Business Architecture Modeling

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"The cheapest, fastest and most reliable components are those that aren't there."

- Gordon Bell

Final Project Analysis

EA873 – SU2016

Enterprise Architecture Modeling

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Table of Contents

List of Tables

No table of figures entries found.

List of Figures

Introduction

Business Architecture comprises of essential structures and their relationships which are essential for the business. The business model should describe the rationale of how an organization creates, delivers and captures value. Business Architecture is a required part of Enterprise Architecture (EA) and provides critical guidance to help integrate business strategic planning and execution (Burton & Blosch, 2016).

Overview of Project Objectives

Organizations conduct EA modeling initiatives to enhance communication and to get a better understanding of the enterprise landscape. As part of the EA modeling course, students have been introduced to architecture modeling frameworks, methodologies, and languages that can come in handy for organizations to start their modeling efforts or to enhance their existing modeling capabilities. In this learning process, the importance of Business Architecture and the value that it adds were also studied in-depth.

The final project objectives that students were to accomplish through interviews conducted with enterprise architects from other organizations are:

- To understand how organizations, define business architecture.
- To what extent the organization is using or sharing the business architecture definition.
- Types of EA modeling under business architecture.
- Approaches and methodologies used or followed for modeling business architecture.
- Effectiveness of business architecture and the methodology.
- Major challenges faced for business architecture modeling.
- Current modeling efforts and what has been modeled with respect to business architecture.
- Linkage between models and how it is achieved.
- Value and types of value observed by business architecture modeling.
- Tools, resources, and guides used for business architecture modeling.
- Organization's usage of the artifacts produced as part of conducting business architecture modeling.
- Processes to integrate business architecture models with other modeling architecture domains.

Additional project objectives are:

- To provide an analysis of the information on business architecture modeling across these interviewee's organization and how it has helped their organization.
- To provide an interview feedback to the Center for Enterprise Architecture about the pros and cons of the interview guide provided, if appropriate, and suggest ways to improve the guide.

Knowledge gaps that are being filled

Business architecture modeling directly relates to demonstrate and deliver significant business value outcomes. Without business architecture modeling, organizations can create gaps. The gaps that business architecture modeling can fill are:

- To understand the enterprise level or holistic view of the business, its associated units, functions, and their processes that add value to the organization.
- To confirm the many stakeholder goals and/or concerns without developing views of all their requirements.
- Provide clear visualization and communication system to address stakeholder concerns.
- "A picture speaks a thousand words" – a model can initiate conversation and assist in decision-making process by making the unseen and unheard details, seen and heard.

- Reveal relationships and dependencies across people, process, and technology.
- Provides clarity around the business structural and behavioral components.

Potential Benefits

The benefits that business architecture modeling provides is completely based on the definition and the importance provided to it in the organization. As already described in the previous sections, business architecture modeling can enhance communication and understanding about the nature of the enterprise and foster improvements in operations. The creation and utilization of models directly related to the strategic business interests will provide insights into the direction of the organization and business outcomes.

Enterprise Architecture Modeling aims to document the Who, What, Where, When, Why and How of any organization (Brown, 2015).

(Brown, 2015) Provides the following non-mutually exclusive reasons for undertaking an EA Modeling project:

- Planning corporate change.
- Improving processes, e.g. faster, cleaner, and cheaper.
- Automation planning.
- System specification for subsequent waterfall development, agile development or Commercial off the Shelf (COTS) acquisition.
- System rationalization.
- Proving compliance (e.g. HR, HSE, FCA).
- Avoiding 'Corporate Memory Loss'.
- Disaster recovery planning.
- Managing assets (e.g. buildings, equipment, people, and knowledge).
- Developing a standard business lexicon and language to provide a common means of business and IT communication.
- Improving profitability and sustainability.
- Happier staff.

Modeling's main purpose is to overcome complexity. According to (Schindlwick, 2009), an enterprise model will provide the following benefits:

- Preserve and build knowledge (Knowledge Management).
- Information reusability. To avoid starting from scratch every single time the organization begins a new project/effort.
- Better decision making, by providing valuable source of information.
- Provide stakeholders with a secure, scalable and easy to use storing environment for all their information objects and artifacts.

Literature Review

Enterprise Models and Modeling

Enterprise models are abstract representations, or descriptions, of process structures, information and resources of a business enterprise. The main purpose of creating enterprise models is to ultimately improve enterprise performance. (Clark, 2016). Enterprise models show how an organization does business, where it begins, how it flows through the various process, and where it realizes its value.

"Enterprise Architecture modeling is a technique used to graphically and textually document the whole organization in a consistent, unambiguous, structured, and maintainable manner" (Brown, 2015).

Organizations are complex and diverse. Architecture modeling is the process of representing these complex organizations or parts of organization, depicting the inter-organizational relationships, and dependencies. To create a holistic, integrated perspective of the enterprise systems and provide the interconnected collection of components like building blocks and objects, is the primary objective of enterprise models.

Models can be created across varying degrees of details based on the audience to whom the model is being presented. Models provide a common language for communicating enterprise architecture within an organization. Current state architecture, future state architecture, transitions/ gap analysis can all be represented through models across all the architecture domains (Business, Application, Data, and Technology).

