Enterprise Architecture: Forget Systems Thinking, Improve Communication

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Introduction

Enterprise architecture (EA), as a set of planning approaches and techniques, is widely regarded as an instrument for improving business and IT alignment in organizations. In mainstream literature, the very concept of enterprise architecture was always strongly associated, if not equated, with systems thinking. The reasons for this linkage are rather evident: modern enterprises represent complex socio-technical systems consisting of numerous interrelated business and IT components, or hierarchical systems of systems. "Enterprise architects often make a big deal about an enterprise being a system of systems, but, really, everything that we as enterprise architects are likely to think of as a system is likely to be a system of systems", explained the late Len Fehskens, the chief editor of the Journal of Enterprise Architecture[1] (page 12).

Systems thinking calls for attending to things in a holistic way, understanding mutual dependencies between various system elements and uncovering existing feedback loops in their dynamic behavior. Unsurprisingly, systems thinking is praised by many EA gurus and academics. Some people claim that systems thinking "can be considered a basic principle of EA"[2] (page 7), while others go even further and argue that "enterprise architecture is a way of using system thinking as an instrument to integrate and align all organizational levels"[3] (page 5). It would be arguably fair to say that today systems thinking represents one of the core paradigms occupying the mindset of EA practitioners, if not the single most prominent paradigm. And yet, is systems thinking actually so helpful for architects and EA practices?

Minor Problem with Systems Thinking

One problem with systems thinking as a paradigm for EA practitioners is its general triviality and inability to provide any actionable suggestions. On the one hand, since any rational thinking inevitably implies identifying various cause-and-effect relationships between relevant entities and these processes happen naturally and unconsciously in the human brain, almost all sane thinking is essentially systems thinking. It is hard to imagine a serious act of thinking that does not try to foresee and take into account possible organizational implications, ensuing consequences and side effects of the corresponding planning decisions. For this reason, "systems thinking" is not much different from simply "thinking", or at least from intelligent thinking, and unintelligent people rarely rise to positions of responsibility in organizations. Except for patently naïve judgements and sheer leaps of faith, systems thinking is a truism, largely ordinary thinking.

On the other hand, the entire systems thinking discourse has essentially nothing to show in terms of valuable recommendations for EA practitioners. For instance, an examination of popular books on systems thinking[4, 5, 6] suggests, at least to me, that these books are barely relevant to the daily activities of architects in organizations. These books are teeming with clever sounding, but practically meaningless notions (e.g. equifinality) and statements (e.g. the whole is greater than the sum of its parts) none of which arguably has any definite inferences or lessons for an EA practice. Even the specialized book of almost 500

pages long that promises to apply systems thinking in an EA practice[7], in my opinion, fails to fulfill its promise. Despite that the topic of systems thinking is astonishingly popular within the EA community, any concrete explanations of how exactly advanced systems thinking helps architects can hardly be found (beyond intuitive common-sense ideas).

For the most part, systems thinking is nothing more than a mere glorification of holism having no particular implications for architects, EA practices and organizations. Theoretically, it borders with pseudo-science, with the exception of apparent platitudes (e.g. all things are interrelated), having no real descriptive or prescriptive power. Like many other industry buzzwords (e.g. agile[8, 9]), systems thinking sounds extremely attractive and is largely synonymous with *good* thinking. The virtue of systems thinking is hard to deny, even though this term remains mostly a cliché. For example, who would dare to argue against systems thinking and promote unsystematic, haphazard or chaotic thinking instead?

Major Problem with Systems Thinking

Another and much more severe trouble with systems thinking as a paradigm is the very emphasis on "thinking" which obscures the true nature of organizational inefficiencies, hides the root causes of disconnection between business and IT, masks the real challenges of achieving alignment and diverts architects from finding their practical solutions. The problem here is that thinking by definition represents an isolated private mental activity, whereas improving business and IT alignment in organizations always requires exerting *collective* efforts involving multiple actors and, thus, represents an inherently *social* activity. Specifically, at least two aspects of organizational reality undermine the productivity of any personal thinking exercises and decision-making attempts: incomplete knowledge and limited power. Each of these aspects alone is sufficient to minimize, if not nullify, the value of systems thinking for architects and EA practices.

On the one hand, no single person in an organization is competent enough and possesses all the necessary knowledge for making optimal planning decisions. For example, C-level executives understand long-term business strategy, product managers – current customer needs, IT leaders – available technology capabilities, software developers – down-to-earth implementation details. Hence, all decisions that relate to business and IT alignment should be contributed to by all the relevant parties with complementary expertise to ensure their overall efficacy, rather than be made by some lone architects or any other actors equipped with systems thinking. Even the most brilliant solitary systems thinkers cannot obtain, process and leverage all the pertinent information for effective decision-making, collective engagement is required.

