The Zachman Enterprise Architecture

By Stan Locke

For about twenty-five years now one man has trotted around the globe preaching the value of architecting and engineering enterprises with the same rigor as we do with other complex objects. Although thousands of managers have listened enthusiastically to his speeches, seminars and courses, few people have actually applied the message. However, in this day of globalization with high complexity and high rates of change, many industries, on many continents, in many circumstances, are looking for new ways to be more agile and cost effective in their business operations. During the past three years this desire to do more with less has accounted for a significant resurgence of business strategic planning as a driver of enterprise change, and specifically the use of the Zachman Enterprise Architecture.

What exactly is Enterprise Architecture?

The short answer is: How you build an Enterprise. This means how a business goes about the process of making explicit representations of enterprise operations, rather than relying solely on the multiplicity of implicit notions residing within individual managers' heads. These business representations need to be organized and classified into discrete re-useable chunks so that as enterprise changes the domain of change impact is confined to the smallest area possible, at the least cost, with the greatest effectiveness, for implementation in time zero. Moveover the enterprise 'brain drain' caused when people with implicit knowledge leave the enterprise can be reversed by building up explicit business representations to be used and refined by the new and upcoming breed of managers who are information hungry and electronically wired.

Zachman proposed an Enterprise Architecture schema in which he depicted two distinct dimensions in a matrix. The columns classify answers to the interrogatives: who, how, what, where, when and why. The rows classify the audience perspectives of scope, owner, designer, builder, trades and functioning enterprise. This gives 36 cells which uniquely classify portions of the enterprise.

He created a normalized classification structure for describing complexity in tangible objects such as buildings, airplanes, ships, locomotives, and extended the analogy to the intangible concepts of businesses, governments and a myriad of enterprises. In all of his years of travels and speeches, he has not wavered from his description of the framework as classification system and not an implementation methodology. Several significant players have tried to turn the framework into a methodological approach for enterprise analysis, but none has addressed more that the basics of Information Engineering, hence creating the wrong impression that the enterprise architecture is about building information systems. In recent years new players are becoming very serious about implementing the full enterprise classification and are working on their own methods for choosing which primitive chunks and which order are most important for their enterprise.

Enterprises do this so they can educate new executives, partner with others, and manage their businesses more effectively.

This interest has catapulted the classification system a giant leap forward and now the software vendors are clamoring to put the schema as a face on their products, little realizing that the true value of the classification artifacts according to Zachman is that "someday you're going to wish you had all those models, horizontally and vertically integrated in excruciating level of detail, so you can manage complexity and change". As the Information Systems and Information Technology worlds move from the object-bounded concepts into the 'new' component-based architectures, they will align with this much broader and more powerful enterprise business concept: component business architectures.

Zachman Framework Interrogatives
manage enterprise complexity !

Commonly referred to as the columns, the interrogatives for asking enterprise questions are Who, How, What, When, Where and Why. This is based on a worldwide understanding of explicit communications. In fact, explaining any complex situation, circumstance or object is made into a communication discipline by rigorously applying these six basic questions. By using this formalism, one can quickly deduce which answers are missing and start to gain an appreciation for the assumptions that are being made or where new questions need to probe to obtain a better understanding. One can think of this complex parsing as breaking the 'elephant' into manageable pieces, but today's enterprises are far more complex than any 'elephant'. Zachman argues that these interrogatives have no order, unless an enterprise value system is imposed on which questions to answer first.

Some folks like dealing with the 'elephant' as a composite. They like making assumptions about these basic interrogatives because it allows them to use their unique experiences and desire to get something done. They argue that it is better to propose a solution and implement something, repairing the implementation in the future, when the problem is better formalized, rather than really engineering a solution by understanding the requirements at the outset. Zachman says it is like this: "You start writing the code, while I go find out what the users have in mind". However, the identification of these explicit questions allows an infinite assembly of integrated solutions from the primitive components as needed. These assembled descriptions are not only "just-in-time" solutions, but also yield a vast potential of alternatives. In addition, this variety of solutions allows evaluation by others with differing experiences to apply their expertise, which ultimately produces the business flexibility to deal with complexity.

Using the interrogative approach moves the intellectual evaluation costs into an intellectual enterprise investment: the new enterprise asset.

Zachman Framework Perspectives
– managing the rate of change !

Commonly referred to as the rows, the harder concept to apply is the notion of the five audience perspectives of the Zachman Framework because we don't have the disciplined practice of distinguishing these critical and differing descriptions of the same enterprise. We simply don't have the perspective practice that we have used for the communication interrogatives from our childhood years. It is this second dimension of the framework that allows us to deal with the rate of change; in fact, it brings the engineering disciplines to the management and priority of change. The basic owner, designer, builder perspectives are bounded by the scope and de-scope context perspectives; commonly these are respectively referred to as the Business models, System models, Technology models, Scope lists, and Detailed Representation listings.

Zachman argues that unlike the interrogative questions, the audience perspectives are ordered or more correctly stated in a desired priority sequence.

First: establish a list representing the scope or boundary of the enterprise business by establishing which items in each of the interrogatives have some effect on the formal business, whether external or internal.

Second: create a cohesive business model for each interrogative by transforming the Scope items into an explicit description of the business. These models recognize the formal and integral concepts, which constitute the enterprise.

Third: design the necessary systematic representations of the business for each interrogative, which will allow for any technological implementation, without distorting the business model (what the business owners had in mind).

Fourth: establish the general technology standardizations that are allowed as the current or desired state for enterprise operations so that the embodiment of the system design is not distorted, nor by inference the business model.

Fifth: implement the detail representations, which force the use of integrated component solutions for the enterprise. This allows the understanding of how the enterprise is being distorted or being pulled away from its core models (values) by various implementations.

One can readily see the value in this prioritization and that it is far too often implemented in the opposite order, such as: 'I have a vendor solution; let me see if I can find an enterprise business problem to solve'. The perspective ordering allows the business to drive change, and also lessens the frivolous technology-driven business changes.

What is not so obvious on first reading is how the perspectives deal with managing change. Assume that there is a time delay from concept identification to enterprise implementation. Such change will necessarily need to proceed through rethinking the business concepts and understanding, retooling of the business representation logic, and the rebuilding of technological infrastructures, and finally recreating the new detailed representations of the enterprise. The speed at which change is made is dependant on how fast enterprise engagement and change mechanisms can be tuned and linked. Management of these changes often requires a 'champion' because of the heroic effort needed to actually cause the ship to turn. Here is the simple idea: retain the previous intellectual costs as a reuseable investment and only rework the steps necessary, rather than starting from scratch for each change initiative. With each change initiative, always build a few reusable components for the future.

This is a novel management concept: don't redo work a hundred times when once will suffice.

This is a novel accounting concept: change the expenses into assets because they apply to longer than one accounting period.

This is a novel engineering concept: use a standard interchangeable part rather than custom-making each component part.

This is a novel architecture concept: Study what the owner requires: don't build a 35-story office tower in place of distribution centre.

Zachman's Enterprise Architecture is a simple and elegant approach to thinking about your enterprise. It is not a cookbook, "nor a silver bullet", but rather a way to place value and direction on the complexity and change facing every business.

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