consistancy, ease-of-use, and better governance

Better Governance

Organic growth. It just happened.

Consultant

Organizational maturity, rate of technology adoption, business priorities.

Consultants introduce it as a part of organizational improvement initiative and proposed ea approach

Simple to communicate

Simple to train people

Simple to construct EA artifacts

Leverage industry information and training. Ease adoption.
Architecture and Governance Standardization

Structured Consistency. The focus is around transformation and involves multiple strategic partners. This requires consistent way of delivering architectural artifacts.

All government uses FEAF. The three framework are complementary: TOGAF provides the processes not found in FEAF or Zachman. FEAF provide the decision tool not provided by TOGAF or Zachman. Zachman provides the deliverables not found in TOGAF or FEAF.

Perceived flexibility and applicability across legacy and contemporary technology environments.

Needed something that could be understood and adopted by the organization and adapted to its needs. Commonly used in our industry and location.

Alignment with current business direction and capability was good.

Cultural environment standards based, popular, education available, certification

Practicality and being realistic about the organization capabilities.

Lack of experience. Framework are big and a pragmatic start is not easy to find.

I am TOGAF trained. Most commonly adopted in Australia.

Alignment the The goals of the organization with IT Existing Framework with history of continuous improvement and available certification

Suites the Business objectives, simple, easy to adopt.

We report in large part to DOD. FEAF is fairly immature.

Seemed to be most effective; we have tried a variety of approaches.

It has a wide adoption rate in industry. Non innovative management can talk to other organisations who have also heard of TOGAF.

It has tangible offerings that can be shown to management. It can be scaled down to an organisation of our size.

TOGAF was considered by my company to be the industry standard for EA and recommended by external consulting company as well. Common in our industry.

Adaptable to our requirements. we are an EA consultancy and training organisation who were looking to adopt a methodology that was globally accepted.

Being interoperable with our closest allies.

Cost, Governance. Linking IT architecture and strategy to business needs and strategy. Improve focus on Information Architecture.

Simple to use and start with, well understood.

Common language across all architects. We want to take an iterative approach to minimize disruption and change impact. at the same time we do not need to re-invent the wheel just adopt what is most reasonable.

Prev Experience in other orgs.

Being one of the leading SI it has been adapted as part of standardisation. Tried to look at a structured process to align the stakeholders vision with the elements of EA and ensure the identified benefits are realized in the final output.
TOGAF is well used throughout South Africa and in the local Telco market specifically. Structure of the framework was understandable, supports effectively fitting strategy and IT.

The ADM-cycle provides good support for the internal ICT-processes. To be in line with other company in the market, TOGAF is the most popular framework in the Netherlands.

SCORPIO gives a methodology when the organisation hasn't got described business processes. SCORPIO uses the strategic plan of an organisation to define the future architecture.

Best of all breeds, Being Flexible enough to adapt to markets & deliver growth, Driving by key person, To standardize the architecture development and maintenance. Also to be able to easier communicate to prospects.

Because this is a telco organization, Gradual increase of experience/knowledge of the internal staff and sponsorship's sustainment. Initial cost of adoption/deployment, availability of training, and need to be perceived as tied to existing methodologies. The boss wants it his way.

It must be affordable, and doable by state government given very limited resources. Better Products Quicker, Functionality and communication.

Don't reinvent the wheel, use standardized approach. Required to meet Dept. of Defense acquisition policy. Need to better collaborate and share information and costs. Better culture fit, more people were involved in the creation of it (more stakeholders) and we can easily customize, modify to fit our needs. Custom-fit to culture, fill the gaps in industry. Industry EA framework providers unable to communicate effectively with Executives - CEO, Board of Directors in a 'non-IT' frame of mind.

Standadization and Reuse for cost reduction and keeping stability. Understandable, useful to stakeholders.

Sufficient appropriate coverage to achieve benefits and reduce risk. We wanted something easy and concise that we could adopt and get to grips with fast. Business need.

Standards based approach with industry wide acceptance. Time, lack of knowledge and consultants previous experience in our domain. Directed by Head of Programme who is in effect CEO.

High level of documentation and up-to-date information. Historical overtone - initial development was from DoDAF because it was the more mature one. Partly shareholder and customer interests.

Standard, not dedicated for an industry.
Organization is a DoD agency; DoDAF is mandatory. No others met all of our needs. Nothing allowed for quick recognition of value knowledge. Leveraged expertise that we had on the team and worked within our culture. Satisfy specific requirements.

Government organization supported by available tools, broadly known and available. To land on a industry accepted framework and stop "framework thrash".

TOGAF & Zachman - To ensure: Standardized Enterprise Architecture Development Methodology & Well-defined Architecture Artifacts and Deliverables; Common and Consistent Body-of-Knowledge and Vocabulary across all stakeholders within and outside the organization.


Best fit create a standard way of doing the ADM.

to address enterprise-wide integration issues; the complexity and magnitude of investments for a product program requires pro-active planning and design to create an integrated view.

TOGAF is an industry standard.

Develop a best of breed method.

Fast deliver, using standards

Architecture process standardization.

Interoperability, consistency, ease of use/flexibility

Industry standard, also used by our clients & partners

Flexibility to evolve with the enterprise and business need.

Simple and pragmatic

It is complete (governance, method, framework, artifacts, repository, and best practices).

To have an acceptable, easy to understand, and relevant to executives - method; while still being able to relate it to technical staff and functions.

Best of breed

Satisfy enterprise requirements

Experience in implementing Zachman like FWs elsewhere and and MDA/MDD approach to development.

To create a cadre to trained and certified architects that implement architecture consistently across the company.

Our Organization is relatively new formed in the year of 2007 from the day one we have phased exponential growth and need to align IT with business needs and wanted to have repository for the complex environment which shall act as a single source of truth. Government Guidelines

To leverage existing methods and standards whilst moving forward to a better EA discipline

Wide used framework

To address enterprise-wide integration issues; the complexity and magnitude of investments for a product program requires pro-active planning and design to create an integrated view

Mandated by DOD

Federal government EA is not as immature as commercial practice. We have significant guidance and policy. We work within that.

