Update

Enterprise Architecture Advisory Service
Executive Update Vol. 13, No. 21

An EA Way of Thinking

by Sebastian Konkol, Senior Consultant, Cutter Consortium

Enterprise architecture (EA) is a way of thinking about the IT assets that a company possesses. It consists of various tools and is built on concepts that can be used in many ways, but the "EA way of thinking" should be applied consistently and appropriately. In a recent project, my colleagues and I applied available EA tools to assure success in the implementation and rollout of a major information system.

With this *Executive Update,* I will share some insights about our approach — applying an "EA way of thinking." As we all know, reality has its own plans and customs, and they usually are a bit different from ours; we will always have something to learn.

THE CONTEXT AND GOAL

For this project, we were working for a group of news and publishing companies whose business is to gather information and publish daily newspapers and books. They also have a presence in Internet news publishing. The project goal was to implement and roll out an enterprise resource planning (ERP) system with specialized business intelligence (BI) tools customized to the needs of the group and its processes. What made the project difficult was the complexity of organizational dependencies among the companies (the various project members) and the complexity of the information systems environment in which ERP and BI were to be integrated.

As occurs in such projects, the company responsible for implementing the ERP focused strongly on the system, with no contractual room for taking care of the broader context. To fill this gap, we were asked to join the project. Our goal was to provide assurance — to ensure that the information systems environment would be ready for implementing ERP and BI and that it could produce from day one. Thus, we provided architectural assurance among other such functions. "Architectural assurance" was defined as acquiring system consistency and ensuring an interface with the rest of the IT environment.

THE APPROACH

We decided to apply EA tools and concepts as a framework for gaining control over implementing the ERP/BI systems. We chose to engage an IT team as well as businesspeople to help with the architecture. The goals for our work considered some specific areas:

- **Looking for inconsistencies or discontinuities in implementing business processes** — assuring there are no gaps or redundancies in those to be covered (at least partially) by the ERP/BI system
- **Optimizing the assignment of systems' functions** — recommending which could be moved from the IT system where they were initially planned to another system, to include some global efficiency measures
- **Determining patterns, schemes, and technology for each particular interface** — creating and rolling out standards for interfacing ERP/BI, including reusable services for an Enterprise Service Bus (ESB)

The task was a bit more complicated, because — in parallel to implementing the ERP/BI systems — three other projects were underway. The company considered introducing a metadata management platform, consolidating a repository of business partners, and putting into effect a system for product planning. Each of these projects represented some important modification to an IT systems environment, which would influence the ERP/BI project in many ways.

Our general plan was as follows:

- Build on the results of the analysis that the ERP/BI team performed in its effort to define processes covered by these systems and then extend them to assure each process that enters or exits the ERP is properly captured and handled "on the other side" of potential interface.

- Globally optimize the systems' functions by taking into account time and costs, as well as other variables (e.g., accessibility of test environment, consolidation with other functions, and scope of technological support).
- Standardize and rationalize the methods for interfacing the systems based on the ESB, assuming independency among the information systems.

As a result, our application of enterprise architecture focused on the special perspective of the interoperability of the new ERP and BI components, with the goal of assuring rollout success from day one. We assumed strong engagement from the businesspeople in our architectural work. We were told that their earlier requirements were to present them with the architecture and describe the technical approach for implementation.

Since the core of the work was to prepare an appropriate architecture model, we initially equipped ourselves with a metamodel for enterprise architecture, which was derived from a general-purpose ArchiMate model.[1] In that metamodel, we focused on business objects exchanged between ERP/BI and "the rest of the world." We decided on such a focus because it was supposed to help us gain control over the architecture assurance task. We believed it should support identification of gaps and redundancies in implementing processes. Moreover, such a model was the most applicable for direct use in defining a canonical data model, which in turn should be used in the scope of integrating ERP and BI with other information systems.

THE REALITY

All our plans depended on some assumptions. Most proved to be valid; unfortunately, we did not manage to validate all of them. In addition, we faced some other problems, which made us change the initial plans.

