

Enterprise Architecture: The Realms of Natural and Artificial

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Introduction

My analysis of the ongoing contradictory discourse in the discipline of enterprise architecture (EA) suggests that the EA community greatly suffers, among other things, from the confusion related to rather basic, even philosophical questions that underpin thinking. Specifically, one of the most critical issues that should be very clearly understood is the difference between *natural* and *artificial*¹. This difference has profound implications for the entire EA discipline. In my view, many current problems of the EA discipline can be attributed to the inability to distinguish what is natural and what is artificial in the EA domain, and treat respective phenomena appropriately. Considering the realms of natural and artificial separately provides a certain conceptual framework for understanding what is going on in the EA discipline.

The Realm of Natural

The realm of natural is created, unsurprisingly, by the nature according to its own inscrutable rules and logic with no specific purpose and no regards to the interests of humans. People consider natural things simply as given, i.e. as something that cannot be changed, even if it is highly desirable. In other words, people cannot alter natural laws, objects and phenomena, but can only adapt their own behavior to these natural phenomena via leveraging their beneficial aspects and mitigating their negative implications. For example, if it is raining, people can harvest the rainwater for sustainable agriculture and use umbrellas to stay dry, but they cannot “cancel” the rain.

From the perspective of enterprise architecture, the realm of natural relates primarily to human psychology, laws of organizational behavior and microeconomics. Most importantly, in an EA practice the nature is manifested in three critical facts of life well-known to all experienced architects. Firstly, the business environment is inherently uncertain and reflected only in shifting probabilistic forecasts, but nobody knows for sure what exactly will happen. Then longer the time horizon, then less certain is the future. Secondly, the human brain capacity is limited, people tend to be experts in specific subject areas, but nobody can understand equally well all aspects of business and IT in organizations. Thirdly, “hard” technical thinking inherent to most IT specialists is pretty different from much “softer” thinking inherent to senior business executives.

These three facts arguably constitute the core of the business and IT alignment problem and justify the very need for enterprise architecture. Although these facts cannot be avoided, architects can develop certain planning approaches for alleviating their negative consequences for organizations still staying within the boundaries of nature, e.g. plan at the level of detail appropriate for specific time horizons and create EA artifacts understandable to both business and IT stakeholders.

The Realm of Artificial

The realm of artificial is created by humans according to their interests and needs. Unlike natural phenomena, artificial objects are always designed to fulfill specific purposes. Though restricted by the laws of nature, artificial things leverage the understanding of these laws in their favor to maximize their fitness for purpose. For example, based on the knowledge of physics and mechanics, people can design cars to provide a convenient means of transportation. As people improve their understanding of the relevant laws of nature, they can create more perfect cars to better serve their purpose.

While natural phenomena are always taken for granted and cannot be criticized, artificial creations can and should be the subject of critique to enhance their fitness for purpose. When artificial objects designed with a particular purpose in mind are unable to fulfill this purpose in a satisfactory manner, these objects are discarded and new, better objects are created instead of them in order to achieve the intended purpose. For example, cars that do not ride, or ride badly, are replaced with improved cars that ride well. A constant critical scrutiny of artificial creations enables their continuous improvement and perfection.

From the perspective of enterprise architecture, the realm of artificial encompasses various approaches, techniques and tools developed by people to address the problem of business and IT alignment in organizations. These artificial creations cannot ignore the laws of nature and should necessarily take into account the three critical facts of life related to enterprise architecture described earlier.

What Happens in the EA Discipline?

Unfortunately, the actual situation in the natural and artificial realms of the EA discipline barely resembles the normal, or ideal, picture described above in many important aspects. Firstly, the laws of nature relevant to enterprise architecture, though intuitively felt by experienced architects and discussed occasionally here and there, are arguably still far from being clearly formulated and widely acknowledged, which means that the EA discipline still lacks a sound conceptual foundation to delineate the limits of possible solutions to the problem of business and IT alignment, e.g. understand which solutions can and cannot work in principle and why. This situation can be metaphorical compared with the attempts to design cars while having only an approximate understanding of mechanics and physics.

Secondly and more importantly, the most famous manmade approaches and techniques developed to address the problem of business and IT alignment simply neglect, or even directly contradict, the three fundamental EA-related laws of nature described earlier. For example, all the most popular EA frameworks, e.g. TOGAF, FEAF and DoDAF, recommend describing the desired future state with heaps of various EA artifacts. However, the inherent environmental uncertainty suggests that the current organizational plans will most likely change in the future and render all these piles of documentation obsolete and useless, which means that the very planning approach advocated by the “definitive” EA frameworks simply cannot work due to objective natural reasons. Or take, for example, ArchiMate. ArchiMate is actively promoted as a modeling language for enterprise architecture. However, the fact of life is that most business executives are “afraid” of formal technical drawings, which means that ArchiMate with its sophisticated graphical notations is simply unable to facilitate the dialog between business and IT, especially at the strategic level. Surprisingly, but the most widely known artificial creations in the EA discipline were originally designed in a way that they simply cannot fulfill their intended purposes because of fundamental natural reasons. These creations can be metaphorically compared with strange cars having square wheels that obviously cannot ride.