Figure 1: EA Architecture (Brown, 2015)
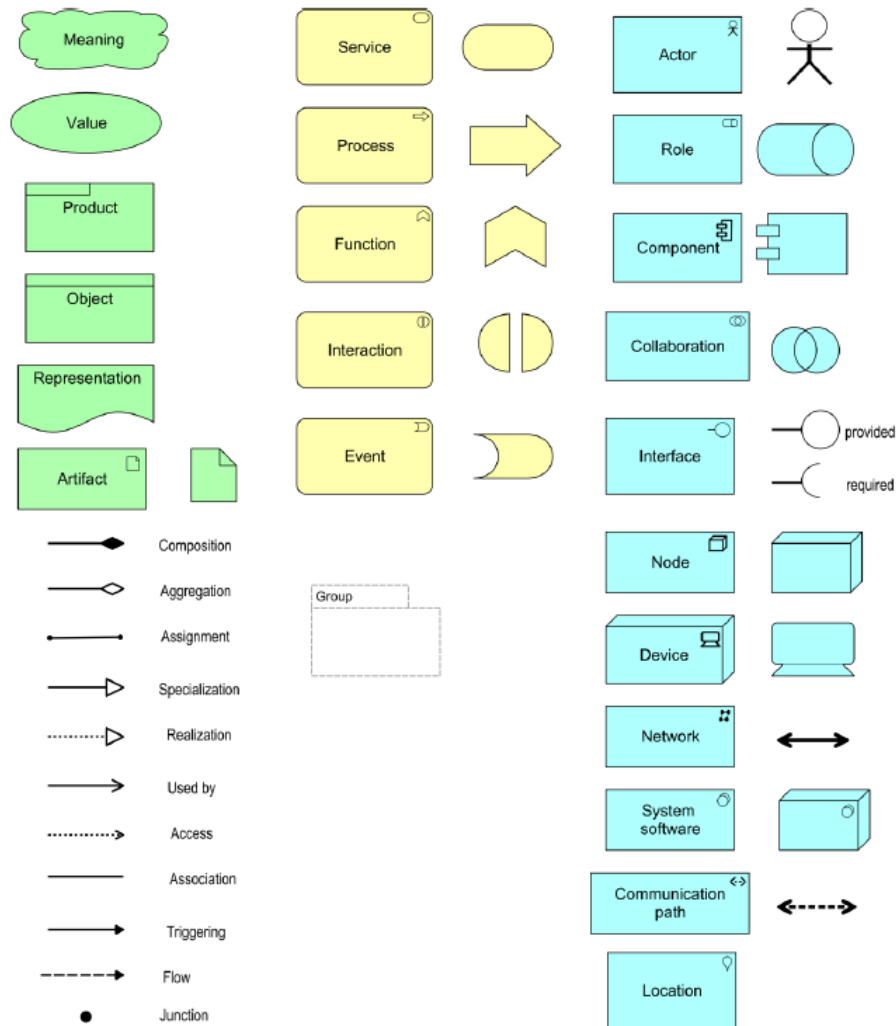

Enterprise Modeling Standards

All enterprise modeling efforts require an agreed upon approach and standard to be successful (Clark, 2016). Standards serve as guidelines for initiating, developing, using, and maintaining enterprise architectures. No two models developed by two architects will be the same, which makes it harder for the audience to understand and follow models. Identifying and defining a standard approach for modeling will create consistency and make it easier for stakeholders to follow. All modeling frameworks, languages, and approaches, are based upon agreed standards such as UML, BPML, ArchiMate, IEEE, etc. EA frameworks also provide standards through Zachman, TOGAF, DoDAF, etc. Several EA toolsets also provide the standards required for enterprise modeling initiatives. With this said, the options are many for defining the standards for enterprise modeling in an organization. Based on the organization culture and the requirements, it is highly effective to identify and define the standards by selecting the correct toolset. And there is no single identified set of standards. EA principles that are defined for an organization has a direct relation to the modeling effort and standards pertaining to that organization.

Enterprise Modeling Languages

Enterprise modeling enables a better understanding of the organization as a whole. Along with business knowledge, it is important to understand a language for modeling, so as to represent the entities on models using right symbols and techniques that is a standard which is understood by everyone. There are many established modeling languages when it comes to business process design and software development. Here are a few of the languages that can be used to model business and IT. The focus here is on languages that either find widespread use or have properties that are interesting from the perspective of our goals in developing an enterprise architecture language (Lankhorst, Enterprise Architecture at Work: Modeling, Communication and Analysis, 2013).

- IDEF (Integrated Computer Aided Manufacturing (ICAM) Definition) is a group of methods having a military background. It was originally developed for US Air Force. IDEF can be used for functional modeling, process modeling, and data modeling.
- BPMN (Business Process Modelling Notation) was developed by the Business Process Management Initiative (BPMI), which has since merges with the Object Management Group. BPMN specifies a standard graphical notation that serves as a common basis for a variety of business process modeling and execution languages. BPMN is restricted to process modeling, as applications or infrastructure are not covered by this language.
- Testbed is a business modeling language and method originally developed by Telematica Instituut together with a consortium of companies. It is intended for business process and organization modeling and its target users are mostly business consultants. Testbed recognizes three aspect domains – actor, behavior, item.
- ARIS (Architecture of Integrated Information Systems) is a well-known approach to enterprise modeling. ARIS is a business modeling method, which is supported by a software tool which serves various purposes like documentation of existing business process types, blueprint for analyzing and designing business processes, and support for the design of information systems. This tool is intended for system designers.
- UML (Unified Modeling Language) is currently the most important industry-standard language for specifying, visualizing, constructing, and documenting the artifacts of software systems. UML is intended for use by system designers. 13 diagrams can be grouped into 3 categories – structure, behavior, and implementation.
- ArchiMate, "is an open and independent enterprise architecture modeling language to support the description, analysis and visualization of architecture within and across business domains in an unambiguous way. ArchiMate is a technical standard from The Open Group and is based on the concepts of the IEEE 1471 standard. It is supported by various tool vendors and consulting firms. ArchiMate is also a registered trademark of The Open Group. ArchiMate distinguishes itself from other languages such as Unified Modeling Language (UML) and Business Process Modeling and Notation (BPMN) by its enterprise modelling scope" (Wikipedia, n.d.).
  The latest released version is 3.0 (TOGAF, n.d.).

Figure 2: ArchiMate 2.1 Core Concepts and Relationships (TOGAF, n.d.)

Enterprise Modeling Methods and Frameworks

Architecture frameworks provide more insights into the different aspects that an enterprise model can encompass. Frameworks structure architecture description techniques by identifying related different architectural viewpoints and the modeling techniques, while some of the frameworks are closely connected to certain modeling languages (Lankhorst, Enterprise Architecture at Work: Modeling, Communication and Analysis, 2013). There are number of frameworks and methods available which assist architects through all phases of the lifecycle of architectures.

An Enterprise Architecture Method is a structured collection of techniques and process steps for creating and maintaining an enterprise architecture. Methods usually specify the different phases of the architect lifecycle, which deliverables to be produced at each stage, and how they are verified and tested. A few architecture methods are:

- RUP (Rational UNIFIED Process) which defines an iterative process as opposed to the classical waterfall process.
- UN/CEFACT Modeling Methodology (UMM) is an incremental business process and information model construction methodology.

- TOGAF (The Open Group Architecture Framework) ADM (Architecture Development Method) provides detailed and well-described phasing for developing an IT architecture.
- The FEAF (Federated Enterprise Architecture Framework) is used for developing enterprise architecture for governmental organizations.

Modeling Methodology

Architecture models should be created to communicate something (knowledge) to a group of stakeholders. The models per se must not be the ultimate goal of the modelling process, but the usefulness for the organization in achieving its ultimate vision/mission.

