

# Chapter 6

## Collaborative System Approach for Enterprise Engineering and Enterprise Architecture: A Literature Review

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### **ABSTRACT**

*Today we are living in a constantly changing world and today's strong competition and changing market conditions enforce enterprises to adopt fundamental methods and new approaches to enhance their capabilities. Enterprises are goal-oriented, designed, and complex systems and they need to implement new strategies easily and control Key Performance Indicators to maintain their competitiveness. Enterprise engineering (EE) is a developing field and an enabler for informed decision making for addressing the required changes to be competitive and for tackling the complexity of enterprises' design issues on business, organization, information, and technology domains. Enterprise architecture (EA) is one of the basic elements of EE and it is about the structure of the whole of enterprise. There is an important and strong relationship between EE and EA. Although there are specific individual studies for EE and EA, this chapter aims to explore the fields of these two subjects in a collaborative system approach as a whole with existing literature review by assessing the core concepts and the methods used.*

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## **INTRODUCTION**

Today, the fast pace of rapidly changing world is the prominent motivation for Enterprises. Dynamics of Enterprise need to be adaptive and evolving in every aspect like social, technical and economic etc. Under frequently changing conditions, the creation, design and development of Enterprises are required to address management and decision-making issues effectively and systematically. At this point, Enterprise Engineering, as an interdisciplinary and emerging field, provides insights both from Information Systems and Organizational Sciences (Molnar & Korhonen, 2014). Collaborative perspective of Enterprise Engineering and Information Sciences is clearly highlighted by Albani and Dietz (2010). In this study, with comprehensive literature review, it is pointed out that Enterprise Engineering closely cooperates with Information Science and Enterprise Architecture.

Enterprise has its products and services through its core components: processes, people, information and technology. The relationship among Enterprise's core components is the primary motivation of Enterprise Architecture in design and change perspective. Enterprises are complex and dynamic systems (Kosanke et al., 1999) and change of their core components and elements is rather continuous in its nature. One of the effective way of evaluation of changes is making comparison of scenarios and solutions. For current and future strategy of Enterprises, the business people need high level abstractions of Enterprise core components as defined in Enterprise Architecture Models such as business architecture, information architecture, software architecture and technical architecture (Tang et al., 2004).

In literature, an extensive body of literature has been generated around Enterprise Architecture and its related concepts, however the purpose of this chapter is to highlight the collaboration between Enterprise Engineering and Enterprise Architecture. This chapter has aims to present a general entry for Enterprise Engineering and Enterprise Architecture domains with a collaborative system approach. A literature review is proposed to highlight the related prominent concepts and to provide important definitions for these domains consequently.

Starting with the general definition of Enterprise Engineering, it is as follows: “define, structure, design and implement enterprise operations as communication networks of business processes, which comprise all their related business knowledge, operational information, resources and organization relations” (Kosanke et al., 1999).

Evaluation of changes requires comparison of alternative scenarios and different situations, from this point, the design and improvement of processes benefit from modeling and simulation activities of Enterprise Engineering. Enterprise Engineering is dealing with enterprise operations to increase the efficiency, effectiveness and competitiveness in a dynamically changing environment. Major task of Enterprise

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