Article

Yet Another Taxonomy for Enterprise Architecture Artifacts

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Abstract

The Enterprise Architecture (EA) literature provides a number of well-known taxonomies for organizing EA artifacts; e.g., the Zachman Framework. However, these taxonomies are often unable to unambiguously classify real EA artifacts used in successful EA practices. More importantly, existing taxonomies hardly explain the usage, purpose, and other critical aspects of EA artifacts. This article provides yet another taxonomy for EA artifacts which addresses these problems. The new taxonomy described in this article classifies EA artifacts from the perspective of their usage and purpose into six general types: Considerations, Standards, Visions, Landscapes, Outlines, and Designs (CSVLOD). These six general types of EA artifacts provide reasonably accurate descriptions of all EA artifacts used in organizations from the perspective of their usage, purpose, and specific roles in the context of an EA practice.

Keywords

Enterprise Architecture (EA), Artifacts, CSVLOD, Taxonomy

INTRODUCTION

Enterprise Architecture (EA) is a systematic description of an organization from an integrated business and IT perspective, intended to facilitate information systems planning and improve business and IT alignment. Traditionally, EA was closely associated with various taxonomies explaining how exactly individual EA artifacts constituting this description should be organized. Starting from the earliest architectural taxonomies (King & Zmud 1981; Wardle 1984), numerous EA frameworks including PRISM (PRISM 1986), Zachman (Zachman 1987), STRIPE (Connor 1988), TEAF (TEAF 2000), EA Grid (Pulkkinen 2006), E2AF (Schekkerman 2006), IAF (van't Wout et al. 2010), and EA^{3}Cube (Bernard 2012) proposed various classification schemes for organizing EA artifacts. These taxonomies structure EA artifacts according to their domains, abstraction levels, perspectives, views, interrogatives, and segments. At first glance, existing EA frameworks seemingly provide an exhaustive set of classifications for EA artifacts along all possible dimensions.

However, the surprising fact is that all the existing EA frameworks in their classifications ignore arguably the most important aspect of EA artifacts. In particular, none of the existing taxonomies attempts to organize EA artifacts based on their intended usage and ultimate purpose in the context of an EA practice. As a result, despite the variety of available taxonomies for classifying EA artifacts, these taxonomies are still unable to describe their real practical meaning, as if the only goal of developing EA artifacts is to describe an organization from all possible viewpoints. Unsurprisingly, EA often ends up in an "ivory tower" and becomes worthless "shelfware" (Levy 2014; Lohe & Legner 2014).

Moreover, my analysis of real EA artifacts used in successful EA practices shows that they typically cannot be allocated to specific cells of most EA frameworks based on their domains, abstraction levels, or interrogatives, but rather occupy multiple different cells simultaneously. For example, architectural diagrams that proved useful in practice commonly describe the relationship between business processes, supporting applications, data entities, and underlying infrastructure and, therefore, cannot be related to any single EA domain as proposed by many EA frameworks; i.e., to business, data, applications, or technology. Likewise, EA artifacts created for specific initiatives – e.g., conceptual architectures and detailed designs – in most cases provide holistic views of the corresponding solutions and, therefore, cannot be related to single interrogatives; e.g., what, how, where, or why.

For these reasons existing taxonomies cannot classify real EA artifacts and seem useless for all practical purposes. For instance, EA practitioners report that they use the Zachman Framework merely:

"… as a static model, which is pinned on walls in many rooms without far-reaching consequences."

Evernden (2015 p.29) fairly argues that:

"… many practitioners see frameworks as theoretical or conceptual rather than a highly practical everyday device for managing and thinking about architectures."

Consequently, popular classification taxonomies for EA artifacts neither describe the essential properties of EA artifacts, nor even classify EA artifacts in any real sense. Instead, my analysis of EA artifacts used in successful EA practices suggests yet another, more realistic and

practical taxonomy for EA artifacts which describes their usage, purpose, and other critical aspects.