The below diagram presents a metamodel demonstrating the path from strategy to implementation:

Figure 3: Path from Strategy to Implementation (Brown, 2015)
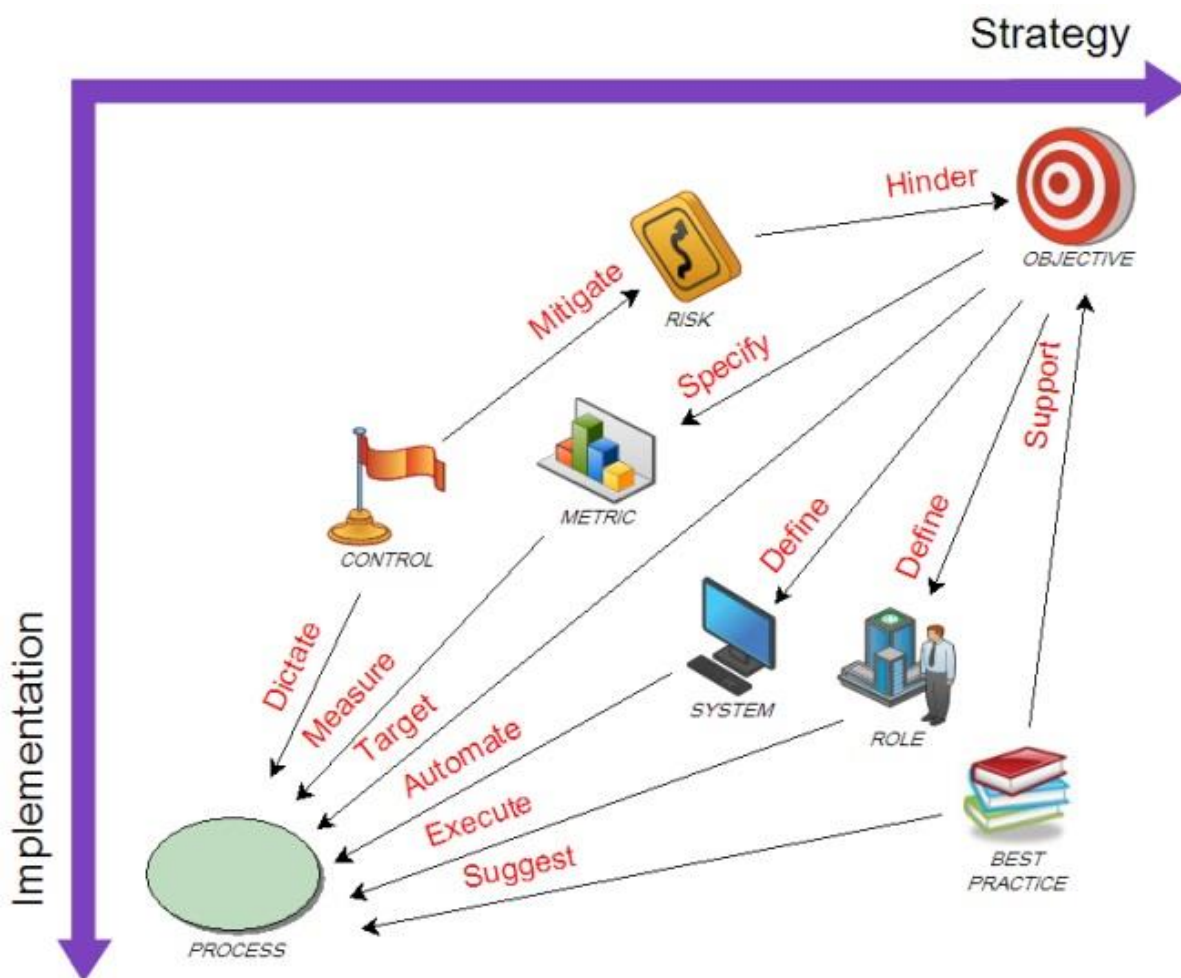

Modeling Guidelines

The following guidelines are extracted from (Lankhorst, Enterprise Architecture at Work - Chapter 6, 2009):

- A model has to provide answers to questions.
- Make a clear distinction between a model and its visualizations.
- Maxim of Quantity:

- - Make your model as informative as necessary.
    - Do not make your model more informative than necessary.
- Maxim of Quality:
    - Do not model what you believe to be false.
    - Do not model that for which you lack adequate evidence.
- Maxim of Relevance:
    - Be relevant (i.e., model things related to the modelling goal).
- Maxim of Manner:
    - Avoid obscurity of expression.
    - Avoid ambiguity.
    - Be brief (avoid unnecessary concepts and relations).
    - Be orderly.
- Model iteratively
- Model for dynamics
- Be economical in models.
- Be economical in views.
- Make concepts recognizable.
- Make structures recognizable.
- Make a model consistent.
- Keep related models consistent.
- Make models as correct and complete as needed.
- Treat different concerns orthogonally.

The following high level methodology process diagram has been developed based on the concepts and guidelines presented in this research paper:

Figure 4: Modeling Methodology Process Diagram
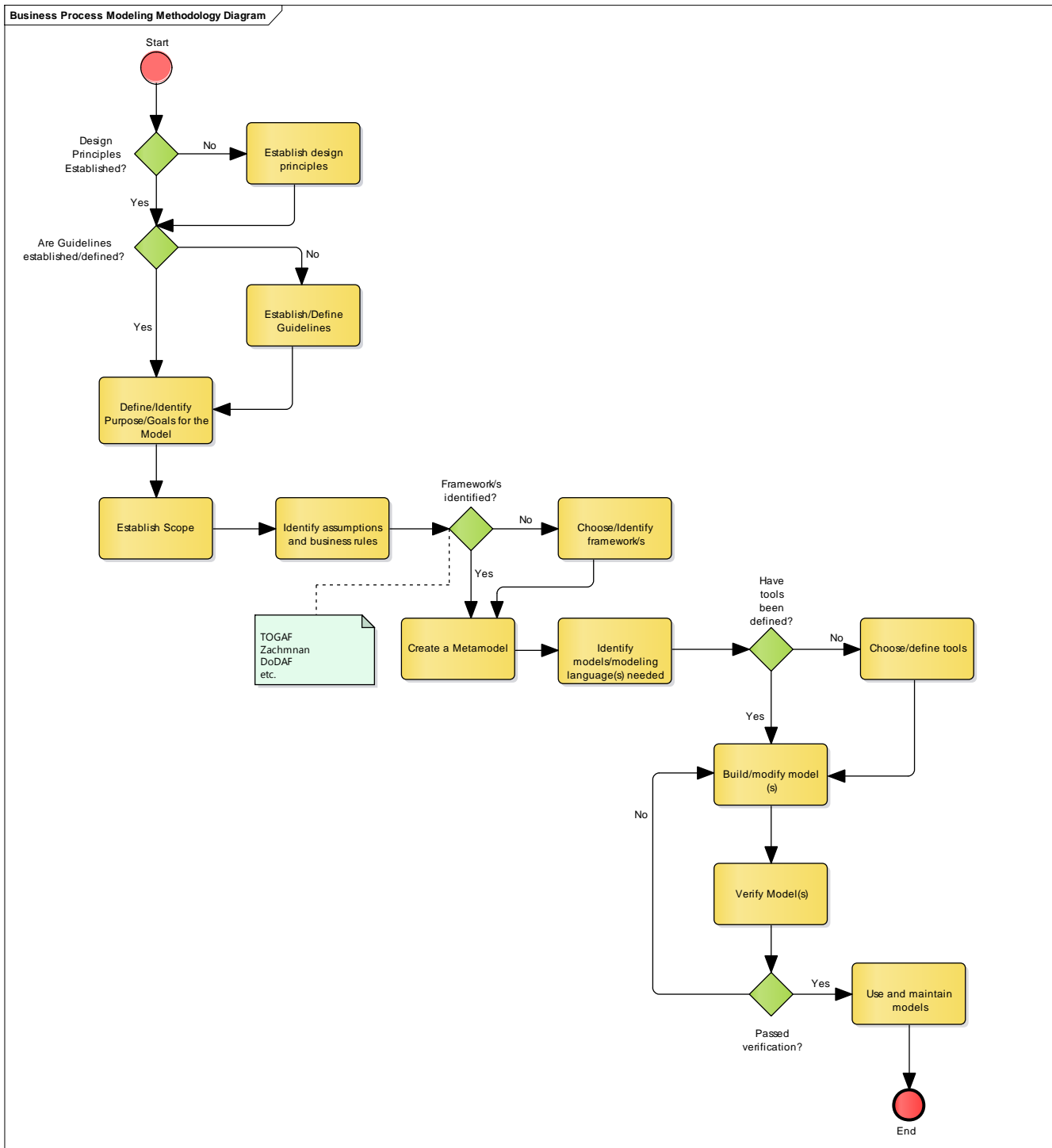
Research Methodology