Ability to customize and use for consulting purposes

Fit for purpose. We use what works in our environment.

Obtain new enterprise model adequate to ICT.
Not inventing the wheel, take what is out there on the market.

Cost effective consistent EA

While we are a local government organisation, significant data sharing and use of common web portals for customers is developing slowly over time (portals will potentially access business processes of many govt. agencies).

We decided it would be advantageous and sensible to align ourselves.

Best-Of-Breed

Commonality with customers and the ability to use architects outside the IT departments to work designs. We could better leverage the architects that worked on our customers programs by retaining this commonality.

Cost reduction and business cases

Reuse the existing processes, taxonomy and pre-populated categories...

Approach has evolved over time. Current motivation is alignment with industry-standard practices.

Being sure to satisfy both BUSiness and IT demands

Customer mandate, desire to improve time to market

Consistency and Structure Framework, Alignment with Business Vision

Convinced by consultant

Federal mandates, Organizational structures

Based on the culture of the organization, the trainings taken by the staff on Architecture, different levels of EA understanding, more of a "tactical" approach towards EA to align with the strategic objectives of the Business.

Political motivation

Industry standard/recognized

Availability of training

ease of use

We provide EA consultancy in that particular area, since our firm consultants had knowledge was easier to use this knowledge to start our EA practice.

To reduce cost, to improve speed to market, reduce duplication/churn and improve quality

Implement an industry standard framework on which to base the EA approach, it is not some unique or custom developed.

Simplicity, flexibility, communicability, and the ability to get started without specialised tooling (while leveraging existing information and modelling artefacts).

Describe to DW practitioners how the various subsystems and services are designed, implemented, deployed and managed

What EA approach is referred to?

1. ICT asset census

2. Improve ICT portfolio and investment

3. Compliance

4. Widely used in government.

5. My organization is an Army organization, therefore, it is dictated that we move forward with DoDAF.

A specific framework was not a driver for us. Utilizing a consistent framework was a driver and we are using a framework provided by our tool of choice.

Flexible, industry std

Location - common in this area; free - well supported and updated

a learning experience

Culture of organization and low levels of maturity create an obstacle to adoption of most frameworks.
**What are the three aspects of your EA approach that you are most satisfied with?**

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Count</th>
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<tbody>
<tr>
<td><strong>Number</strong></td>
<td><strong>Response Text</strong></td>
</tr>
<tr>
<td>1</td>
<td>1 - Flexibility, our Framework is maintained within SharePoint and linked to Troux Architect</td>
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<tr>
<td>2</td>
<td>2 - Incorporation of Web 2.0 capabilities</td>
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<td>3</td>
<td>3 - Data sharing across the entire company Framework Methodology</td>
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<td>4</td>
<td>4 - Innovation of new business/technology propositions</td>
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<td>5</td>
<td>5 - Collaboration to bring the IT Silos together</td>
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<tr>
<td>6</td>
<td>6 - Business Support</td>
</tr>
<tr>
<td>7</td>
<td>7 - q. now integrated - no marginal costs are from working this way</td>
</tr>
<tr>
<td>8</td>
<td>8 - w. everybody is totally familiar with the processes required</td>
</tr>
<tr>
<td>9</td>
<td>9 - e. the interfacing with clients is 'optimal' given relative maturities</td>
</tr>
<tr>
<td>10</td>
<td>10 - 1 - Ease of Use - We leverage Web2.0 capabilities supported by Troux Architect on the backend</td>
</tr>
<tr>
<td>11</td>
<td>11 - 2 - Business owners are able to relate to specific segments of our Framework</td>
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<tr>
<td>12</td>
<td>12 - 3 - It's an open framework, capable of being modified/adjusted as our EA matures</td>
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<tr>
<td>13</td>
<td>13 - certification, documentation, open</td>
</tr>
<tr>
<td>14</td>
<td>14 - Governance approach:</td>
</tr>
<tr>
<td>15</td>
<td>15 - - contracts, roadmaps and improved understanding and communication of technical domains</td>
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<tr>
<td>16</td>
<td>16 - Requirements driven, focus on business processes &amp; data prior to applications/technologies,</td>
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<tr>
<td>17</td>
<td>17 - provides value that is measurable</td>
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<tr>
<td>18</td>
<td>18 - Complete strategic conversation</td>
</tr>
<tr>
<td>19</td>
<td>19 - Simple models that provide tactical and strategic value</td>
</tr>
<tr>
<td>20</td>
<td>20 - Diffusion of our EA Guiding Principles into our decisions</td>
</tr>
<tr>
<td>21</td>
<td>21 - Focus on managing complexity by consolidating technology platforms</td>
</tr>
<tr>
<td>22</td>
<td>22 - 1. Easy to communicate both up and down</td>
</tr>
<tr>
<td>23</td>
<td>23 - 2. Consistent way to develop</td>
</tr>
<tr>
<td>24</td>
<td>24 - Speed with which we have delivered</td>
</tr>
<tr>
<td>25</td>
<td>25 - Clarity with which the decisions were presented</td>
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<tr>
<td>26</td>
<td>26 - Breadth of the recommendations made</td>
</tr>
<tr>
<td>27</td>
<td>27 - Focus on business, simplicity and derived from standards</td>
</tr>
</tbody>
</table>
- one can use existing functions, such as quality assurance, to manage for instance business architecture

- there are training available

14 - ADM cycle, which doesn't exist in other approaches
15 Perspectives, Investments and Risk
16 Governance, metrics, standardization
17 Reference architecture
18 Using

integration

entitlement

19 knowledge architecture

- Selected an EA who's skill set, personality, and work ethic are outstanding, not threatening, and a great collaborator/listener.

- Fairly decent acceptance by senior client leadership

- Internal senior leadership support

20 -
21 Practical, actionable, iterative

Shared Representation for Business and IT

Value Chain Based

22 Aggregation of Key Economic Indicators
23 Completeness, Multi-tenancy, and effective communication with multiple stakeholders from multiple viewpoints

Our ERA is much more content-rich and prescriptive than most - it supports what we call directed design towards a mainly pre-built architecture that can be refined and adapted to the client. (Our clients are all in the same LoB).

