Chapter 3.5
The Architecture of Service Systems as the Framework for the Definition of Service Science Scope

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ABSTRACT

The purpose of this study is to define generic service processes, their system, and a scope of service science developed originally by the author. In the presented approach, the main criterion is the class of serviced users, since this leads to the six kinds of process recognition and eventually helps in planning e-service systems' architecture. E-service system (e-SS) is defined as a mission-goal-strategy-driven configuration of technology, organizational processes and networks designed to deliver services that satisfy the needs, wants, or aspirations of customers. Marketing, operations, and global environment considerations have significant implications for the design of an e-service system. Four criteria which impact e-service systems' architecture have been defined as: service business model, customer contact and level of involvement (Service User Interface), service provider's enterprise complexity (Enterprise Systems and Networks), and scope of goods involved in service. It was proved that the e-service system is the intermediary layer between Service User Interface and Enterprise Systems and Networks. Two examples of e-SS have been modeled.

INTRODUCTION

The purpose of this study is to define a scope of service science based on ideal generic service systems originally developed by the author. There are two goals of this study: 1) to develop generic service categories and their generic systems and 2) to define a scope of service science based upon the presented generic models of service systems, which determine the required support from emerging system science. The research methodology is based on the architectural modeling according the paradigm of enterprise-wide systems (Targowski 2003).

The architectural system approach is based on the philosophy of the system approach (Klir 1985), and management cybernetics (Beer 1981) which provide comprehensive and cohesive solutions to the problems of systems design, thus eliminating the fuziveness of the "application portfolio" and the "information archipelago" (McFarlan 1981), Targowski 1990). The mission of the architectural system approach is to find the ultimate synthesis of the whole system structure that involves appropriate logic, appropriate technological accommodation, operational quality, a positive user involvement, and coexistence with nature (Targowski 1990). In its nature, the architectural system approach is of deductive rather than inductive nature. It looks for the ideal model of a solution, which in practice is far away from its perfect level. The difference between the architectural system approach and the engineering approach is in the level of abstraction. The architectural models are more conceptual whereas engineering outcomes are more technical and specific. The architectural system approach is the response to the complexity of expected outcomes. Prior to spending a few million dollars for a new information system, one must provide its information architecture and the business and social implications associated with it (Targowski 2003). In this sense, this study will define service systems' architectures.

Service economy can refer to one or both of two recent economic developments. First is the increased importance of the sector in industrialized economies. Services account for a higher percentage of U.S. GDP than 20 years ago, since modern-day off-shore outsourcing of manufacturing contributes to the growing service sector of the American economy. The 2006 Fortune 500 companies list contains more service companies and fewer manufacturers than in previous decades. The service sector is classified as the tertiary sector of industry (also known as the service industry) and is one of the three main industrial categories of a developed economy, the others being the secondary industry (manufacturing, construction), and primary industry (extraction such as mining, agriculture and fishing). Services are defined in conventional literature as "intangible goods" (Drucker 1969, Rathmell 1974, Bell 1976, Shostack 1977). According to Laroche (2001), it is clear that intangibility has been cited by several authors as the fundamental factor differentiating services from goods (Breivik, Troye, and Olsson 1998; Lovelock 2001; Rust, Zahorik, and Keiningham 1996). All other differences emerge from this distinction (Bateson 1979; Zeithaml and Bitner 2000). According to evident practice, service tends to be wealth consuming, whereas manufacturing is wealth producing. The tertiary sector of industry involves the provision of services to businesses as well as final consumers and citizens (users of government services). Services may involve the transport, distribution and sale of goods from producer to a consumer as may happen in wholesaling and retailing, or may involve the provision of a service such as in pest control or entertainment. Goods may be transformed in the process of providing a service, as happens in the restaurant industry. However, the focus is on people interacting with people and serving the customer rather than transforming physical goods. Since the 1960s there has been a substantial shift from the other two industry sectors to the Tertiary Sector in industrialized countries. The service sector also consists of the "soft" parts of the economy such as insurance, government, tourism, banking, retail and education. In soft sector employment, people use time to deploy knowledge assets, collaboration assets, and process-engagement to create productivity (effectiveness), performance improvement potential (potential) and sustainability. Typically, the output of this time is content (information), service, attention, advice, experiences, and/or discussion ("intangible goods"). Other examples of service sector employment include public utilities, which are often considered part of the tertiary sector as they provide services to people. Creating the utility's infrastructure is often considered part of the