The research team for this project consisted of two members. Since it was just two members performing the interviews, the direction was to get at least 2 interviews conducted from different organizations. We believed that having more data would make the analysis better, and between the two of us we tried to reach out to as many organizations as possible to conduct the interview as per the interview questions provided for this project. Out of the organizations we had reached to, we were able to conduct 10 interviews in total which was more than what we had initially targeted (3 – 5 organizations).

Interviewees were contacted either through phone or through emails asking them if they would be available to be assisting in answering questions with regards to business architecture and modeling, to help us in the course requirements for the final project. Some of them received the email and the questionnaire as attachment. The interviewees were informed in advance that the questionnaire has 15 questions and it should take them less than 30 minutes to answer. Once they agreed and provided a time slot for attending the interview, interviews were conducted over phone. On questions where the interviewees felt they could get better answers from their teammates or associates, they took them back and followed up with answers through emails. Six of the interviewees responded the questions in writing and returned their responses via email attachment.

The interviewees were across all sections of IT and Business. The titles of these interviewees were:

- Director, IT Strategy & Planning
- Technical Manager
- Enterprise Architect
- Enterprise Architect Principal
- Solution Architect
- Enterprise Business Architect
- Manager Business Process Architecture
- IT Business Systems Manager

The interviewee organizations were across the following industries:

- Oil & Gas – E&P (Exploration & Production) – 3 organizations
- Oil & Gas – Consulting offering IT advisory services for IT executives – 1 organization
- Travel Industry – 2 organizations
- Manufacturing – 1 organization

Each of us conducted the interviews and made note of the answers to all the questions on separate word documents dedicated for each interview. The final set of interview documents from both the parties were merged on to a tabular spreadsheet. This spreadsheet had all the interview questions listed on column 1 with answers from the individual interviews as further columns. Each interview answers were captured across one column. With that said we had 10 columns filled with answers. The reason behind creation of the spreadsheet was to make it easy for us to sift through, and perform our analysis by slicing and dicing the data in different ways. All identification related to interviewee's name and organization have been excluded from this spreadsheet and the data on the spreadsheet can be used for loading any repository if need be. The spread sheet is attached to this document as an object.

The interview data that was gathered was analyzed by each of us separately to be able to tap into individual creative techniques that could be adopted. The first round of analysis was for each us to analyze the data across the industries we work for currently or have worked previously.

Once both the team members completed their analysis, we consolidated the analysis by choosing the appropriate techniques that were applicable and more relevant to that scenario.

Research Findings

Interview Data Analysis

Analysis 1: Organizations by Industry and BA Maturity Levels

The interview data gathered shows that business architecture and business architecture modeling usage and maturity levels vary across industries. With the Oil & Gas industry being a conservative one, the entire concept of EA and EA program is very new to the industry. This industry believes in "what has worked before, will work for ever". There is a fresh wave of visionaries and CIOs who are adopting this method of strategizing the function, are making EA part of their group. These are the ones who are now hiring and developing EAs on to their teams to be setting up the EA programs. The focus of such program can be in either direction: Business to IT or IT to Business.

The below graph shows the number of organizations by industry and their associated BA usage/maturity levels.

Figure 5: Organizations by Industry and BA maturity levels
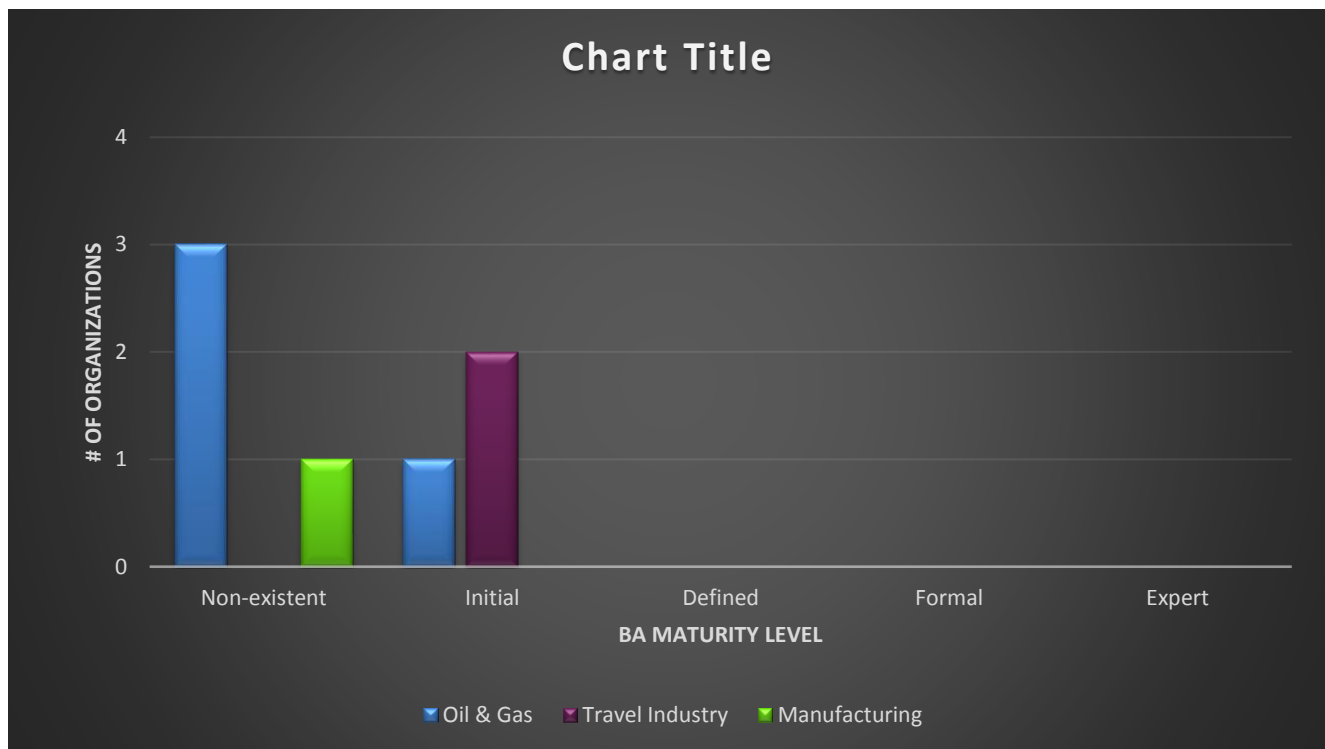
Analysis 2: Geographical Location of the Interviewees