1. It is explicitly grounded in the systems family of disciplines, eg, cybernetics, systems-of-systems, general systems theory, systems theory, systems dynamics, systems thinking, etc., and Semiotics

2. All other frameworks / approaches are subsumed

3. Explicitly incorporates other disciplines such as Economics, Finance and Accounting; Law; Cognition, Reasoning, Intelligence and Learning; Process, Service, Activity and Task; Communication(s); Standards and Best Practices; etc.

24 3. Actually represents the whole enterprise

Interchange of data

Standardization

26 Data driven approach

27 Ability to represent desired interfaces and relationships between them.

28 The process flow, ease of management and the easiness in debugging

- Integration of Enterprise Architecture blueprint and project-specific deliverables

- End-to-end visibility, traceability and predictibility

- 1 single model and 1 single tool (customized Sparx EA) accessed by many roles in the organization
1. Links to corporate strategy

2. Links to business services and business processes

3. Links between the layers

31. Acceptance, pragmatics, link to project management and business case process

32. Acquiring a tool and repository

Business Vision and Strategy

Business Architecture

33. TRM (technology reference model)

34. Buy in from Business, many experienced people, efficiency

1. Structured and comprehensible for a lot of people

2. Easy usage

35. Quick wins concerning overviews

Structured process from customer's wishes to final specification

Can be easily modelled and visualized to all affected stakeholders

36. Planning is much easier and more accurate than before

Consistency in architectural work.

37. Aligned with TOGAF.

38. Methodology, broader outlook and ROI

39. The ability to internalize and retell the story for business-IT alignment.

40. Methodology, broader outlook and ROI

1. Derivation from business goals, over business strategies, business drivers, architecture requirements to architecture principles.

2. Clear differentiation of architecture landscapes.

41. Measureable alignment to business requirements.

42. Measureable alignment to business requirements.

1. Primacy of business architecture components

2. Scope of the TOGAF model

43. Ability to adopt specific technology approaches.

Executive buy-in

IT project manager buy-in

44. Incremental wins with ROI demonstration each step of the way

1. Structured.

2. Consistent approach

45. Integrated. When properly executed the same data is used across multiple products

Better communication

Better understanding

46. Better applications
Virtual alignment
Collaborative Business Ownership and Decision Making

1. Refined process flow
2. Increased exposure in retaining intellectual capital
3. Vendor management processes and deliverables
4. Rapid, reusable, standardized development
5. Addresses Information Architecture, is simple and expandable
6. Alignment with best practice
   - Skilled staff

Repository
1. To have a global view of the entire enterprise
2. The support for decision making
3. The efficient and agile manner it allows us to perform business analysis
   - Strategic support
   - Cross functional alignment

Legacy roundup

Architecture alignment
Fits on my industry needs
Complete and proven

Many professionals know it
- Scalable to cover most client scenarios
- Well defined task-oriented paths to achieving modules
- Successfully implements with most enterprise architecture modeling tools.

Method, Metamodel, Tooling implementation
Speed, interactive, business support
1. We are plugged into the PMO for enterprise strategic planning as well as projects for specific implementation governance review steps.
2. Within IS the leadership team supports the EA practice and our goals for becoming more formal in our practice.
3. We have formed a team of individuals with good communications skills and soft skills in general and each has had training and experience in architecture training.

Business value created / agility / cultural impact
Governance controls integrated into project SDLC

Documentation of Business Arch and Application Arch.
Ability to validate our understanding of the customers desired capabilities -- ability to communicate within the organization and with the customer.

The ability to create a unique architecture that is based on a customer's problem statement without constraints of required documentation.

The ability to see the evolution of the warfighting platforms through the every evolving architecture. That we can layer it with other EA methodologies as project dictate. The approach is well supported in modeling tools. Aligns with most of our customers needs.

Empowerment, Ability to influence in the decision making, and full visibility on enterprise initiatives

Not yet known.
Solution architecture process and governance audit.

Simplicity of change management process and flexibility for innovation.

Busin
EA repository
Ea portal (communication)

Reasonable engagement of the Business (at each of the Project Life Cycle Gates)
Defined process for developing architecture.
Flexible process.

Industry standard approach.
Architecture Governance, Reusable artifacts, Process integration
Enterprise Service Bus established. EA is part of project management process. EA leadership has authority.

It depends on the audience you speak with and the level in the corporate ladder. For a practising enterprise architect it is the deliverable, governance and Architecture development Method. For an enterprise business architect it would be more to do with business alignment, value and risk management. For the CIO / CTO it is to do with Cost Saving, Business IT alignment, Visibility.
Understandable cross program utility.
Segments work among reporting needs.

Ties into other compliance activities including capital planning, etc...
Referenced and so less subject to discussion.
Complete

Easy to understand
- Ability to integrate/overlap architecture work products
- a common tool was selected (even though it was a poor tool)
- Championed at the Sr. VP level
Tries to address key pain points
Can be adjusted to address new need

Uses industry's best practices
Business strategy alignment.

The number of artefacts that are available directly in the framework and from others using the framework that we can utilise, adapt or adopt.

78 Number of other agencies that we deal with that also utilise the same approach.
79 business alignment, solution architecture, current state is partially captured

Executive support

Flexibility and freedom

80 Adoption from teams

Iterative

Automated (tool)

81 Involving people from the field

Structured

Integrated

82 Supported

83 Management, Alignment, Process

Methodology and process exists

Semantic consistency available to enable better communication

84 Building block Approach

Complete view for business architecture.

IT investments are lined up with business objectives

85 Provide real Business value

Compliance with requirements.

