Chapter I
A Synergistic Assessment of the Federal Enterprise Architecture Framework against GERAM (ISO15704:2000)

Pallab Saha
Institute of Systems Science, Singapore

ABSTRACT

The federal enterprise architecture framework (FEAF) is perhaps the most adopted EA framework, especially within the U.S. Government agencies. Either the FEAF has been adopted as-is or other frameworks derived from the FEAF have been used. The FEAF today continues to be the most comprehensive framework available for guidance by agencies. It consists of a full-fledged methodology, several reference models, target architectures, and even a toolkit that facilitates adoption across all agencies. This chapter evaluates the synergies between the comprehensive FEAF against the generalized enterprise reference architecture and methodology (GERAM) framework. The intent of the evaluation is to present the level of completeness in the FEAF based on GERAM requirements and additionally discuss areas where the FEAF goes well beyond ISO15704:2000 requirements leading to improvement opportunities in GERAM.

INTRODUCTION

Enterprise architecture (EA) is the discipline of designing enterprises guided with principles, frameworks, methodologies, requirements, tools, reference models, and standards. Managers are becoming architects. Their new roles include designing structure, engineering processes, developing people, leveraging technology, facilitating learning, and changing the whole (Morabito, Sack, & Bhate, 1999). The manager-architect must design across enterprise boundaries, engineer processes into strategic capabilities, align information technology and business strategies, and integrate the enterprise. In order for the manager to achieve all these, several contending architecture frameworks

are available (Bernus, Nemes, & Schmidt, 2003; Chen & Doumeingts, 1996; Chen, Vallespir, & Doumeingts, 1997). Of the several contending architecture frameworks, this chapter analyzes the federal enterprise architecture framework (FEAF) approach to EA against the generalized enterprise reference architecture and methodology (GERAM) / ISO15704:2000 requirements. The objective of this detailed analysis is to provide prospective users of the FEAF, an understanding of GERAM/ISO15704:2000 requirements, and the extent to which the FEAF-based approach meets these requirements.

Several other frameworks have been analyzed against the GERAM/ISO15704:2000 requirements (Noran, 2003, 2005; Saha, 2004a), currently there is no mapping between the FEAF and GERAM and the chapter attempts to address this gap. The key objectives of the analysis presented in this chapter include: (1) map and compare the FEAF-based approach to a common set of EA requirements as specified in GERAM; and (2) identify areas where the FEAF is richer/weaker, with the aim that managers and researchers can take benefit in practice and in identification of newer areas for research, including enhancement of existing frameworks.

The key motivations for selecting FEAF for this assessment include:

- The FEAF is perhaps most implemented either as-is or in derived form. It may be argued that FEAF is relevant only in the context of United States Federal Government agencies. However, in reality, all of the FEAF documentation is available in public domain and many EA programs around the world take cue from FEAF (localized for specific needs).
- The FEAF is an embodiment of best practices and guidelines. An assessment actually has the capability to further the EA discipline and its practice.

- The FEAF by design is generic and applicable to all agencies, irrespective of the industry they operate in. This makes FEAF application non-industry specific and broad.

BACKGROUND

Short Overview of GERAM

Existence of several architecture frameworks provides a recipe for confusion. The overriding goal of the generalized enterprise reference architecture and methodology (GERAM) is to encompass and generalize the common requirements of various EA frameworks and EA reference architectures (Bernus, 2001; IFIP-IFAC Task Force, 1999). The GERAM is not another EA framework or EA reference architecture. GERAM aims to classify prevalent EA frameworks and their associated artifact types (methodologies, reference models, ontologies, etc.). The scope of GERAM (depicted in Figure 1 of Chapter XXI of this handbook) encompasses all knowledge required for enterprise engineering and enterprise integration with the intention of unifying several disciplines such as industrial engineering, management science, control engineering, and information and communication technology to build a coherent organizational design (Bernus et al., 2003).

The central component in the GERAM framework is generalized enterprise reference architecture (GERA), which specifies the basic/core concepts to be utilized in an EA initiative. Besides GERA, other components in GERAM identify requirements regarding process methodologies, modeling languages, tools, and enterprise models necessary for architecting the enterprise. The GERAM framework components would form the basis for mapping and analysis of the FEAF-based approach in this chapter.

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