

A framework for information systems architecture

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With increasing size and complexity of the implementations of information systems, it is necessary to use some logical construct (or architecture) for defining and controlling the interfaces and the integration of all of the components of the system. This paper defines information systems architecture by creating a descriptive framework from disciplines quite independent of information systems, then by analogy specifies information systems architecture based upon the neutral, objective framework. Also, some preliminary conclusions about the implications of the resultant descriptive framework are drawn. The discussion is limited to architecture and does not include a strategic planning methodology.

The subject of information systems architecture is beginning to receive considerable attention. The increased scope of design and levels of complexity of information systems implementations are forcing the use of some logical construct (or architecture) for defining and controlling the interfaces and the integration of all of the components of the system. Thirty years ago this issue was not at all significant because the technology itself did not provide for either breadth in scope or depth in complexity in information systems. The inherent limitations of the then-available 4K machines, for example, constrained design and necessitated suboptimal approaches for automating a business.

Current technology is rapidly removing both conceptual and financial constraints. It is not hard to speculate about, if not realize, very large, very complex systems implementations, extending in scope and complexity to encompass an entire enterprise. One can readily delineate the merits of the large, complex,

enterprise-oriented approaches. Such systems allow flexibility in managing business changes and coherency in the management of business resources. However, there also is merit in the more traditional, smaller, suboptimal systems design approach. Such systems are relatively economical, quickly implemented, and easier to design and manage.

In either case, since the technology permits "distributing" large amounts of computing facilities in small packages to remote locations, some kind of structure (or architecture) is imperative because decentralization without structure is chaos. Therefore, to keep the business from *disintegrating*, the concept of information systems architecture is becoming less an option and more a necessity for establishing some order and control in the investment of information systems resources. The cost involved and the success of the business depending increasingly on its information systems require a disciplined approach to the management of those systems.

On the assumption that an understanding of information systems architecture is important to the development of a disciplined approach, the question that naturally arises is "What, in fact, is information

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