86 Leadership support

org knowledge of standards

executive support for EA concepts

87 hoistic expertise of team members

Understanding, acceptance and adoption of the Enterprise Architecture function and processes

88 across IT and the business change portfolio (which houses all of our projects)

TOGAF is very detailed and covers every aspect of EA and we have therefore found it very useful

89 Promotes alignment between apps, soa, integration, technology/infrastructure and data.

Business centered approach

Governance a key component, both in development and use of EA

90 Provides for different views to meet specific needs

1/ with v9, the business alignment elements of togaf are covered, so it's getting more complete

2/ it has a process as well as a framework

91 3/ it has good market awareness
1. Recognition by senior decision makers that EA is imperative for achieving the interoperability goal between allies and coalitions and inside our Government

2. Designing, developing and publishing our EA Framework called Department of National Defence Framework (DNDAF)

3. Projects in our department are using a single AF

Too early to tell

Simple framework model that's easy to explain to all stakeholders. Allows focus on metamodel (objects and relationships) and custom views rather than more tightly constrained "boxes" with predefined content/views.

Raises awareness of information/data architecture separate from applications.

Supports integrated business/IT transition planning.

Governance mechanism and simplicity certification

consistency of approach

customization

Management support

People cooperation

Existing information collection

Technology Impact

Clarity of objectives of the architecture

Service Focus

NA

Definition of Architecture Vision

Information gathering

Alignment with the vision of Enterprise Change Management through EA

Well supported, well documented, easily understood

Standardisation, communication

Understandable structure, addresses various levels of abstraction, supports fitting business and IT together

Business focused

Structured

Buy in by the business

Architecting Process

Knowledge Development

Deep understanding of the problem domain

The ADM-cycle provides guidance, though high-level;

Clear separation between vision and aspect architectures (business, application/data and technology);

The link with the development part, making it complete.
Clear and consistent structure

Definition of the architecture layers/segments (Business, Application, Information etc) and their interaction

107 Material from where to start to build on
- it's effective
- it gives a possibility to align with the business without knowing all the business processes in advance

108 - best of breed
109 The Standards, Approach & methodology
110 Business value driven, simplicity and measurability
111 results proven
  Business strategy alignment

Governance process

112 Content Framework
  Clear understandable

Standard driven

113 Traceable
  1. Comparable to NGOSS etom and sid
  2. Scalable

114 3. Simple
  1. The communication process becomes easier; 2. There is a common base of knowledge; 3. A shared view of abstract aspects is being developed.
115 Structure, consistency, and communication value.
116 None at this point of time.
  Framework

Business and Economics Focus

118 Alignment with Business
  Architecture Domains

Architecture Change Management

119 Migration Planning
  Coordination with department-wide agencies.

  Alignment to the federal framework.

120 Coordinating efforts with CTO.
  Supports simple just enough, just in time process

  Fits easy into the company's culture

121 Can be extendend when required
  Uniform integration of architecture artifacts

122 Common depiction of architecture artifacts for alignment with other DoD and USMC architectures
Buy-in, Flexibility, Cost
Ease of use, ability to utilize to communicate with the business effectively and strong governance.
Better cultural acceptance, fast, cost-effective

Good structuration of the domain of services
Consistent approach between project dependencies

Good collaboration with project management office (PSO)
IT Governance, Transitionplanning, Architecture Visualization
High level definition
Toolset capability

Stakeholder engagement
1) Communicating what EA is and what it is not
2) Adjusting the organisation to work in an EA way
3) Changing mindsets so people do the right thing because they instinctively know what to do rather than doing things because someone tells them to.
The ability to quickly and effectively show business value.
The insights and leadership we are able to provide.

Support of peers.
Standard Framework and Process

Available Training
flexibility, application to real-life and agility
Consistency
Communication of and alignment with business purpose
Flexibility of representation of conceptual, logical and physical aspects across the 4 layers of business, info & data, functional services and technical concentration on value add items first
concentration on only one architecture initially

Generic in nature to allow for reuse of artifacts
Not satisfy with any structure, template and tool support
Improvements in workflow efficiency
Improvements in organization structure

Alignment of HR and career progression with EA
1) Tailorability
2) Familiarity within the community
Views are integrated;
Tied to deliverables yet neutral of procedures; and

Sufficiently abstract for universal reusability.
nothing
Simple framework

Communication

142 Predictability
143 flexibility
artefacts are purpose-built to our requirements
it is easy to teach non-architects how to produce the proper artefacts as they are aligned with our solution delivery methodologies

144 good balance between industry standard and what we need
1. Simple
2. Structured

145 3. Defined
Govermant compliance and uage of reference model

Briding Business an IT

146 IT investment governance
147 Participant buy-in; fit to purpose; tool support.
148 To new to comment
Business Value-Driven Enterprise Architecture (Business Aligned IT)
End-To-End Enterprise Architecture Management (Strategy through Implementation and Feedback Loop)

149 Structured Architecture Competency Management Initiative (Role-Skill Alignment)
150 SOA
151 still very much in it's infancy. We are maturing the EA ADM.
Flexibility
Proven results

152 Ease of use
Overall structure,
Supporting material (work product templates, guidelines and technique papers),

153 Ability to tailor
- ESB
- Standards
154 - Common Data Model
155 Technology architecture deliverables, enterprise continuum and governance.
1) easy to govern and
2) allow one to effectively consult while still allowing for creative solutions to business issues
3) layers of information allow for varied audiences to understand level of content needed to make good business decisions
156 Guidance, transformation, awareness
157 evolving, dynamic, consistent.
Links strategy, business, and technology. Improves mission performance, supports planning and decision-making.
Step wise rigor.
Creation of common language.