Thirdly and more strangely, despite the evident problems with many artificial instruments for enterprise architecture, these instruments are not improved over time according to accumulated experience and learnt lessons. Take, for example, TOGAF. TOGAF was originally positioned, and is still declared, to be a “methodology” for enterprise architecture^{2, 3}. However, the practical implementation of its prescriptions close to the text will inevitably ruin an EA practice, partially because of the reasons mentioned above. Nevertheless, nobody is trying to improve the methodology, align it to the laws of nature and correct its fundamental flaws⁴. Since 1995 exactly the same unrealistic methodology with routine “cosmetic” revisions is persistently promoted by The Open Group again and again. Similarly to TOGAF, other popular EA frameworks also stay practically unchanged for decades. As purely artificial creations, current EA frameworks can be metaphorically compared with the statues of cars carved in stone that can neither ride nor be repaired to ride.

Fourthly and more curiously, instead of improving the fitness for purpose of artificially created instruments for enterprise architecture, the purpose itself is essentially denied. For example, instead of refining the methodology, TOGAF gurus now more often argue that “TOGAF was actually never intended to be implemented”. This statement seems paradoxical: the artificial text written to be an EA methodology and positioned accordingly is actually not expected to provide any actionable guidance for an EA practice. Such manmade artifacts can be metaphorically compared with curious cars that were intentionally manufactured by people to be a means of transport, but were never expected to ride.

Finally and most absurdly, many manmade instruments are positioned as fundamental to enterprise architecture essentially pretending to substitute the nature itself, i.e. prescribe natural laws instead of discovering and leveraging them. For instance, the opinion that EA frameworks are “fundamental to the EA discipline” can be heard rather frequently. Most egregiously, the Zachman Framework is often promoted as “enterprise physics” or even as a “periodic table” for enterprise architecture^{5, 6, 7}, as if the cells of the Zachman Framework were created by the nature itself similarly to chemical elements and the laws of physics. Unsurprisingly, many architects say that they try to align their EA practices to EA frameworks, rather than to natural organizational realities. At the same time, EA frameworks themselves are rather rarely criticized and questioned, while EA trainers typically argue that EA frameworks are very important, but, like most “religious” texts, they just cannot be “understood literally” and should always be “properly interpreted”, “adapted to organizations’ culture” and “applied selectively”, though without explaining how it should be done or why they are so important. From this perspective, many EA instruments of purely artificial origin can be metaphorically compared with the cars that became the objects of cult and worship, considered as divine, God-given, eternal and impeccable.

However, the nature cannot be fooled even by the most cunning marketing specialists and crowds of commercially motivated gurus, trainers and “thought leaders” eager to sell their useless artificial trinkets. Numerous widely promoted step-by-step EA methodologies, comprehensive matrices with cells and formal EA modeling languages simply cannot work successfully in the real world since they contradict the actual laws of nature. And certainly they cannot substitute the nature. The EA discipline also cannot develop into a true profession by ignoring the laws of nature and adopting faddish artificial approaches most of which are obviously unfit for purpose^{8, 9}, i.e. unable to facilitate business and IT alignment in any real sense. Sooner or later all these faddish approaches have to be replaced with the new artificial instruments that fit for purpose, aligned to natural organizational realities, do not require any mysterious “proper interpretation”, can be clearly understood by normal people and actually help architects mitigate the imperfectness of the world^{10, 11}. The discussion of the natural and artificial realms of the EA discipline is briefly summarized in Figure 1.

The Realm of Natural	The Realm of Artificial
Origin: Created by the nature according to its own rules and logic with no specific purpose	Origin: Created by humans according to their interests and needs to serve specific purposes
General Examples: Human psychology, organizational behavior and microeconomics	General Examples: EA frameworks, modeling languages and other proposed techniques for enterprise architecture
Specific Examples: Environmental uncertainty, specialization of skills, different business and IT languages	Specific Examples: TOGAF, FEAF, Zachman Framework and ArchiMate
Right Attitude: Consider as given, discover, understand and leverage or mitigate when possible	Right Attitude: Constantly criticize and improve their fitness for purpose according to the knowledge of nature
Wrong Attitude: Ignoring, neglecting or trying to change the fundamental laws of nature	Wrong Attitude: Consider as fundamental, justify their inapplicability, reinterpretation instead of improvement, adapting to them instead of adapting them
Actual Situation: Natural laws are intuitively understood, but not clearly formulated and widely acknowledged	Actual Situation: Contradict the laws of nature, taken for granted, have unclear purposes and do not get improved
Metaphor: "Proto-science of middle ages"	Metaphor: "Unrepairable cars that cannot ride, or even are not expected to ride, but considered as gifts of Gods"
Required Actions: Better understand the nature, clearly formulate its laws and enlighten the EA community	Required Actions: Improve or replace current artificial instruments with better instruments that fit for purpose

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Figure 1. The Realms of Natural and Artificial in Enterprise Architecture

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