TWO DIMENSIONS FOR CLASSIFYING EA ARTIFACTS

My analysis of typical EA artifacts used in multiple organizations of various sizes and industries successfully practicing EA shows that these EA artifacts can be classified across two orthogonal dimensions explaining their essential properties in the context of an EA practice. The first dimension classifies EA artifacts based on *what* these EA artifacts describe. All EA artifacts can be classified along this dimension into three distinct groups (starting from the most generic and ending with the most specific): Rules, Structures, and Changes. Rules EA artifacts describe broad global rules defining the organization or its divisions. The main purpose of all Rules EA artifacts is to help achieve consistency and homogeneity of all planning decisions. Structures EA artifacts describe high-level structures of the organization or its parts. The main purpose of all Structures EA artifacts is to help understand what changes are desirable and how to implement them. Finally, Changes EA artifacts describe specific proposed changes to the organization. The main purpose of all Changes EA artifacts is to help plan separate changes in detail.

The second dimension classifies EA artifacts based on *how* these EA artifacts describe. All EA artifacts can be classified along this dimension into two distinct groups: Business-Focused and IT-Focused. Business-Focused EA artifacts tend to be technology-neutral and use business language (e.g., money, customers, capabilities, business goals, competitive advantages, etc.). These EA artifacts are intended largely for senior business managers and essentially represent "interfaces" between business and IT. The main purpose of all Business-Focused EA artifacts is to help business leaders manage the IT side of their businesses. On the contrary, IT-Focused EA artifacts tend to be purely technical and use IT-specific language (e.g., systems, applications, databases, platforms, networks, etc.). These EA artifacts are intended largely for architects and senior IT managers and represent internal IT tools "invisible" for business. The main purpose of all IT-Focused EA artifacts is to help architects organize IT.

The intersection of the two orthogonal dimensions for classifying EA artifacts described above produces the taxonomy with six general types of EA artifacts: Considerations, Standards, Visions, Landscapes, Outlines, and Designs (CSVLOD).

RESULTING TAXONOMY FOR EA ARTIFACTS

Considerations, Standards, Visions, Landscapes, Outlines, and Designs represent six general types of EA artifacts used in successful EA practices and all real EA artifacts (however, with some rare exceptions) can be unambiguously allocated to one of these types. Despite the diversity of EA artifacts belonging to each type, these six general types reasonably accurately describe the usage, purpose, and other essential properties of these EA artifacts. The analysis of EA artifacts that proved useful in organizations for each of the six general types also shows that these artifacts actually have only a limited overlap with the popular catalogs of EA artifacts; e.g., with the TOGAF Architecture Content Framework (ACF).

Considerations are Business-Focused Rules EA artifacts. All these EA artifacts describe global conceptual rules and fundamental considerations important for business and relevant for IT. Typical EA artifacts related to this general type include principles, policies, maxims, core drivers, position papers, strategy papers, and conceptual data models (some of these EA artifacts – e.g., principles – are included in the TOGAF ACF). Considerations are developed collaboratively by senior business leaders and architects and updated on a periodical basis, often yearly. After being developed they are used to influence all architectural decisions during the development of all other types of EA artifacts. Considerations define the overall context for information systems planning and essentially represent general organizational philosophy of the relationship between business and IT. The main purpose of Considerations is to help achieve the agreement on basic principles, values, directions, and aims.

Standards are IT-Focused Rules EA artifacts. All these EA artifacts describe global technical rules, standards, patterns, and best practices relevant for IT systems. Typical EA artifacts related to this general type include guidelines, standards, patterns, IT principles, detailed data models, and different types of reference models (some of these EA artifacts – e.g., patterns – are included in the TOGAF ACF). Standards are developed and periodically updated by architects and technical subject matter experts. After being developed they are used to influence architectures of all IT solutions described in Outlines and Designs. Standards define recommended organization-wide technical approaches and essentially represent proven reusable means for IT project implementation. The main purpose of Standards is to help achieve technical consistency, technological homogeneity, and regulatory compliance.

Visions are Business-Focused Structures EA artifacts. All these EA artifacts provide high-level conceptual descriptions of the organization from the business perspective. Typical EA artifacts related to this general type include business capability models, value reference models, business context diagrams, future state architectures, and different types of roadmaps (some of these EA artifacts – e.g., value chain diagrams – are mentioned in the TOGAF ACF). Visions are developed collaboratively by senior business leaders and architects during strategy planning sessions. After being developed they are used to guide IT investments, prioritize proposed initiatives, and initiate new Outlines for

commencing projects. Visions provide convenient instruments for strategic decision-making and usually represent agreed and shared long-term goals for business and IT. The main purpose of Visions is to help achieve the alignment between IT investments and business outcomes.

