Critical Questions in Enterprise Architecture Research

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ABSTRACT
The current enterprise architecture (EA) theory originates from the Business Systems Planning (BSP) methodology initiated by IBM in the 1960s and describes EA as a comprehensive blueprint of an enterprise organized according to a certain framework and describing the current state, the desired future state and the roadmap for transition between them. However, in this paper I demonstrate that the current EA theory poses more questions than answers and is, arguably, in an unsatisfactory state. This paper highlights the critical questions in EA research and is intended to spark further conversation in the EA research community. All the formulated questions address the fundamental aspects of the current EA theory that are critically important for the whole EA discipline. Although this paper does not propose any answers to these questions, it makes a non-theoretical contribution to the EA discipline by critically evaluating the current EA theory, provoking new thoughts and stimulating further research that will substantially alter the EA discipline in the future.

KEYWORDS
Business Systems Planning (BSP), Directions for Future Research, Enterprise Architecture (EA), Problems, Questions

1. INTRODUCTION
Information systems play a critical role for the business of many modern companies. Many organizations invest substantial amounts of money in IT projects and systems. However, the maximum payoff from these IT investments can be achieved only if the IT strategy of an organization is aligned with its business strategy (Byrd, Lewis, & Bryan, 2006; Gerow, Grover, Thatcher, & Roth, 2014). Enterprise architecture (EA) is a description of an enterprise from an integrated business and IT perspective intended to bridge the communication gap between business and IT stakeholders and, thereby, to improve business and IT alignment and deliver other organizational benefits (Bradley, Pratt, Byrd, & Simmons, 2011; Schmidt & Buxmann, 2011). Presently EA as an instrument for information systems planning is used in the majority of large organizations (Ambler, 2010; van der Raadt, Slot, & van Vliet, 2007) and, if used properly, greatly contributes to their success (Ross, Weill, & Robertson, 2006).

The current EA theory originates from the Business Systems Planning (BSP) methodology initially proposed by IBM in the 1960s (BSP, 1984; Kotusev, 2016; Sidorova & Kappelman, 2010; Spewak & Hill, 1992). The EA theory explains EA as a comprehensive blueprint of an enterprise organized according to a certain framework and describing its current state, its desired future state and a roadmap describing how to migrate from the current state to the future state (Bernard, 2012; FEA, 2001; Spewak & Hill, 1992; TOGAF, 2011). The current EA theory suggests that EA is produced by a group of well-qualified experts called enterprise architects who firstly document the
current state of an enterprise, then describe its desired future state according to its business strategy, analyze the gaps between these states and finally develop a transition roadmap (Armour, Kaisler, & Liu, 1999b; Bernard, 2012; Spewak & Hill, 1992; TOGAF, 2011). After being developed, EA is used by business and IT specialists for analysis, decision-making and system implementation (Bernard, 2012; Lankhorst, 2013; TOGAF, 2011).

However, as I will demonstrate further in this paper, the current EA theory poses more questions than answers. Similarly to Chan and Reich (2007), in this paper I provide a review of the current EA theory and then discuss the most significant “blind spots” of this theory. The discourse in this paper is informational and deliberatively provocative. It highlights the critical questions in EA research and is intended to spark further conversation in the EA research community. Therefore, this paper does not propose any solutions to the discussed problems, but rather makes a non-theoretical contribution to the EA discipline by critically evaluating the current EA theory, provoking new thoughts and stimulating further research that will substantially alter the EA discipline in the future (Avison & Malaurent, 2014; Hambrick, 2007).

This paper continues as follows: (1) I describe the current EA theory, (2) I discuss the most critical questions to the current EA theory and (3) I conclude the paper.

2. CURRENT EA THEORY

The current EA theory originates from the Business Systems Planning (BSP) methodology initiated by IBM in the 1960s (BSP, 1975, 1984; Harrell & Sage, 2010; Sidorova & Kappelman, 2010; Spewak & Hill, 1992; Zachman & Ruby, 2004; Zachman & Sessions, 2007). BSP pioneered several fundamental ideas that provided the basis for the current EA theory (BSP, 1975, 1984): (1) information systems planning for an entire organization is carried out by a dedicated team of specialists (prototype of enterprise architects), (2) architecture is used for describing the relationship between business and IT (prototype of EA), (3) architecture describes business, data and information systems domains (prototype of EA domains), (4) various modeling techniques are used to describe processes, systems and data (prototype of EA diagrams), (5) formal step-wise process is used for architecture planning, including the analysis of the current state, the description of the desired state and the development of the action plan (prototype of EA methodologies).

The seminal EA frameworks, the PRISM framework (PRISM, 1986) and the Zachman Framework (Zachman, 1987), conceptualized EA as a comprehensive description of an enterprise from an integrated business and IT perspective and proposed logical structures for organizing this description, thereby, suggesting what information is necessary for a logically complete description of EA. The first EA methodology was proposed by Spewak and Hill (1992). This EA methodology “has its roots in IBM’s BSP” (Spewak & Hill, 1992, p. 53) and recommends the following step-wise process to practice EA: (1) document the current state of an organization, (2) develop the desired future state of an organization, (3) analyze the gaps between the current and future states, (4) prepare an implementation plan and (5) implement the plan. Subsequently this seminal EA methodology served as the basis for many modern EA methodologies (Spewak & Tiemann, 2006).

Later many other EA frameworks proposed different structures for organizing EA suggesting what information is necessary for a holistic description of enterprises. The incomplete list of EA frameworks proposed by different authors includes EA Grid (Pulkkinen, 2006), E2AF (Schekkerman, 2006), OEA (Covington & Jahangir, 2009), IAF (van’t Wout, Waage, Hartman, Stahlecker, & Hofman, 2010) and EA3Cube (Bernard, 2012). The current EA theory essentially revolves around EA frameworks (Simon, Fischbach, & Schoder, 2013) and states that using EA frameworks is essential for
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