Creation and acceptance of common decision processing.
Iterative approach

Compleet

Standards based
Customization flexibility
Rich of content

Ease of reporting

Separation of layers, definition of artifacts, relation of whole perspective to unique, atomic needs
1. Flexibility and tailorable
2. Consistency across the company

3. Training and certification of architects
1. Framework 2. Lifecycle 3. Comprehensive details on each layer
Ease of use - key artefacts are simple and clear
Well supported by business managers

Understandable by non-IT folk
Motivated Architects
Customers like EA program
Company management like EA program
1) Project focus on business capabilities as a core concept,
2) Visibility and linkage from the business perspective through IT infrastructure perspective
3) Improved alignment between business priorities and technology planning
Re-engineering process
Limit stove pipe systems
Getting all aspects of the Iraqi MOD to work with each other
1) Maturity
2) Guidance
3) Comprehensiveness
- Comprehensive
- Customizable
- Well structured
Motivated staff, that has bought in to EA

Good EA meta-model & repository

172 Clear vision and strategy
   1. THE EA'S ENTERPRISE GLOBAL VISION

   2. THE APPROACH TO FORMAL IDENTIFY THE EIS.

173 3. THE SCALAR DEVELOPMENT OF EIS.
    - completeness of the approach (since togaf 9)
    - lots of material and documentation

174 - support of tools
   Agile

Governance Framework

175 Target oriented
176 The framework, understanding and its use to develop our current 5 year ICT strategy.
177 Overview of apps
   The ability to thoroughly define the structure and behavior of custom aspects through ABD and the
   ability to manage project and capability dependencies via the MoDAF and DoDAF viewpoints and
   models. The commonality with customer frameworks.

1. Business Case Analysis
2. Business Architecture

179 3. Technology Architecture
180 process
   1) Role definition & alignment of roles with framework

   2) Target Architecture Development

181 3) Increasing perception of EA value by those outside EA
   Communication between IT and Business

182 Enthusiasm to continue
183 SE function embraces it; it's been released to company directives; matches customer requirements
   Build the counsel for cross function communication

   Top line support

184 special workforce
   Content Metamodel

Planning proces

185 Repository
   Getting an strategic/business/technical overall view; more focus on business processes; better
186 project management and implementation of new applications
187 Transparency, Traceability, Process Definition
Ease of use

Costs

- Tool support
  - Improves the documentation in our firm.
  - Alignment of IT with business.

- Easier to fundament IT initiatives with stakeholders.

Flexibility, clarity to the stake holders and role team plays with business and IT

Enterprise Architecture Principles that guide the IT investment decisions, Architectural Governance involving IT domain owners on the governance body and architecture process linked into to project delivery methodology.

  * Emergence of reusable patterns

  * Flexibility of the framework

It covers ALL of the major subsystems / services in a Active Data Warehouse environment

1. ICT asset census

2. Linkages between the layers

3. Ability to show change impact analysis (eg. from strategy change down to ICT change request)

Widely accepted. Supporting materials available. Supported by Gartner.

Architectures can be developed at different level of abstraction.

Using DoDAF, ensures that there is a consistant language among the various DoD communities.

1) Just enough documentation

2) Pragmatic

3) Designed to stand the test of time.

Cost improvement

Inter-operability enhancements

Cartography and impact analysis

Flexibility, responsiveness

Process; governance; maturity

We are trying to build upon successful initiatives including composite applications, Operational Data Stores, and data dictionary repositories

1) Excellent resources

2) Support from CIO

3) Selection and use of Tools
What are the three aspects of your EA approach that you are least satisfied with?

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<tr>
<td>1</td>
<td>1 - Connection with Troux is very elementary Internet Experts - get in the way</td>
</tr>
<tr>
<td>2</td>
<td>IT peoples view of EA as a technical issue Lack of Authority of EA</td>
</tr>
<tr>
<td>3</td>
<td>Lack of Mandate from CXO Near-term approach of the Executive Management</td>
</tr>
<tr>
<td>4</td>
<td>q. nothing dissatisfies us - if it did we would fix it.</td>
</tr>
<tr>
<td>5</td>
<td>None to date data/information architecture parts of TOGAF are really weak; but a working group within TOGAF is looking at blending DAMA into TOGAF</td>
</tr>
<tr>
<td>6</td>
<td>Long lead time to generate adequate baseline materials, lack of process definition around portfolio management, lack of practical tools and notations Buy-in outside EA</td>
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<tr>
<td>7</td>
<td>7 8 Developing a repository Still struggle with where to put Architect resources in the organization, role definitions of an Architect not always clear so they get pulled into fixing operational outages, ability to deploy company architecture concepts like SOA without controlling funding</td>
</tr>
<tr>
<td>8</td>
<td>10 Repository of artifacts Insufficient progress on business architecture Insufficient progress on information architecture</td>
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<tr>
<td>9</td>
<td>11 Lack of a robust tool (due to cost) for EA 1. EA is not always understood by mother company 2. EA is undermined through forcing apps in None really, still rue the decisions made 5+ years ago and wish we started on current path earlier - abstraction level is quite high, no concrete &quot;how-to-do's&quot;</td>
</tr>
<tr>
<td>10</td>
<td>14 - lack of templates for deliverables 15 Awareness and Education 16 adoption of TOGAF, application of EA across all major projects, integration with business 17 Linkages of Startegy Formulation to the Execution Model 18 Architecture Governance standardization getting recognized</td>
</tr>
<tr>
<td>11</td>
<td>19 - No direct access to business - No client CIO engagement</td>
</tr>
<tr>
<td>12</td>
<td>20 - Not enough resources to communicate properly</td>
</tr>
<tr>
<td>13</td>
<td>21 required overall knowledge, time-consuming</td>
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</table>
Weak Link to Software Engineering

Tool limitations

22 Training required
23 Requirement for expert resources
   There is significant maintenance involved in the work to produce our ERA from multiple
   pre-cursors, ongoing.
   1. Tooling has to be done
   2. It is not well known

25 3. Current EAs need to be educated
Learning curve to adopt

26 Industry adoption
   Lack of compliance to existing standards by externally provided tool vendors
   Lack of effective compliance programs by standards organizations like OMG
   Lack of interoperable information exchange between UML tool vendors. Especially at the
   diagram level.

27 NA

29 Lack of tool support for creating alternatives and roadmaps
   1. business layer
   2. governance

30 3. combining assets with artefacts
31 formal modelling techniques, vague layering, little support for scoping to keep manageable
   The length of time it took to gain agreement - and the slowness of implementation
   thereafter
33 Non availability of standard templates
34 Timeline, non precise requirements, unclear business strategy
   1. to generate documents with your own templates
   2. to work with versions

35 3. copy function
Learning curve
   It's not easy to migrate from the existing processes to the new framework

36 Framework needs to be adjusted
   Expensive tools.
   Difficulty to do "interactive architecture"

37 Difficulty to do "minimal architecture"
38 Reusable assets - Enterprise Continum, Enforcement, Across Organization initiatives
39 Tools to drive plans deep and sustain linkage across several levels of abstraction.
   Process, Artifact Framework and engagement model and solution before goals and
   requirments are known
1) Too abstract; abstraction is ok, but the top-down-process to the design and development levels are not visible.