Out of the total number of people interviewed, 10% were in the UK and 90% in the continental US.

The following diagram shows these findings:
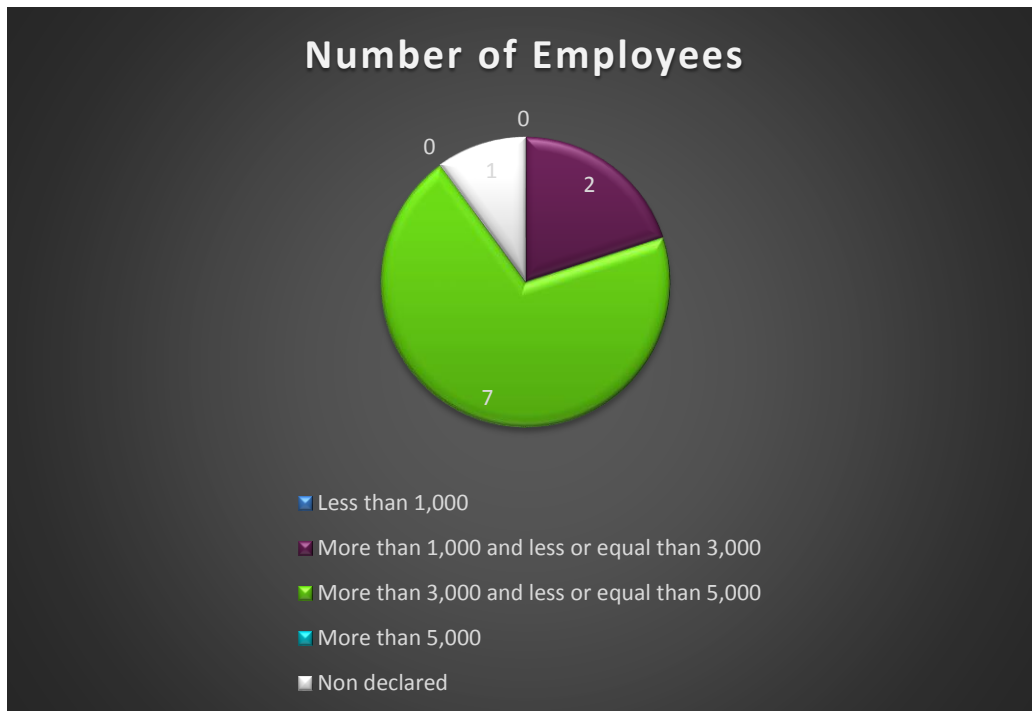
Figure 6: Respondents Geographical Location
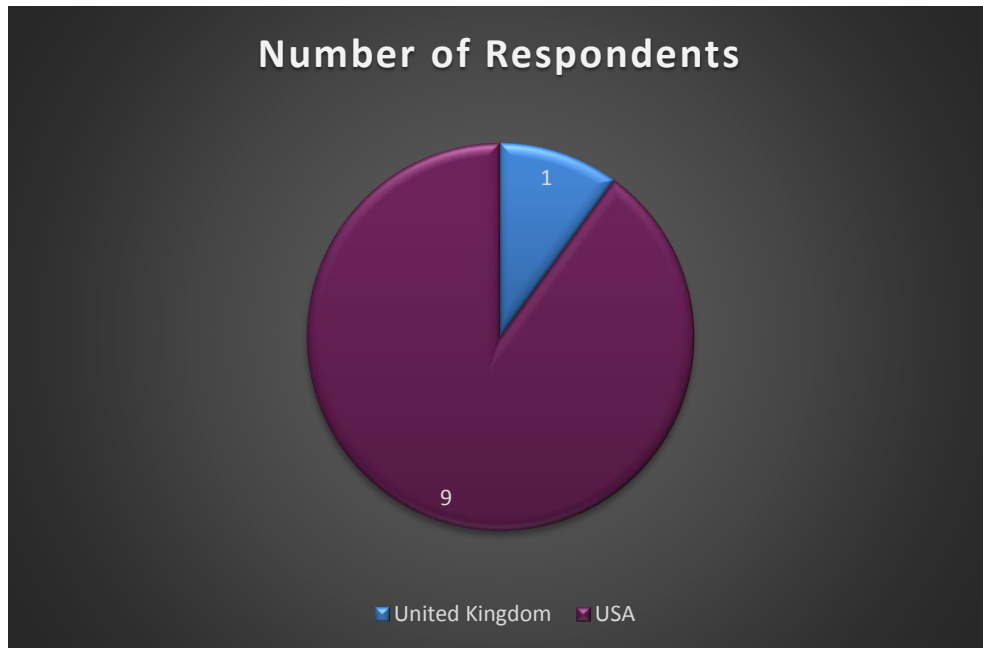
Analysis 3: Number of Employees

We have found that the majority of respondents work or belong to a company with more than 3,000 but less than 5,000 employees:

Figure 7: Number of Employees

Findings

The gathered interview data sheds light on different aspects of business architecture and business architecture modeling practices as conducted by different organizations. These findings are categorized based on the functionality implemented or advocated. Here are a few of those categories of findings.