Landscapes are IT-Focused Structures EA artifacts. All these EA artifacts provide high-level technical descriptions of the organizational IT landscape. Typical EA artifacts related to this general type include platform architectures, relational diagrams, application portfolios, integration contexts, system interaction diagrams, inventories, and different types of technology roadmaps (some of these EA artifacts – e.g., various technical diagrams – are mentioned in the TOGAF ACF). Landscapes are developed by architects and maintained current as the IT landscape changes; e.g., after a new project has been completed. After being developed they are used to support technical decision-making and facilitate the planning of Outlines and Designs for specific IT projects. Landscapes usually document the structure of the currently available IT assets (less often the structure of the planned future IT assets) and represent reference materials for general technical planning. The main purpose of Landscapes is to help rationalize the IT landscape, manage the lifecycle of IT assets, and plan new IT initiatives.

Outlines are Business-Focused Changes EA artifacts. All these EA artifacts provide high-level descriptions of specific initiatives with IT components understandable to business leaders. Typical EA artifacts related to this general type include conceptual architectures, solution overviews, conceptual designs, solution briefs, preliminary solution architectures, and solution outlines (none of these EA artifacts are mentioned in the TOGAF ACF). Outlines are developed collaboratively by architects and business leaders at the early stages of all initiatives based on the longer-term strategic plans described in Visions. After being developed they are used to support business cases for new initiatives, evaluate, approve, and fund specific projects. Outlines provide convenient instruments for tactical decision-making and essentially represent value, time, and price tags for proposed projects. The main purpose of Outlines is to help estimate the overall business impact and value of specific change initiatives.

Designs are IT-Focused Changes EA artifacts. All these EA artifacts provide detailed technical descriptions of specific IT projects actionable for project teams. Typical EA artifacts related to this general type include detailed designs, solution definitions, full solution architectures, project-start architectures, solution specifications, physical designs, and technical designs (none of these EA artifacts are mentioned in the TOGAF ACF). Designs are developed collaboratively by architects, project teams, and business representatives for all IT projects based on the previously agreed and approved Outlines for these projects. After being developed they are used by project teams to implement IT systems as planned. Designs provide convenient instruments for project implementation and essentially represent “interfaces” between architects and project teams. The main purpose of Designs is to help implement new IT projects according to business and architectural requirements.

The resulting CSVLOD taxonomy for EA artifacts with the most typical illustrative examples of the six general types of EA artifacts is shown in Figure 1.

VALUE OF THE PROPOSED TAXONOMY

Although the EA literature already offers numerous well-known taxonomies for organizing EA artifacts, these taxonomies are unable to explain the usage, purpose, and other critical aspects of EA artifacts. Moreover, existing taxonomies are unable even to unambiguously classify real EA artifacts used in successful EA practices. The new, yet another, CSVLOD taxonomy described in this article (see Figure 1) addresses these problems and provides a convenient way to understand EA artifacts. Surprisingly, this taxonomy also offers arguably the first holistic research-based model of EA derived from actual empirical evidence, rather than prescribed based on speculative conceptual considerations.

Despite its apparent simplicity, the six general types of EA artifacts defined by the CSVLOD taxonomy (Considerations, Standards, Visions, Landscapes, Outlines, and Designs) provide reasonably accurate descriptions of all EA artifacts used in successful EA practices from the perspective of their usage, purpose, and specific roles in the context of an EA practice. The CSVLOD taxonomy has multiple applications in the EA discipline and can be helpful to different groups of people including practicing Enterprise Architects and architecture managers in organizations as well as EA students and lecturers in universities.

Firstly, the CSVLOD taxonomy provides a generic sense-making device and a practical tool for thinking about EA, which allows putting all EA-related discussions into appropriate decision-making contexts. The taxonomy also helps illustrate the “constellations” of EA artifacts used in organizations, compare different sets of EA artifacts with each other, identify missing or redundant artifacts fulfilling similar purposes in an EA practice, and balance and optimize the entire EA documentation.

Secondly, the CSVLOD taxonomy describes in a straightforward manner the strong bilateral connection between the informational contents of EA artifacts and their practical usage. On the one hand, the taxonomy explains how exactly given EA artifacts can be used to benefit organizations. On the other hand, it also explains which EA artifacts are necessary for achieving specified goals and purposes. From this perspective, the CSVLOD taxonomy can help assess the “fitness for purpose” of

specific EA artifacts as well as their relevance to the actual organizational problems related to planning.