2) Not enough contribution from the tactical and operational levels of the company.

3) Transparency, what the architecture means for business- and it-projects.

provided based on reference

1. Lack of consistency between application by different architecture teams.

2. Terminology is confusing to the business participants.

Maturity of the EA practice in accordance to Zachman has taken longer than expected.

1. Does not communicate well with management

2. Easy to misapply.

3. Architecture is a requirement to be met rather than a management tool to be exploited

Customizing framework
Stakeholder communication

46 Complaince
Governance
Leadership understanding

47 Sustainability
1. Business modelling and optimization

2. Reference architecture creation and maintenance

48 3. Collaboration between Business and IT
n/a

Needs more development, does not always fit our business so well, is non standard (ie Open Group)

n/a

Unclear business value

Separation from Project Management and Software Development

52 Executive mandate
1. The complexity of the framework we use

2. Lack of software support for automatic analysis and business intelligence support

53 3. The learning curve for new employees
Governance Framework

54 Architecture Continuum

55 Governance, modeling and technology Architecture

56 none yet

- Hard to derive quantifiable gains in a consistent manner across implementations for our clients.

- Difficult to implement scalable governance

- Difficult to meld custom and package development methodologies to work with the framework without significant mentoring from the firm's EA experts.
Relationship with key stakeholders supported on case by case basis, lack of effective integration of governance and roadmap processes with methodologies, lack of understanding of the role.

High level of first iteration, lack of business architecture work, high focus on data quality

1. We have not formalized our processes. We need to develop formal documentation and training for IS staff and stakeholders.

2. Have to establish a review board made up of more than just the core EA team.

3. Develop measurements to make improvements to the architecture process.

Structured architecture governance is difficult in an informally managed culture.

Standardization of infrastructure level documentation has been difficult
The taxonomy of the EA approach is not understood the same way by everyone that could benefit from an architecture approach to problem solving.

Structured architecture governance is difficult in an informally managed culture.

The continuing usage and management acceptance of alternate methods that are not appropriate for EA.

Not doing enough strategic work, inclined more towards services delivery than setting direction, stretched too thin

Need for it to be restarted again
Does not fully account for organizational maturity.

Still relies heavily on process documentations for adoption.
Lack of headway in business process architecture
Slow response of the business, lack of awareness of the business of the role EA plays and when to engage it

Great Expectations
Lot of work for the team to maintain.
Still not connecting with the business in the correct manner.

Not easily accepted by PM organization.
Communication, Less consistent Focus, lack of continuing growth in investment
EA goals are not aligned with business. Governance is unclear. EA is spread too thin.
Lack of Templates and Samples

hmmm...fundamentally the focus of the general EA thinks that it is to do with governance. However that is only one aspect of the objective. Equally strategy as planning (i mean the five or seven year strategy approach) never happens in today's market trends. So if EA focusses around this approach without focusing on organisation agility then that is another fundamental problem. Last competency of the individuals who practice EA within the organisation. As you can see these inputs are predominantly varies from an organisation to organisation. However the majority of them that I think not addressed correctly are -

Governance as thinking, Strategy as practice (with lack of agility) and competency.
Showcasing the performance aspect of IT.

Ability to extend reference models to work components.
Deliverables frequently have to be redefined
- Lack of a methodology
- Lack of consistency with any proven framework, tools, or techniques
- commitment without commitment -- we asy we are committed, but different organizations
don't share whatthey are doing and nobody wants to make decisions on standards
( blueprint, road map, tools, techniques, etc.)
- Not always easy to understand and communicate
- A bit heavy at the early stage
- Not always clear as to what to produce and use it
- Lack of resource to progress as fast as we wish.
- documented standards, skill level, level of adoption of togaf
- Lack of resources
- Lack of understanding of business processes
- Engagement on specific projects
- Difficulty to find the correct level of granularity
- Model formalism tend to be a problem
- Not integrated to planning and development
- Complex
- Not easy to govern
- Not easy to sell to Business Stakeholders
- Cost
- Lack of well defined templates for artifacts
difficulty to convince all parts of the organisation to adopt a common approach
- Ease at which individuals justify variation from approach (this is clearly a cultural and
organisational issue
- Funding model for the EA program.
- Time driven constraint to deliver some of the EA Solutions
Decoupled and somewhat isolated from the business. I don't think leadership understands
the value of EA. There are dozens of competing processes and systems that drive
priorities.
- degree of adoption
- resistance from silos
- difficulty computing metrics
Scepticism of Enterprise Architecture at the CEO level. We still have work to do to sell the
value of EA to our CEO. Also communicating the difference between solution architecture
and enterprise architecture to a business function that doesn’t care what the difference is.
Business alignment, although that can't be blamed on TOGAF, it is a cultural and political
issue more than anything.
- The lack of example artifacts in TOGAF
- We use ARIS and have found the integration between EA frameworks and toolsets to be
lacking
Unclear use of terminology
Lack of guidance about how to construct models

92 Requires socialization within business
1/ security and services are still a 'bolt on' kludge
2/ can be a bit dogmatic, and the terminology is awful 'enterprise continuum' fer petes sake!!

