

## Chapter 9

# The Why and the Benefits of Architecture

### ABSTRACT

*The advantages of using architecture are examined from the information technology (IT) point of view in order to get a feel for the more general advantages that would apply to other areas of endeavour. Then IT architecture is reviewed in more detail to see in particular the levels of abstraction that are inherent in an architecture, moving from the general outline which shows the whole enterprise, down through progressive levels of detail, to the fine detail of actual implementation instructions. General architectural principles will be identified during the examination of the various architecture definitions.*

### INTRODUCTION

The previous chapters have considered the subject of strategic planning; whether it is useful or not, what difficulties may occur with strategic planning and what measures might resolve those difficulties. This chapter and the next two chapters have a closer look at the subject of architecture; for its ability to organise and structure the essential information that is required to achieve effective strategic planning.

This chapter has a look first at the arguments for architecture having a guiding role in the development and the implementation of the strategic planning project; this guidance is achieved by using

architectural principles to provide an organised, well structured document, which clearly communicates the strategic requirements. This leads to the second argument for an architecture which is to provide communication and team support and therefore allows those involved in the implementation of the strategy to work together as a team.

IT architecture is then examined in depth in a search to determine general architectural principles that provide a clear structural organisation. These principles will be found to include setting out what the project components are, what the component function is intended to be (including the rationale of why that component is needed) and the hierarchal structure of components and way the various components link together.

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There is also a review the different levels of architecture that in effect provide different perspectives and different layers of abstraction so that each layer deals with different aspects of an information systems design, from the overarching description of the enterprise through the application architecture to the detail of the infrastructure architecture.

The last section will explore the idea of a relationship between strategic planning and IT architecture and investigate which of the different architecture levels the organisation of the information associated with strategic planning is best suited and to what extent it has already been described within planning methodologies.

### **ADVANTAGES GAINED BY USING AN ARCHITECTURE**

The discussion and evidence presented in the next two subsections is primarily focussed on information systems but in many cases the same principles and ideas can relate to the functioning of the organisation as a whole, as well as the information system. It can also be argued that the quality, comprehensiveness and effectiveness of the information system today, reflects directly on the effectiveness of the organisation.

#### **Architecture Has a Guiding Role**

Zachman (1996) believed very strongly that “[t]he credibility of IS is in a steep decline.” and that “[t]he issues of quality, timeliness and change are the conditions that are forcing us to face up to the issues of Enterprise Architecture” (Zachman, 1996, p.1). These comments are very pertinent to the issues of an effective enterprise wide information system that is essential for an efficient organisation.

James as the Asia-Pacific Architecture Research Director for Gartner (a company of IT industry analysts), and in an article for the news-

paper *The Australian* writes about the need for a business to respond ever faster to the changing environment, and this diversity must be managed effectively to get good business results.

Enterprise architecture is important largely because there are more applications today than ever before. And those applications are managing more data on a diverse range of platforms, written in many languages and running in a variety of environments. This diversity can be chaotic to manage (James, 2001).

James (2001) is adamant that the first step to success is a clear understanding of enterprise architecture: “Within the control of the enterprise are the technologies that are employed (IT architecture), the business processes, functions and information (information architecture) that embody the organisation and the integration infrastructure (the city plan)” (James, 2001).

Fournier (1999) also writes about the need for enterprise architecture to enable system flexibility for both the information system and the organisation (i.e. the system can be modified easily without undue costly testing or alternatively mistakes in operation that can cost both money and customers) which is needed to keep on delivering competitive advantage:

The importance of enterprise architecture in helping a company leapfrog the competition and achieve business success is too important to be ignored. It will separate the winners and losers.

According to industry experts, driving toward flexible enterprise architectures produces several IT benefits, including faster delivery of new applications and increased return on investment from legacy applications. Likewise highly adaptable architectures ease the integration of diverse applications, provide better data interoperability, and offer more flexibility during acquisitions or mergers (p.127).

Architecture is useful at all levels of the business and the IS/IT hierarchy, which is reviewed further in later sections. For information systems, well designed software architecture is said to

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