On the other hand, no one in an organization wields unlimited power and is capable of enforcing a successful execution of a decision that is resisted by other stakeholders, deemed unreasonable or neglects their essential concerns, let alone is poorly grasped by its implementers. Instead, all decisions should be understood, agreed and committed to by all the relevant parties. Put it simply, every idea of an individual actor has to be "sold" to other significant actors in order to turn into a legitimate organizational decision and be acted upon. For this reason, best decisions in practice are those that reconcile and satisfy everyone's interests, rather than those that look impeccable from architects' point of view as chief systems thinkers. Even the most "theoretically" perfect planning decisions from the systems thinking perspective will not be treated seriously unless they are accepted by all their stakeholders.

Due to the social, rather than mental, nature of decision-making processes in organizations, better business and IT alignment simply cannot be achieved by means of improving thinking, be it systems thinking or any other special sort of thinking, e.g. design thinking or architectural thinking. Architects' private thinking, including systems thinking, is

largely irrelevant to the actual alignment challenges faced by organizations as collectivities of interacting people with diverse backgrounds, responsibilities and goals. Taking into account that systems thinking currently represents one of the foundational paradigms for EA practitioners, it should not be particularly surprising that many architects are perceived by their colleagues as lone visionaries, arcane denizens of ivory towers, idealistic builders of imaginable cloud castles existing separately from the reality around them. Such architects more often get fired than enact any positive organizational changes. At the same time, systems thinking on an enterprise-wide scale can be considered only as an unattainable ideal, which is desirable in principle, but unrealizable in practice, or as something that can be dreamed about, but never materialized.

From Systems Thinking to Communication

The analysis provided above demonstrates that systems thinking, as a personal mental disposition, besides being a trivial idea, is essentially orthogonal to the social problem of alignment. Aligning business and IT elements of organizations requires improving *interpersonal* information exchange between various stakeholders and establishing *collaborative* decision-making procedures, rather than merely thinking differently. For this reason, systems thinking on its own, no matter how well-developed, is unable to deliver any significant organizational enhancements (besides that, it is also debatable whether or to what extent systems thinking can be developed in an individual). In other words, systems thinking as a paradigm for EA practitioners is mostly futile, it cannot really benefit EA practices and drive the EA discipline forward.

At the same time, achieving business and IT alignment in organizations clearly correlates with the goal of improving *communication* between various organizational actors. On the one hand, effective communication boosts information sharing which, in turn, allows making optimal planning decisions based on all the available information. On the other hand, effective communication facilitates open discussions of planning decisions, their critical evaluation, informed acceptance and group commitment to their execution. Thereby, communication addresses the limitations of both knowledge and power inherent to individual actors discussed earlier. Essentially, ideal communication between its employees turns an organization into a single "big brain" capable of making optimal planning decisions via collective intelligence, securing global commitment to their implementation and coordinating everyone's efforts and activities.

Therefore, an EA practice is, first of all, a *communication* practice, rather than a systems thinking practice. From the practical perspective, it is communication, not thinking, that provides the key to solving organizational problems with business and IT alignment. In fact, most elements of an EA practice (e.g. processes, documents, tools, etc.) serve the purpose of enabling better communication. Although communication is a less popular, "unfashionable" and largely unnoticed subject in the EA literature, the paradigm of communication actually offers some clear and actionable objectives for EA practitioners that are likely to improve alignment in organizations.

Improving Communication as a Practical Imperative

The imperative of enhancing communication between business and IT stakeholders yields numerous practical suggestions conducive to the quality of decision-making in an EA practice and, eventually, to business and IT alignment. Even though these suggestions are very diverse and cover various aspects of an EA practice, the three major target areas include EA-related processes, documents and governance procedures. The respective suggestions can be best formulated as questions answers to which should be sought by architects, all of which can be clearly traced to the common goal of improving communication.

The first target area is decision-making processes related to enterprise architecture[10, 11]. With whom to communicate? Architects should identify and involve relevant stakeholders in decision-making processes. When to communicate? Architects should engage stakeholders at the right time moments, timely, typically early in the process. How to communicate? Architects should grope a common language suitable for communicating with different stakeholder groups. How to engage in communication? Architects should find the ways to ensure active stakeholder involvement, rather than merely their passive presence. How to communicate productively? Architects should develop constructive approaches for resolving conflicts between the stakeholders, alleviating contradictions and reaching closure on the final decisions. Answers to these and similar questions should be continually sought by architects to maximize the added value of collaboration processes and thereby promote business and IT alignment.

