

The Business Analyst's Toolbox:

Selecting the Right Requirements Analysis Techniques

Introduction

Over the last few decades, the business consulting and software development communities have developed a bewildering array of different business analysis techniques to understand and describe processes, policies, and systems. As a practical matter, a business analyst is never going to have the time or need to become a skilled practitioner of all of these techniques.

While you can leave the techniques you'll study up to the discretion of the organization for which you work, how will you know if your skills are portable? How can you be sure that you've mastered enough techniques to handle new situations that might arise? Fortunately, a business analyst can usually manage with only a small set of carefully chosen techniques, as long as he or she picks the right set of complementary analysis methods.

Figuring out which techniques to learn can be tricky, however. Most methods aspire to provide coverage for a complete application development lifecycle, but they may not address things that fall outside the approach envisioned by the method's creators. Other resources, like the *Guide to the Business Analysis Body of Knowledge* (BABOK™) are comprehensive but not prescriptive, as they are forced to be methodology-neutral.

Enterprise Architecture

An enterprise architecture is intended to provide guidance to an organization as to what sorts of processes are needed to support ongoing systems development and change improvement efforts. An enterprise architecture framework will help an organization address everything from strategic planning to application maintenance and operational support. By definition, then, everything a business analyst does should fit into the enterprise architecture adopted by an organization. If you know enough different analysis techniques to cover the breadth of an enterprise framework, you know enough to address almost any conceivable situation or project that might arise.

The Zachman framework (www.zifa.com) is one of several models for the development of an enterprise architecture. It focuses on documenting different perspectives of an organization, which makes it easy to show which analysis techniques can be used to describe specific cells in the framework. However, if you work in an organization that has adopted a different architecture framework, the lessons should still apply.

The Zachman framework takes the six classical questions (Who, what, where, why, when, and how) and describes the models required to answer those questions in the context of a particular organization. For example, the question "How?" translates to "how does this organization do things?"

The framework then defines six different levels of abstraction for the answers to each question. At the top level, we define the overall scope of the business — what processes, people, and events exist that are of interest to us. The second level, the business model,

looks at how all those things of interest relate to each other and interact with one another.

Below that there's a system model, which describes in detail what each of those things are. This continues down until we have the actual applications, data, and so forth.

Not all of the levels of the Zachman framework are relevant to a person in the business analysis role. When we look at the scope of the *BABOK*, we find that BAs generally work down as far as the system model, but will in some cases go a little deeper. The table below shows how the Zachman framework maps to the range of activities found in the *BABOK*:

Figure 1: General Scope of Business Analysis Activities in the Zachman Framework

	Data (What)	Function (How)	Network (Where)	People (Who)	Time (When)	Motivation (Why)
Scope (Lvl. 1)	Entity	Process List	Locations of the Enterprise	List of Organizations / Divisions	Major Business Events or Cycles	Business Strategy
Business Model (Lvl. 2)	Entity/Relationship	Overall Process Model	Interactions between locations	Organization Chart , List of Roles	Detailed Schedule	Business Plan , Project Objectives
System Model (Lvl. 3)	Logical Data Model	Detailed Process Description		Detailed Interaction Model	Entity History , Processing	Business Rule Model
Technology Model (Lvl. 4)				User Interface Design and Flow		Business Rule Specification
Detailed Representation (Lvl. 5)				Detailed UI , Security		Business Rule Design
Functioning Enterprise (Lvl. 6)						

The gray cells in this picture indicate cells that fall outside of the scope of the business analyst role.

The Questions

If you bother to count, you'll see that the BA has a role to play in filling in 21 of 36 cells in the framework. That sounds like a lot, I know. However, it doesn't require 21 different techniques to describe all those models. In practice, you should need to master no more than six or seven—one for every column in the framework. That's because most analysis techniques are intended to operate at multiple levels of abstraction, and also because many techniques cover the same columns.

- **Data** models focus on describing what the business knows about things of interest and the relationships that those things have to one another.
- **Function** models describe how the business gets things done and how the business works to achieve its goals. A function model will generally involve multiple people over a period of time—work that can be done by a single person in a single sitting is covered by People models.

- **Network** models describe where the enterprise does work and how work performed at different locations is integrated. Of all of the columns, this one is probably the least important to the typical BA—as the name suggests, the people in IT who it concerns most are the network support personnel.
- **People** models tell you who is of concern to the solution. In many cases, this model is nothing more than a stakeholder definition, but for commercial products, it may include things like a market segmentation. At lower levels, people models describe how stakeholders interact with a solution to accomplish their personal goals and responsibilities through the user interface.
- **Time** models describe when events happen and when events can happen. A Time model does not cover sequencing (that’s a Function) but rather expresses regular cycles that the business has to go through (like tax filing) or events that require a response.
- **Motivation** models describe how the business makes decisions and why those decisions are made. A policy model describes who may make a decision, the information that they use to make that decision, and the rules that guide them in making that decision.

Model Coverage

The following chart shows which requirements type can be expressed by which common (and a couple of less common) business analysis techniques. Obviously, these techniques have strengths and weaknesses that will not be obvious from just looking at the chart below—but it will tell you what a technique *can* be used to do.

Figure 2: Specific Analysis Techniques and the Zachman Framework

Technique	Data	Function	Network	Time	People	Motivation
Activity Diagram		2,3		•	3	
Business Process/Workflow Diagram	•	1,2,3			3	•
Business Rules	•	•				3,4,5
Class Model	1,2,3					
CRUD Matrix	•				5	4,5
Data Dictionary	3					
Data Flow Diagram	•	1,2,3	•		•	•
Data Transformation and Mapping	•					
Deployment Diagram			1,2			
Entity Relationship Diagrams	1,2,3		•			

Event Identification		•		1,2		•
Flowchart		2,3			3,4	•
✓/Goal-oriented Requirements Language					•	1,2,3
Metadata Definition	•			•	•	
Sequence Diagram	•			3	5	
State Machine Diagram	•			1,2,3	•	
Storyboards/Screen Flows					3,4,5	

Technique	Data	Function	Network	Time	People	Motivation
Use Cases		1,2,3		•	2,3,4	•
User Interface Designs					3,4,5	
User Profiles					1,2	•
User Stories		•			•	•

Legend

- 1, 2, 3, 4, 5 Framework level that the technique addresses
- Indicates that the technique can capture these requirements, but is not optimized for that purpose.

So how does this help a business analyst figure out which techniques to master? By now it should be obvious—you should be able to use at least one primary technique for each column in the Zachman framework, and consider learning secondary techniques as and where required. You may find that text or matrices will suffice for describing some requirements (for instance, motivation requirements, especially the higher level ones, are often described in a Business Case or Vision document).

The particular techniques you choose to learn will depend on the business domain you work in, the methodologies chosen by your enterprise, and other matters. Not every project requires that you be able to completely describe all possible kinds of requirements. On the other hand, if you work intensively in a particular cell of the framework, you may want to be familiar with more than one technique that applies to it for use with different audiences or to resolve different issues.

When the time comes to handle a new problem, though, you should now have the tools you need to figure out whether something you already know how to do will help you solve it—or whether it's going to be necessary to learn something new.

Credits

Kevin Brennan is a Senior Consultant with blue sands Inc. and serves as the IIBA's Vice-President of the Body of Knowledge.

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