Time in EA Role

The interviewees were asked about the time for which they have been working on EA and this ranged anywhere from 2 years to 15 years for the Oil & Gas industry; more than 10 years in manufacturing an travel industry. In their role of EA, the different responsibilities included establishing the EA program, defining future state architectures, creation of IT architecture, ad-hoc modeling and architecture work, build IT strategies with or without alignment to business strategies, program and project architectures, etc. These responsibilities were a direct result of either the size of the organization (small to mid-size) or due to the maturity level of EA. However, understanding the needs of the business and the alignment of IT to the business strategies is not a frequent occurrence in the Oil & Gas industry neither in the manufacturing nor travel industry as examined.

Figure 8: Respondents Years of Experience in the Field
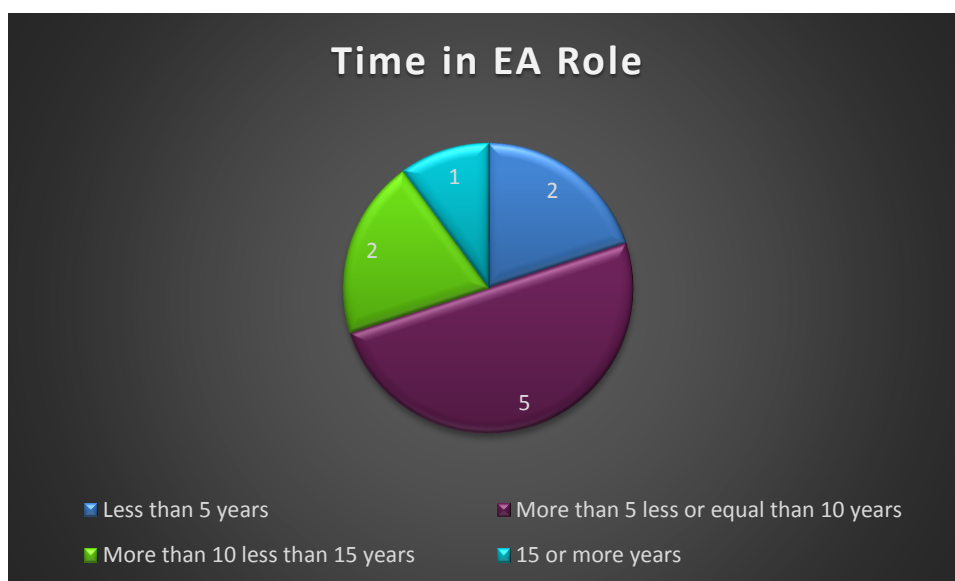
Business Architecture Definitions & Modeling

Some of the interviewee definitions of BA that were captured are:

- "Business Architecture is defined as to how we organize our lines of business to take advantage of synergies between operating units. It is used to align supporting services to and make sure we are doing things the best way".
- "Business architecture is a much broader discipline which seeks to understand and optimize the business blueprint (structure, roles, responsibilities, processes, etc.). This is an important tool to achieve synergy between business and IT. Business architecture shows the gaps in business planning which typically prevent the business from fully leveraging the capabilities of technology".

- "Business architecture involves the complete understanding of the business, the strategies, and the industry. Understanding business functions, operational technology coupled with information technology to ensure better business outcomes. Planning operations and striving to optimize the performance of existing business processes through technology-driven decisions"
- "Business Architecture focuses on transforming the business through systematically understanding, planning, and aligning current and future business needs, business capabilities, information and technologies. Business Architecture plays a key part in shaping continuous improvement and business transformation initiatives at an enterprise level. It ensures that the entire enterprise communicates architecturally using the same language and follows an industry standard strategic planning methodology known as the TOGAF (The Open Group Architecture Framework)".
- "Business Architecture is a key discipline, which includes the business process, the people and the assets. This definition in high level will provide a mechanism to understand, optimize and measure the business outcome for the enterprise. Overall, in the company, the full extent of the value of the business architecture is not in the mature stage".

Modeling Frameworks and Tools

With a non-existent or initial level of business architecture and modeling usage in most of the organizations, the organizations are either in the process of researching EA tools that would be effective or they are currently using basic tools like Visio and Word to capture their work/knowledge.

The Travel Industry respondents mentioned TOGAF, as the main architecture framework followed; also BPM, focusing on BPMN 2.0, IDEF, and SIPOC. The tools and resources referred are shown in the following diagram (Respondents using tools, use more than one of them):

Figure 9: Tools and Resources
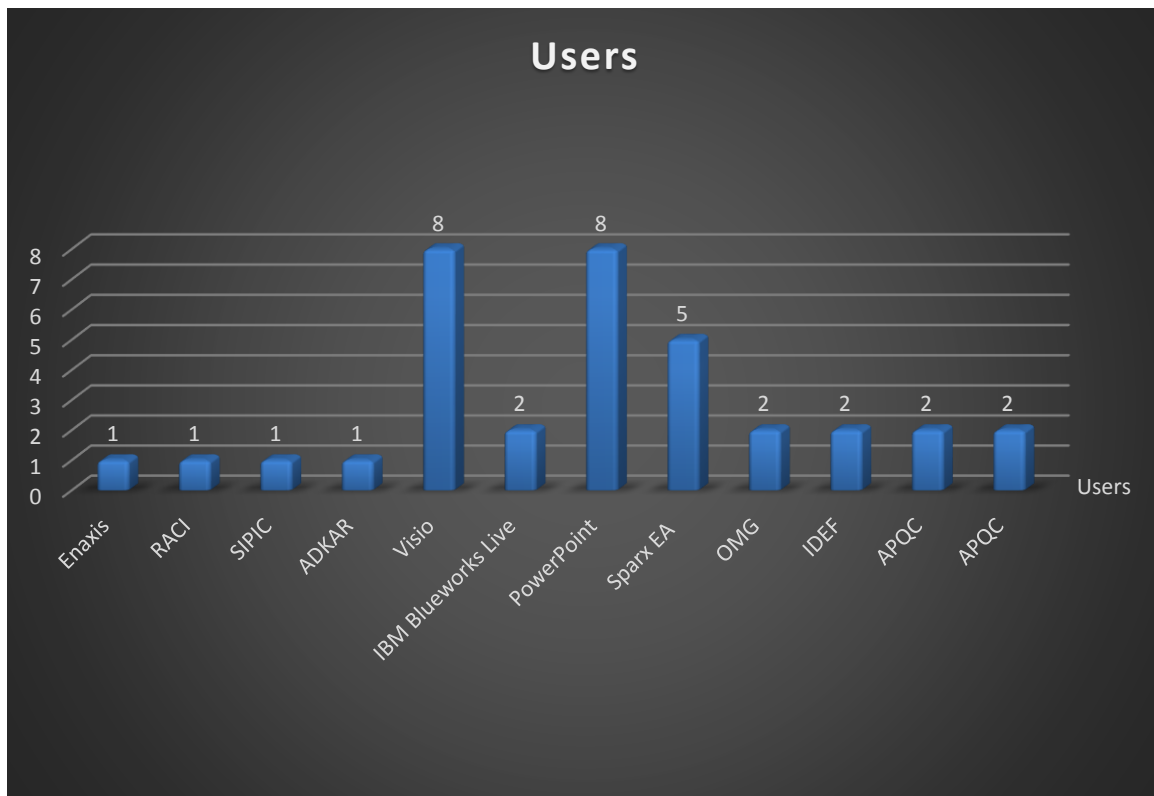
Challenges faced for BA modeling