93 1. DNDAF is not used yet for strategic planning and investment plans
2. DNDAF is not used yet in designing and developing for portfolio projects
3. Reaching a stable state and maturity of the AF that doesn't need version changes so often

94 Too early to tell
Difficulty defining standard architecture "views" (due to supporting tools).

95 Comprehensive EA requires significant business/program commitment, resources limited.
97 Lack of comprehensive view.
98 Can't yet tell we are still at an early stage.
Ability to engage business

99 Lack of business impact
100 NA
Continuous updation of information
Tool limitation in management of redundant information

101 Reporting capabilities
Sometimes hard to apply practically, may be burdensome for smaller projects/initiatives,
some areas of TOGAF still very vague ito information/implementation
103 Must be translated into understandable templates
Lack of "development process", lack of templates, prone to different interpretations.
104 Generally, lack of formal process.
Need to streamline the documentation

105 Have more staff involved
Complexity
Acceptance outside the architecture team

106 Quality Assurance
The lack of detail per step of the TOGAF lifecycle, i.e. to create templates;
The governance part still does not cover all aspects, i.e. from architecture to development;

107 Tooling, however in time this will be supported with Archimate.
EA approach are too high level and do not fit most of the real needs of an Enterprise
Sometimes the architecture decomposition is artificial and difficult to implement, it does not fit the purpose

108 Success cases are missing, they would help in understanding how to make EA fly
- time to explain to external personnel
- no strict control

- architecture is now part of IT instead of the business

Distance between the EA description and the reality.
Lack of clear engagement from IT operations
Not deployed enough with the company

Easy to use

Communication to business

High cost to establish
None

1. Architecture Principles
   1. Complexity; 2. Too many issues at a time; 3. lack of practical deliverables.
   High-level abstraction, minimal working examples, and “too much talk, too little action.”
   Most EA approach do not address the people aspect. Often it is driven by people who has no experience, no qualifications and also no real knowledge.

Development of EA must be supported using a visual modeling tool

Information Architecture must deliver various layers of abstraction: Business Information Model / Conceptual Model; Logical Model; Physical Model. Further, it must be clear how to move / translate between these layers.

One of the greatest challenges to implementing a solid enterprise architecture is the data architecture, and the ability to develop logical data models that are absent physical characteristics.

Implementation Governance

Opportunities and Solution

Architecture Vision
Lack of Senior Management support.
Lack of funding necessary to support the program.

Lack of an EA Repository.
The standard (TOGAF) is too detailed

The standard (TOGAF) is too prescriptive

We like architects to be creative and predictable; the framework is just a mere “guide”, nothing more

Competing incompatible policies for characteristics for architecture artifacts (internal organizational conflicts)

Slow to adopt, Consensus building
Repository came last and is still lacking which contributes to less then adequate sharing of information/artifacts, ability to analyze information captured and combersome alignment of cross divisional initiatives

Maturity level is lower than desired. We need to work on integrating with tooling and processes to make the programme scale to the all-of-enterprise demands. A plan for this is in place.
Lack of data harmonization
Lack of tools good integration

128 Difficult to establish return of investment in term of cash.
129 EA Budget, EA ROI visibility, LOB partnership
Getting critical mass - usage by stakeholders

Governance buy-in

130 Deliverables - Finalising standards for domains and views
1) Getting management buy in/understanding was not easy
2) Resistance from older generations

131 3) Agreement of principles is hard because of implications
Tools support.
The number of knowledgable practitioners available.

132 The sheer vastness of the undertaking.
133 Perscribed implementable approach
134 pass
Maintainability

Usage by the business

135 Hosting the application in live environment
Initial support form peers

No formal education, just OJT for now

136 piecemeal approach
The use of Information Architecture is very confusing. The layers would be clearer if they are just: business architecture; service oriented architecture; application or system architecture; technology architecture and data architecture.

137 Implementation and rollout of EA practices
Lack of clarity in certain practices

138 Not aligned to standards
1) Lack of goal-orientation
2) Poor support for systems engineering

139 3) Lack of clarity in domain vs. enterprise vs. system architecture
140 None so far.
141 nothing
Custom framework

Rigor

142 Time commitment
143 cost, time
all training is internal, can't really find external training or certification for it

a little too project focused

the on going debate as to whether we should just bite the bullet and adopt a single framework

1. Process

2. Coordination

3. Tools

Insufficient application reference model

Insufficient data reference model

Governance, monitoring of IT investments and portfolio

Unknown at starting point

Visibility within the business ranks.

Viewed as a Technology initiative.

No interaction with VP level IT management.

Business Commitment and Participation - Business Sponsorship & Domain Experience

Strategic v/s Tactical Conflict - Management of Short-Term Gains (Quick Wins) v/s Long-Term Benefits (Vision)

Stakeholder Management - Scope Prioritization an Conflict Resolution

none

still very much in it's infancy. We are maturing the EA ADM.

Some Fragmentation

Variation across some deliverables

Value proposition for customers

Internal training

- BPM not accepted

- Business and information architecture, reusability identification, etc.

not dissatisfied with approach - does take time to convey value of the approach and to measure tangible results. we are working to determine how best to communicate value -- some is more evident than others

transformation what to how, business objectives-KPI’s (metrics), EA Content

none.

Takes longer than expected to complete each segment and overall version. Gaining executive understanding of EA as more than an IT discipline is an ongoing challenge.

Visual modelling not simplified enough for executive consumption.

Translation to technical consumption not fully aligned/simplified.

Need a way to distill better all the data based on context.

Focos to much on IT

Bussiness aspects bad described

omits theoretical concepts of management sciences
upgrade issues
user friendly

162 clear descriptions
163 WIP
1. No requirement to use it.
2. Lack of higher management involvement/interest

164 3. Program management reluctance to employ EA principles and processes.
Customer processes are not clearly understood (extended enterprise)
Lack of EA-tool support

166 Level of Architecture Documentation in infrastructure
1) ability to implement a tool to support EA analysis needs.
2) cultural challenges to leverage EA concepts to gain the full value

167 3) integration of technology and systems architecture with the information architecture
getting all aspects of the Iraqi MOD to work with each other
stove pipe systems

168 lack of communication and cooperation between organization in the Iraqi MOD
169 Extent of influencing required which at times is waste of time and effort.
1) funding
2) changes too often, we need stability to make progress

170 3) competing efforts not in compliance with law and policy sponsored by rogue managers
- complexity
- training needs

171 - effort needed to maintain
Buy-in from senior and executive managers
Buy-in from technology stakeholders

172 Agreed governance model
1. NO FORMAL CONCEPTS ABOUT EA.
2 NO PRATICES FOR ATTACK INSTAURATION OF EA.

173 3. MARKETING, PROMOTIONS GUIDES FOR EA.
- business is not ready to follow (difficult to get into a long-term mind set)
- change aspect of implementing EA is underestimated

174 - inability to introduce new "EA" process. Togaf must be adapted into our own processes
Time and effort required for approval or dispensation

Domainwise issues

175 Moving target syndrome
It is still very early days for us, as we are still relatively immature in the Ea space. Biggest challenges are around cost, best choice of where to focus our energies and communicating the relevant parts of the EA to the business.