Finally, the CSVLOD taxonomy can be used for educational purposes. In particular, the taxonomy can explain the meaning of different EA artifacts to newbie or aspiring architects in organizations. It can also be used as a convenient reference model for teaching EA courses at universities and professional trainings. Due to its simplicity, highly intuitive nature, and significant descriptive power, the CSVLOD taxonomy provides a valuable addition to the toolkit of the EA discipline.

ABOUT THE AUTHOR

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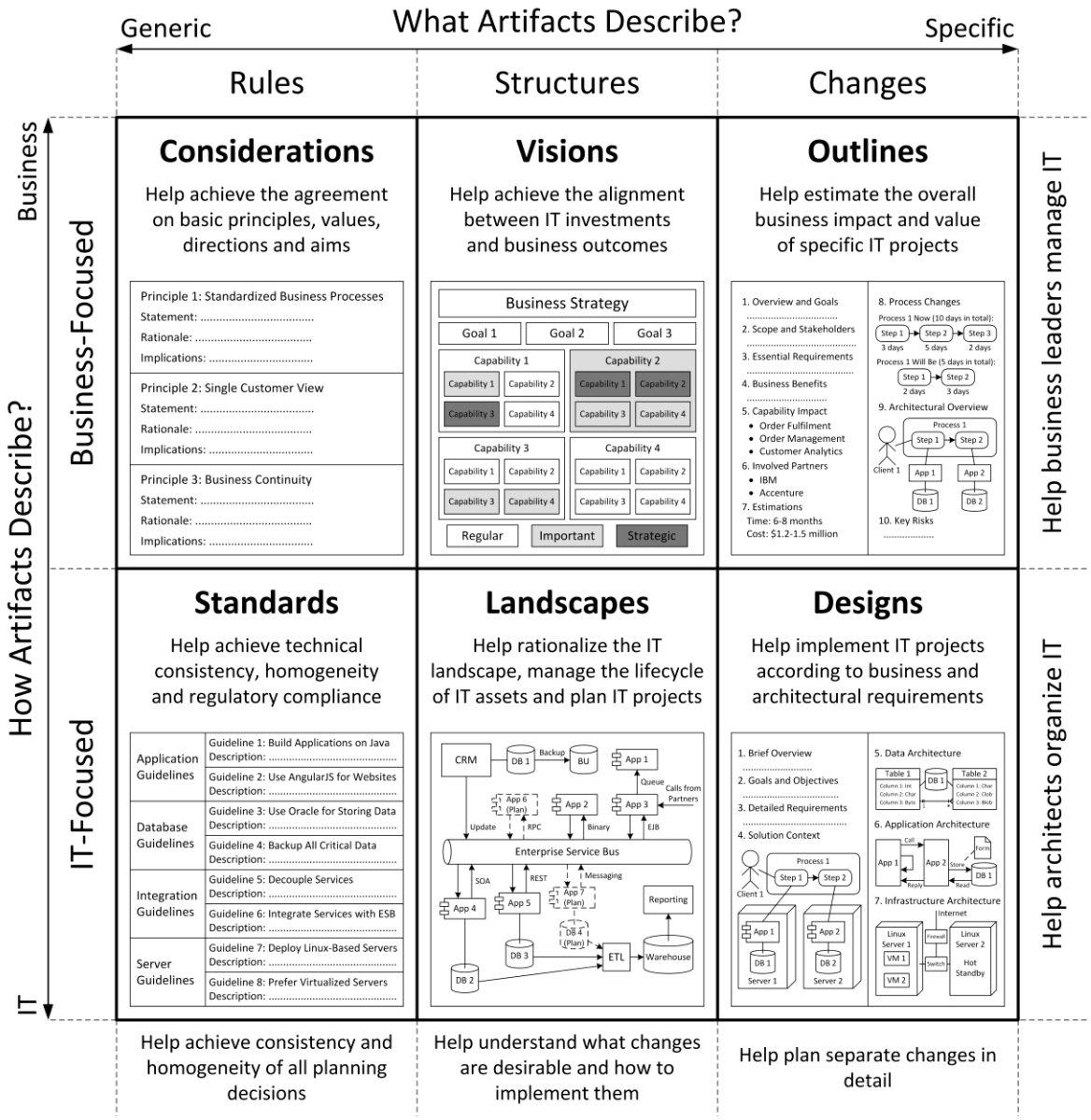

Figure 1: The CSVLOD Taxonomy for EA Artifacts