Some of the challenges that were voiced by the interviewees are:

- Not a well-established practice in smaller to mid-level companies. You find it in a lot of very mature companies
- Attaining buy-in of the value of performing the exercise. It takes a lot of effort.
- I have to setup the foundation for business architecture modeling because nothing exists at this time. I also spend a lot of time evangelizing the benefits of business architecture. Business executives love the idea and are very open to learning more about it.
- Understanding the correct business processes and the responsibilities of each business function requires in-depth knowledge of the work happening in that business function. Resources (time and people) to share the knowledge and to gather the information are hard to find.
- Business Architecture as a concept is not particularly well understood by the business or pockets within the architecture Centre of Excellence, as such communication is a challenge and needs ongoing attention.
- Our challenge is that our company is an older company steeped in the ways of mainframe construction and thinking. Because of this, a lot of the business architects time is filled with training and mentoring with senior leadership to help them understand what business architecture is doing, why they are doing it, and how it will help.
- Adoption of the BA services. Lack of resources.
- It can be time consuming and confusing, so setting the right expectations, having the right level of detail, and staying focused on what is important.
- Capital investing and determining the ROI.
- Value proposition and realization in the enterprise.

Extent of BA modeling

The extent to which BA modeling, if it exists, has an effect only to the Sr. Level executives of the organizations. However, it is an understood fact across interviewees from Oil & Gas industry that if BA and BA modeling is defined and standardized, then it can have effect across teams like operations planning, business function executives, Sr. executives, C-suite, project management, IT, business analysts, etc.

The manufacturing and travel industry respondents coincide that BA modeling, is still in the developing stage and no formal processes are in existence yet.

Integration and Traceability

There has not been much progress on integrating and enabling traceability on to modeling initiatives in companies that do not have an established EA program or starting it now. Interviewees expressed their interests in getting to this stage of integration and traceability but it is not existing in their current state of the EA program.

The traceability and integration, is limited to what the tools in use (if they are) may provide.

Observed Value from BA modeling

Interviewees stated some of initial business value they have gained with their limited BA modeling or have expressed the potential value that can be seen if BA is conducted the right way in organizations. Here are a few of the interviewee response:

- Has driven some efficiencies from a shared service model.

- It's hard to demonstrate value in the exercise of business architecture modeling without alignment of a strategic objective. It is a labor intensive exercise and often can only be justified if the exercise is tied to revenue generating or cost avoidance goals. Gartner published an article that coined the phrase "Just Enough EA" which proposes EA programs should focus on only generating artifacts that provide tangible business value. In this sense, the consulting world I live in enforces that we only work deliverables within the scope of the project. In this way, the stakeholders buy-in to the effort and the effort of doing so is clearly understood.
- Potential / Future value - Tremendous value. Basic conversations about business architecture reveals large gaps in business planning. Business analysts also like the idea because their scope is limited to gathering solution requirements. They are typically unaware of enterprise requirements/stakeholder requirements. It gives them deeper insights into the way the business operates.
- Potential / Future value - Business architecture modeling communicates a common message across groups and helps to understand the landscape better. Visualizing the structure, relationships and interdependencies assists in better decision-making. Provides insights that could have been easily missing when not visualized through a model.
- The main value comes from understanding the business so that any change proposition can be properly assessed w.r.t. how it adds value, and impacts can be identified and properly managed. Business architecture provides a connection between the enterprise strategy and technology, people and process change so that the right investment decisions can be made and the enterprise can measure the success of change.
- We are moving from a model where every product got a bag of money and spent it as they saw fit to a model where spend must be justified based on ROI or strategic importance. This paradigm shift should allow us to have much better control on investment spend, and allow us to produce software that solves multiple business problems (instead of re-inventing by Line of Business (LoB).
- The end goal is improvement in the way that the business process works. We ensure the focus of the improvements is on 'value added' actions, making the customer service and experience better, reducing wasted time and effort. Based on our enterprise view we also help establish cross functional and organizational relationships to break down silos.
- One of the greatest benefits that EA/BA models provide is transparency and visibility across the enterprise to communicate, understand and facilitate transformational change. These models will be instrumental in integrating the various transformation areas into a cohesive strategy to help prioritize and synergize our efforts. It's the analogy of talking the same language.
- Simplify the understanding of our business for different domains, help the leadership team to see the commonality, dependencies and redundancy, etc. and make the proper organizational transformation (if needed).

Integration of BA modeling with other domains

No formal identified or defined way of integrating BA modeling with other domains was observed in the organizations belonging to the oil & gas industry, nor in the ones from the manufacturing nor travel industry. Interviewees however expressed that with increase in EA maturity levels, they will see more integrations across the architecture domains. Benefits that can be derived through integration as mentioned by the interviewees are:

- I try to identify the dependencies that business processes have on information and technology. Information structure typically remains stable while processes/org structures are highly dynamic. By showing the structure of information we are able to have consistent conversations across multiple business stakeholders.

- Integrations yet to be formalized. But business architecture models have a tight coupling with IT architecture domains of application, data, and technology. It is only when Business architecture models are integrated with IT architecture domains, it becomes a holistic enterprise architecture view.
- We are developing a formal governance process for this purpose at the moment and this will be heavily influenced by the tooling decisions which we are taking in the very near future. In essence there needs to be a clear tooling strategy, formal but efficient review gates, roles, responsibilities and a clear definition of model artefact maturities. There also needs to be appropriate governance in place so that changes to the model can be managed and any new designs conform to modelling standards. It is vital that any integration across domains considers the architecture services and how a holistic/integrated model can aid us in delivering these services across the Centre of Excellence.
- This is a work in progress. The EA governance process had a significant head start and is pretty well institutionalized. We are in the process of beginning to meet and understand how these two processes will interact going forward.
- We have no process other than what the tool allows for mapping models to each other.
- Currently limited at the enterprise level since a manual process and in spreadsheets. Activities have included various architecture domain SMEs collaborating to build out and integrate models including business, information, technology, application, finance, HR, etc. Some POC work has been done in EA Sparx. Tool evaluations are underway for a more comprehensive BA tool.
- We standardize where we can at the global level.
- Unfortunately, those linkage are not completed, even in the certain business domains, which in my view is the reason that we, as a company, are not in a mature stage to leverage and utilize these business processes, business capability models.