The second target area is EA-related documents, or artifacts[12, 13]. What EA artifacts are necessary for communication? Architects should choose which EA artifacts to employ to underpin conversations and capture achieved agreements, i.e. which decisions EA artifacts to use[14]. When to create EA artifacts for communication? Architects should decide at which phases of decision-making processes EA artifacts need to be initiated and finalized. How exactly to use EA artifacts for communication? Architects should find best approaches to leveraging EA artifacts for supporting joint decision-making. What information to include in EA artifacts for better communication? Architects should define the informational contents of EA artifacts to fully satisfy the information needs of their stakeholders. How to represent information in EA artifacts for effectual communication? Architects should determine the most efficient ways of packaging, structuring and visually presenting the information in EA artifacts to resonate with the thought processes of their audience. Answers to these and similar questions should be constantly searched by architects to increase the practical utility of EA artifacts and thereby facilitate business and IT alignment.

The third target area is governance procedures related to enterprise architecture, i.e. formal endorsement and authorization of EA-related decisions reflected in the respective EA artifacts. Whom should the proposed planning decisions be communicated to? Architects should identify pertinent senior managers capable of sanctioning and enforcing the execution of planning decisions. What information regarding the planning decisions should be communicated to senior decision-makers? Architects should extract the right, most essential information on the proposed decisions to be presented to decision-makers. How should the communication feedback be captured and handled? Architects should develop appropriate approaches for dealing with the reaction of decision-makers on the proposed planning decisions. How should the approved planning decisions be communicated to their implementers? Architects should find effective means of spreading the information on the authorized decisions and conveying these decisions to all relevant "downstream" actors. Answers to these and similar questions should be persistently looked for and perfected by architects to raise the efficiency of EA-related governance procedures and thereby strengthen business and IT alignment.
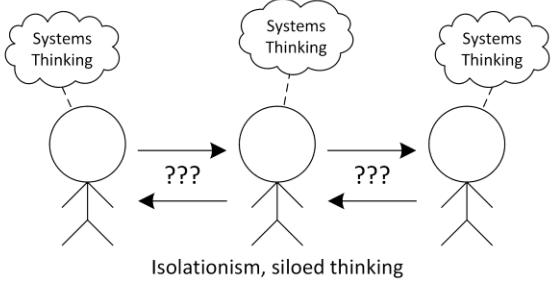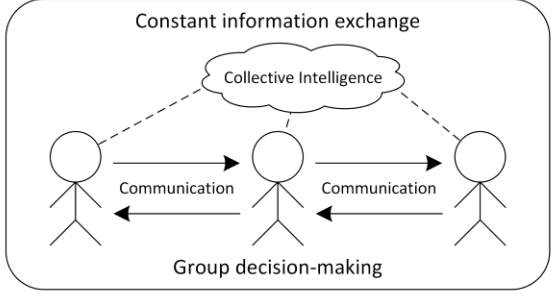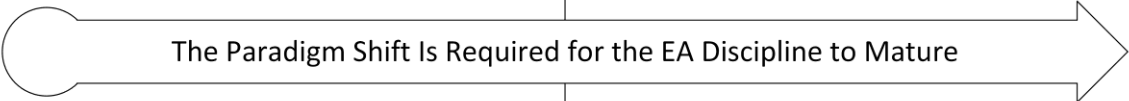
Although the list of questions provided above is far from being complete and exhaustive, it offers a number of basic suggestions for EA practitioners on what needs to be done to address the alignment problem in their organizations and outlines approximate courses of action to be taken on the way to improving business and IT alignment. Moreover, the adoption of communication as the principal paradigm also influences many other aspects of our understanding of enterprise architecture and EA practices in organizations, e.g. theoretical basis, conceptualization of the role of architects, metaphors for EA-related activities, their critical success factors, etc.

On Fake and Real Tools Again

Earlier I reported that the EA community greatly suffers from the persistent confusion between "fake tools" and "real tools" for enterprise architecture[15, 16]. Fake tools (tools in a broad sense) represent concepts, approaches and techniques that enjoy a high standing in discourse, but bring little or no value in practice, e.g. Zachman, TOGAF and ArchiMate. On the contrary, real tools are rather weakly discussed and seldom spoken about, while they actually represent genuine working devices, e.g. business capability models, technology reference models and architecture debt.