176 Cross-Divisional benefits - especially to ITSM and runcost of applications
The tendency to become wrapped up in developing the viewpoints and models rather than using them for analysis. The inability to converge on a common tool set and modeling paradigm across the corporation. The data incompatibilities between the framework product definitions (can be worked but takes effort in the tools).

178 1. Data architecture
2. EA governance

179 3. Transition Plan
taxonomy is not complete and need more work
1) Resource allocation (too many part-time architects)
2) Standards management (complexity)

180 3) Tools (not realizing full value potential)
Length of time

182 Budget constraints
183 programs won't use it; Hard to teach; easily misunderstood
Not Fully understand on staff level
Business agility still need to improve

184 Effective decision making
Architecture as a product
Definitions of artefacts in content metamodel

185 Underestimated importance of Information Governance
1. Lack of a proper Communications mechanism
2. EA MUST be placed at a higher level in the organization hierarchy / structure (recognition of EAs must be mandated across the organization, if we are to progress with long-term solutions & benefits)
3. EA is a "Concept", NOT a PM approach - Exec & Senior management must have a vision of where to take the organization (and then EAs can align with the appropriate architecture)
Hard to implement in all corners of the enterprise, because the concept is difficult to communicate; Its hard to keep momentum; Results/values are hard to pinpoint and communicate

186 Information Architecture, templates, tools
documentation is sometimes not fully consistent, it needed interpretation from our team. capability of Resources

187 Still covers only few business groups
The quality of the architecture artifacts delivered by the project teams. Lack of future looking business plans on which to base architecture decisions and develop roadmaps.

Lack of understanding of the existing IT architecture landscape.

The only problem is one of trying to describe a complex enterprise environment with a minimum of words / slides

1. Executive understanding and prioritisation
2. Label as an ICT thing rather than a corporate governance tool.
3. Lack of resourcing

Poor support for agency core business (i.e. other than back office). Enterprise Business Models are not decomposed as well as they should be.

I am not dissatisfied with our EA approach. The largest issue that I run against is people saying that the DoDAF does not support business decisions. It is not the framework that is the issue as much as it is the modeling techniques that are used to develop the models. All architects understand an Operational activity model (OV-5), but very few understand the functional decomposition modeling theories (or adhere to them) to develop a usable model.

1) Communication
2) Communication
3) Communication

Global Master Data Management approach

structure
communication with business; ability of business to abstract thinking; pressure on pragmatics
external requirements to use large (DODAF) framework; setting aside time/resources in an overworked organization

1) Lack of consistency in producing the EA artifacts
2) Lack of progress in demonstrating value
3) Lack of buy-in from engineering teams

What were your organization's top three criteria for choosing/developing an EA framework? (Please select only three criteria from the following)

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of Use</td>
<td>18.7%</td>
<td>59</td>
</tr>
<tr>
<td>Consistent and structured</td>
<td>29.4%</td>
<td>93</td>
</tr>
<tr>
<td>Incorporates a variety of constructs at multiple levels of abstraction</td>
<td>12.3%</td>
<td>39</td>
</tr>
<tr>
<td>A clear process for developing the architecture</td>
<td>38.0%</td>
<td>120</td>
</tr>
<tr>
<td>Ease of Communications</td>
<td>9.5%</td>
<td>30</td>
</tr>
<tr>
<td>Describes the deliverables that will be produced and their relationship to each other</td>
<td>18.4%</td>
<td>58</td>
</tr>
<tr>
<td>The selected deliverables are valid, useful and support governance mechanisms</td>
<td>15.5%</td>
<td>49</td>
</tr>
<tr>
<td>Customizable and able to be augmented with elements from other frameworks or methods</td>
<td>26.9%</td>
<td>85</td>
</tr>
<tr>
<td>Addresses business architecture</td>
<td>19.0%</td>
<td>60</td>
</tr>
<tr>
<td>Addresses technology architecture</td>
<td>16.5%</td>
<td>52</td>
</tr>
<tr>
<td>Address</td>
<td>Percentage</td>
<td>Count</td>
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<td>----------------------------------------------</td>
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</tr>
<tr>
<td>Addresses information architecture</td>
<td>11.1%</td>
<td>35</td>
</tr>
<tr>
<td>Addresses solutions architecture</td>
<td>13.3%</td>
<td>42</td>
</tr>
<tr>
<td>Addresses intersection of various architectures</td>
<td>19.3%</td>
<td>61</td>
</tr>
<tr>
<td>Business-strategy-driven approach – simple and natural</td>
<td>27.2%</td>
<td>86</td>
</tr>
<tr>
<td>Matches the goals of your organization</td>
<td>15.2%</td>
<td>48</td>
</tr>
<tr>
<td>Alignment with culture</td>
<td>8.5%</td>
<td>27</td>
</tr>
<tr>
<td>Access to a knowledgeable user community</td>
<td>5.1%</td>
<td>16</td>
</tr>
<tr>
<td>Availability of training and certification</td>
<td>6.3%</td>
<td>20</td>
</tr>
<tr>
<td>Mandated by management</td>
<td>10.4%</td>
<td>33</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>10.1%</td>
<td>32</td>
</tr>
</tbody>
</table>
ACADEMIC VITA

ACADEMIC VITA of Tyler Mincemoyer

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  • Data Analysis in both Frameworks and Value Measurement
  • Student member of the EA advisory group

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Schreyer Honors College Student 2009-Present
The Enterprise Architecture Club 2010-Present
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GTP/IST Tutoring 2009-Present
Coach of OLV Hoops 2007-Present
IST Honor Society Member 2008-Present