Modeling types & existing models

In all the analyzed organizations, modeling types are at very basic levels due to the maturity levels of the EA program and the engagement in business architecture. Some of the fundamental modeling work happening in the business architecture domain in the Oil & Gas industry are: business process maps, capability mapping, organizational structure charts, stakeholder assessments, IT governance, etc. Very preliminary modeling types and models in existence across organizations.

## Other Findings of importance

- Creation of models is an exciting journey but maintaining them and keeping them current are a pain.
- Return on investment (ROI) on modeling is always a question that is hard to answer. Making leaders understand that the tactical projects that follow the EA's strategic efforts are the ones that have a ROI, is difficult.

Learning Points

- Without business architecture, EA efforts are just "IT architecture" and will fail to demonstrate and deliver significant business value outcomes (Burton & Blosch, 2016).
- Enterprise Architects (EA) have to venture into the business and associate with business strategy initiatives, align IT to those efforts, and through modeling represent the ripple effects of the business strategy on business processes, applications, data, and technology.
- EAs should look for opportunities to partner with business to focus on initiatives that deliver business outcomes. Modeling brings clarity and insights to business strategy and execution.

- Enterprise Architecture modeling should focus on deliverables (models) that drive the business change by exploring impacts of strategy and innovations.
- Integrate business capability modeling as part of the strategy to illustrate and analyze the way an enterprise operates. Models reflecting the current state and future state capabilities will clearly highlight the gaps and assist in the achievement of future state.
- "As organizations and industries grow increasingly complex, the need to respond rapidly to ever more pressing issues has grown exponentially, even as enterprise agility has suffered. One thing that corporations and government entities have in common is the need to quickly troubleshoot issues, craft strategies and deploy solutions based on a shared understanding of the root cause of the problem. This last point is where one of the greatest challenges emerges. Most enterprises lack a well-articulated, commonly agreed upon view of their enterprise and this can stymie situation analysis, cripple decision making and undermine solution deployments" (Ulrich & McWhorter, 2013).
- "Business architecture goes beyond the notion of ensuring the success versus the failure of multi-year projects and cuts right to the heart of strategic planning and related funding. This is evidenced by the fact that executives have increasingly leaned on business architecture to help diagnose and articulate solutions to a variety of business challenges" (Ulrich & McWhorter, 2013).
- "Make it easy to change business or process rules to cater for new situations, or to support needs that weren't thought of at the time of the initial requirements" (Evernden, 2015).

Figure 10: Aspects of the Business Represented by Business Architecture (Ulrich & McWhorter, 2013)
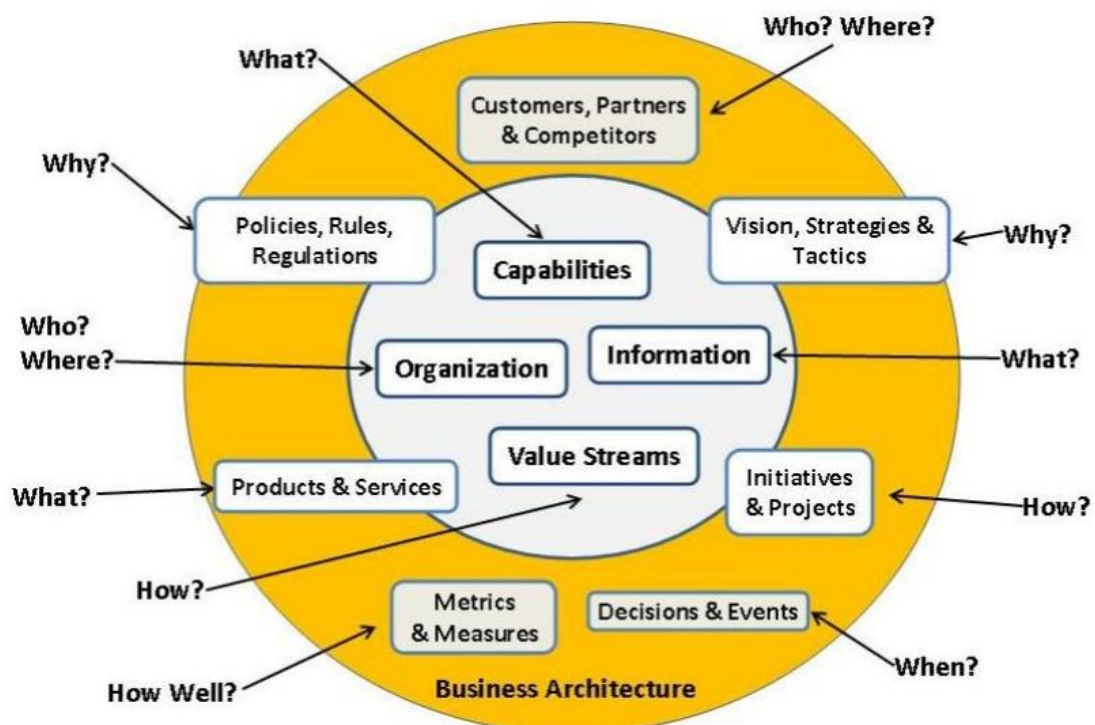
Feedback and Recommendations

Effectiveness of Research – Approach and Guide

Some of the effectiveness and benefits of conducting this research are:

- The team members had a great opportunity of reaching out to other organizations, having conversations with the people who perform EA or related work, and expanding the network through these contacts.
- The project provided a good experience of understanding the process and importance of business architecture, business architecture modeling, and how organizations are conducting these activities while reaping benefits.
- Provided an understanding of where we stand with respect to EA and modeling efforts when compared to activities happening in other organizations. Served as a benchmarking effort.
- Analyzing the information gathered provided better insights into the industry norms and industry thinking on subjects of business architecture and modeling.
- Working on a team to accomplish this research, provided an experience of working with others, coordinating tasks, consolidating efforts, and agreeing to each other's ideas. This is similar to a real-world office environment.

Changes / Improvements – Approach and Guide

More questions on EA tools and their benefits if any that are currently being observed.

Finding out the EA program maturity level of the organization

If not conducting BA, then what areas/domains are being covered with regards to IT architecture?

Project Scope changes

Business Architecture plays a key role in enterprise architecture in order to ensure the correct alignment of IT initiatives to business outcomes. Ultimately business architecture's purpose is to improve the performance of the enterprise. Enterprise Architecture however can be defined across different domains with Business domain being one of them and the other domains related to IT (Application, Information, Technology, etc.). With this said, a change in the project scope would be to include the other domains too as part of the project, which could lead to better insights on other domains or IT architecture. There are many companies which are yet to think of enterprise architecture programs and a project that analyzes across all domains of architectures could be very helpful for organizations that are beginning their EA practice. This actually widens the project scope from currently being business architecture and business architecture modeling focused.

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