Systems thinking, as a tool for enterprise architecture, evidently gravitates towards fake tools: it is often praised in EA-related publications and paid lip service to, but rarely, if ever, it is explained what its practical manifestations or consequences are. Like the highly acclaimed Zachman Framework, systems thinking represents a perfect rhetorical instrument that pretends to be a sort of "theory" of enterprise architecture, offers necessary pseudo-scientific obscurity, creates a false aura of wisdom and an illusory sense of profoundness. Unsurprisingly, systems thinking is arguably one of the most favorite topics in the presentations of esoteric EA gurus and ivory-tower university professors. However, besides being a convenient subject for endless speculations, systems thinking has no other merits: it is distant from the practical realities, provides no concrete suggestions for action whatsoever and ends up with empty declarations. Apart from obvious common-sense ideas, systems thinking relates to real-world EA practices in the same sense in which it does, for example, the Zachman Framework, i.e. in no real sense[15, 16].

By contrast, communication is certainly a real tool. Although being a largely neglected topic in literature, it is communication that shapes the meaning of most daily activities of architects and other participants of EA practices. Unlike the sterile idea of advancing systems thinking, the imperative of improving communication has a clearly traceable connection to the core objectives of an EA practice: effective communication leads to mutual understanding, collaboration and partnership between business and IT stakeholders and, ultimately, to business and IT alignment. The comparison of the paradigms of systems thinking and communication provided above is summarized in Figure 1.

Systems Thinking | Communication

Systems Thinking	Communication
Essence: Private mental activity	**Essence:** Social, interpersonal interactions
Theoretical Basis: General systems theory (GST)	**Theoretical Basis:** Boundary objects theory
Metaphor for Architects: Designers of organizations	**Metaphor for Architects:** Communicators and negotiators
Metaphor for Architecting: Thinking over planning decisions	**Metaphor for Architecting:** Discussing planning decisions
Success Factor: Proper, more systematic thinking	**Success Factor:** Broad and timely collective involvement
Quality Criterion: Well-thought-out architecture	**Quality Criterion:** Commonly agreed architecture
Practical Suggestions: Arguably no actionable suggestions	**Practical Suggestions:** Numerous suggestions related to processes, documents, governance and other areas
Critical Appraisal: Flawed due to the incomplete knowledge and limited power of any individual organizational actors	**Critical Appraisal:** Realistic due to the collective nature of all organizational decision-making processes

Schematic View: (left)

Systems Thinking — Systems Thinking — Systems Thinking

??? ???

Isolationism, siloed thinking

Schematic View: (right)

Constant information exchange

Collective Intelligence

Communication — Communication

Group decision-making

Systems Thinking	Communication
Perception of Architects: Idle and abstracted philosophers	**Perception of Architects:** Productive change agents
Priority: Nice-to-have at best	**Priority:** Must-have, absolute practical necessity
Tool: "Fake tool", renowned but unhelpful	**Tool:** "Real tool", inconspicuous but effectual

The Paradigm Shift Is Required for the EA Discipline to Mature

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Figure 1. The Paradigms of Systems Thinking and Communication

The Paradigm Shift Is Required

Since mere mortals working in organizations have neither gigantic brains to know everything and plan all aspects of their companies alone, nor magic wands to miraculously materialize their grand designs, developing systems thinking, as a private mental propensity of individuals, is unable to help organizations improve business and IT alignment. For this reason, systems thinking represents a fruitless paradigm that cannot advance the EA discipline – a dead end. At best, it can be viewed as a "hygiene factor" for rejecting inept architects incapable of thinking rationally, or as a prerequisite for entering a profession, but not as a major determinant of organizational success with enterprise architecture. At worst, systems thinking can be deemed harmful due to its tendency to disguise our lack of understanding of what successful EA practices actually require and substitute genuine knowledge with vague appeals for more holistic approaches. Analogously to useless EA frameworks, like TOGAF and Zachman, systems thinking only distracts our attention away from real questions and best practices.

In order to mature, the EA discipline needs to shift its dominant paradigm from systems thinking to communication, i.e. abandon the concept of systems thinking as bankrupt and adopt the idea of communication as the cornerstone of an EA practice instead. On the one hand, as an overarching paradigm, communication sets much more tangible goals for an EA practice as a whole and provides an incomparably clearer direction to individual EA practitioners than systems thinking. On the other hand, communication without systems thinking may lead to suboptimal planning, but systems thinking without communication can lead only to daydreaming and fantasizing. In any case, imperfect plans that are agreed and acted upon triumph over splendidly thought-out systemic plans that end up lying on shelves and collecting dust.

As it is evident from my studies of EA practices, organizations willing to improve their business and IT alignment should strive for more involving communication, instead of more systemic thinking. For all practical purposes, systems thinking, as something more than an obvious idea that systematic thinking is better than unsystematic one, can be safely forgotten, it is communication that should be improved. Put it simply, thinking will not help you improve business and IT alignment in your organization, only communicating will.

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