# Chapter 2.10
# An Analysis of Privacy and Security in the Zachman and Federal Enterprise Architecture Frameworks

**Richard V. McCarthy**
*Quinnipiac University, USA*

## ABSTRACT

*Enterprise architecture has had a resurgence of interest in the IT community in the past ten year; in part because of a mandate for federal agencies of the United States government and in part because of the complexity of managing today's information systems environments. It has become a critical component of an overall IT governance program to provide structure and documentation to describe the business processes, information flows, technical infrastructure and organizational management of an information technology organization. Many different enterprise architecture frameworks have emerged over the past ten years. Two of the most widely used enterprise architecture frameworks (the Zachman Framework and the Federal enterprise architecture framework) are described and their ability to meet the security and privacy needs of an organization is discussed. These frameworks represent a contrast of industry and government perspectives in addressing issues of key importance to senior IT leadership.*

DOI: 10.4018/978-1-61350-323-2.ch2.10

## INTRODUCTION

Information technology management has become increasingly complex over the past fifteen to twenty years. Technical infrastructure has grown from a single mainframe environment to a complex hybrid of mainframes, client-server and web architectures. Software development is continuously evolving as the demand for new IT services in many organizations is ever increasing. end-user expectations of IT services continue to rise. Change is constant; for many organizations it has become the business norm. Companies seek to reinvent themselves or must prove that they can adapt to remain competitive. The ability to react quickly is a critical component of many companies' business strategy. As a result, the need for organizations' information technology to be defined in a standardized structure has become critical. Over the past ten years there has been a greater emphasis on standardization of information technology services to enable organizations to better manage their technology resources as well as their portfolio of requests for changes of those IT resources. Standardization provides greater opportunities for reuse; a key concept of the emergent service oriented architecture. Several enterprise architecture frameworks have been widely adopted to help organizations document, describe and manage their information technology environment and its relationship to the business that it supports. Several of these have been consolidated and have emerged as the *frameworks of choice* amongst many organizations.

Information technology governance has heightened the growing need to ensure that technology resources are secure and to adequately protect the privacy of the vast amounts of information that they contain. In the United States, the Sarbanes-Oxley Act of 2002 caused a frenzy of information systems change as organizations raced to ensure that their information systems controls were in compliance.

The Zachman Framework and the Federal Enterprise Architecture Framework are two widely adopted enterprise architecture frameworks. These frameworks are evaluated to analyze the extent to which they provide guidance to meet the privacy and security needs of organizations.

Several other frameworks exist. Some are highly specialized and others are designed to be adaptable. Some, such as the Department of Defense Architecture Framework (DoDAF) specifically identify privacy and security guidelines and standards that must be adhered to; others, such as The Open Group Architecture Framework (TOGAF) provide a general set of guidelines to deal with privacy and security issues.

This chapter begins by providing a definition of enterprise architecture. It then describes the Zachman and Federal Enterprise Architecture Frameworks. These were chosen because they are two of the most widely adopted enterprise architecture frameworks and because they have a sharp contrast in their approach. The chapter then concludes with a critical analysis of how well each framework meets the privacy and security needs of their users.

## ENTERPRISE ARCHITECTURE

Bernard (2004) defines enterprise architecture as a management program and a documentation method that is combined to perform an actionable and coordinated view of the enterprise strategy, business processes, and resource utilization and information flow.

Schekkerman (2005) defines enterprise architecture as "a complete expression of the enterprise; a master plan which 'acts as a collaboration force' between aspects of business planning such as goals, visions, strategies and governance principles, aspects of business operations such as business terms, organization structures, processes and data, aspects of automation such as information systems and databases; and the enabling