The first issue was related to the attitude and motivation on the part of the firm implementing the ERP system. The contract the firm was awarded was highly important to them because of its strong marketing potential. This forced a focused on instituting each requirement; customer disappointment was not considered an option. An overmotivated contractor can harm a project as much as an undermotivated one, but problems are much more difficult to detect in the former. This attitude resulted in a lack of reflection about the importance of requirements and fewer challenges to statements by the business. Thus, each requirement had been unquestionably taken into design. Such a "state of mind" rendered invalid our assumption that the team implementing the ERP/BI system would make reasonable decisions about the functions and design. Instead of relying on and extending the results of the ERP/BI system analysis, we had to verify and rationalize them.

The second issue was rooted in the ERP/BI team's approach to requirements analysis. The methodology assumed that businesspeople would be engaged in the work on requirements. Although appropriate in general, in this particular case, it did not work. Due to the scope and complexity of implementing ERP, internal IT people were not able to assure consistency in the whole analysis effort since businesspeople took control. Because of the first issue mentioned above, the firm implementing the ERP system was not able to perform thorough analysis. The firm simply accepted everything that the businesspeople said, making implicit promises to deliver without regard for the costs and effort to be spent on the rest of the IT systems environment. The result? The ERP/BI system was designed based on the way the businesspeople understood the state of the IT systems, with unvalidated assumptions made during the analysis. (My favorite example is interfacing an existing IT system with a project aimed at delivering new functions, existing or not yet designed, in various IT systems.) In turn, this invalidated our assumption that the results of ERP/BI system analysis would be usable. Instead of making decisions about what is feasible, the ERP system design presented quite a challenge to the IT staff — both technical (how to understand, what interface is really required?) and political (how to explain to businesspeople that some things are not feasible?).

The third issue concerned our work and method. We wanted to document the metamodel architecture, which we developed based on ArchiMate. We wanted to have it modeled to detect problems related to our main areas of responsibility (inconsistencies in implementing business processes, functions/systems optimization). After some work, we concluded it is difficult to describe and

 Print ISSN: 1554-7108 (*Executive Report*, *Executive Summary*, and *Executive Update*); online/electronic ISSN: 1554-7116.

document architecture components to perform this discovery automatically, by running queries that would answer such fundamental questions as identifying gaps, inconsistencies, or redundancies in business processes. We could not find that knowledge via "automagical" discovery. Gathering information about the level of details needed for this kind of discovery requires a level of effort that is unjustified economically and presents more of a philosophical than a technological challenge.

These issues rendered our initially planned approach inapplicable. We could not determine business architecture based on the results of ERP/BI system analysis, and we could not trust the data/applications architecture that the implementing firm had proposed. The top-down approach initially planned — from business processes to functional optimization to interfacing specifications — could not be made operational due to the lack of trust in fundamental information.

Finally, we decided to accept some additional risk and made our approach bottom-up. We started with the list of interfaces, which was the result of the ERP/BI systems analysis. We assumed all interfaces invalid and began to validate them one by one. The validation process required discussion with the ERP/BI analysis team, understanding the context of the data exchanged, and verification of the appropriateness of the data and context in the system interfaced. This allowed us to assure appropriate interfacing and productive use of the system from day one, but it did not give us the possibility of optimizing global architecture.

LESSONS LEARNED

Although we did not manage to accomplish all initial goals, we provided our customer with architectural assurance. And although we could not consider business architecture, the control covered data/application and technical architectures. We gained new work experience and learned some tough lessons, summarized below.

The first lesson considers dealing with businesspeople while engaging them within IT projects. Businesspeople are focused on their goals. They have to deal with their own problems and refuse to clarify issues they see as strictly technical (EA model clarity is a good example). Getting together through the task of requirements specification is good, but it requires the strong and judicious representation of IT's viewpoint. Requirements rationalization and expectations management are mandatory tasks.

The second lesson relates to enterprise architecture. Such a framework offers very efficient (though demanding) tools, which could be used to gain control over the implementation firm of the system integrator (in this case, the ERP/BI system implementation firm). Achieving even partial control is better than none, and EA tools are the best ones to reduce technical risks hidden in the project.

To conclude, real life is hardly ever as straightforward as planned. Although many things in the project I described went wrong and assumptions made were not always correct, an EA "way of thinking" proved its value and applicability.

ENDNOTE

[1]ArchiMate, the most recognized open standard for EA documentation, provides a unified way of modeling that approach. It is maintained by The Open Group, which publishes TOGAF. For more, see www.archimate.org.

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