

Chapter 12

Architecture as a Tool to Solve Business Planning Problems

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ABSTRACT

Businesses are now very large and complex organizations and their analysis provides a great deal of information that in order to be understood must be well organized and presented. Architecture is a scheme that allows a systematic examination of the entire enterprise and can provide a well-organized presentation of the key components, their interdependencies, and the important causal relations. This chapter discusses the problems associated with developing an architecture and suggests a framework for developing a reference model to guide the definition of business architecture.

INTRODUCTION

Architecture can give systematic structure to problem investigation, solution development and formality of presentation to the solution plan. An architectural reference model will allow the planners guidance in their investigations and in their development of the plan. An architectural blueprint of the solution will allow implementers to better understand the intentions of the planners.

Architecture is essential for any large building or urban planning proposal (not the aesthetics of the design but the structural design – how things fit together), why should this architectural discipline not help in designing solutions for other types of large scale problems? The architecture discipline would not only aid the development of the solution but allow the project plan to become a better communication document. There is therefore a need for a generalized discussion on the basic architectural principles that can guide the development of architectures for different problem areas.

A key argument for architecture versus design is that design solves the functional requirements of the specification whereas architecture is in *addition*, about the long term sustainability of the solution and in the process takes into account more environmental factors (market place, competitors, etc.). A definition of IS architecture given by Bass, Clements and Kazman (1998) allows a clear distinction between architecture and design. They write that architecture begins the task of envisioning the central function

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of a system looking for those influences that persist beyond the lifetime of the system, whereas design is just about ensuring the system will function as expected.

In other words, architecture is concerned with a need to explore beyond the immediate description of functionality and is required to also stretch the boundaries, looking at any environmental factors that surround the objective. The architecture gives much more knowledge about the structure and integration of the entire system being described. The sustainability is due to lower cost and risk associated with development changes because of that knowledge.

Architecture provides a systematic examination of the entire enterprise from a summary overview at the top level of abstraction with navigating links to all the component parts and their definition at descending levels of abstraction and with descriptions of any interactions between component parts. This blueprint, if correctly done, can be a powerful management tool for determining where efficiencies can be made and choosing effective strategic directions.

However before beginning the analysis of the organisation, a set of architectural principles need to be adopted to guide the analysis and to develop a reference model of the organisation's business architecture for use in presenting the analysis results in the architectural format for any specific enterprise and this will be discussed in the section headed architecture as a solutions tool.

BACKGROUND: CONCEPT OF ARCHITECTURE IN COMMERCE

Architecture is often considered as just the aesthetics of the building design but there are entire undergraduate and post graduate courses on building architecture that go beyond just the classic proportions for a building but detail the formulas and tables on the structural loads for foundations and support walls etc. A great many technical issues are pre-solved for use in the design and development of a new building.

The idea of architecture has now been extended to the area of information technology although this is fairly recent say within the last 30 years; two of the most influential authors in the early years were Brancheau, and Martin. Brancheau and Wetherbie wrote "an information architecture is a high level map of the information requirements of an organisation" (1986), however I believe the use of the term 'map' diminishes the amount of structure inherent in an architecture. Martin in 1990 drove the emphasis for *information* with his books on Information Engineering and his depiction of an architecture to describe the enterprise. There are various descriptions of enterprise architecture used by the IT profession, a very detailed description is given on the web site for TOGAF (2013) and Koontz (2000) gives a very clear layout of the different levels in the enterprise architecture. All these descriptions of enterprise architecture are essentially intended to improve the design of IT systems to align the information systems better with the business operation and strategic development.

Harmon (2008, 2004) has also stated this pre-occupation of definitions for "enterprise architecture" to be focused on the application of IT resources. Harmon (2004) also shows a detailed description of the hierarchy of levels in enterprise architecture, but in his view of the enterprise the focus is on the business processes and that business process management is a key component of the "enterprise architecture".

Following the emphasis on business processes there was a focus on creating standard processes by the management consulting and software development world and the concept of service oriented architectures (SOA) was developed. I believe the emphasis should be with the requirement to determine the structure of the enterprise - including what product suits the available market at what price point and what style of distribution to use etc., - before reviewing the processes required.

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