Chapter 9
The State of Business and IT Alignment in the Singapore Construction Industry

ABSTRACT

This chapter provides the background to why there is a general lack of strategic application of IT among SMEs. It explains how the concept of strategic alignment can be applied to enhance the competitive capability of firms in the context of Porter's generic strategies. A brief account of Singapore's 10-year plan for the development of the SME sector forms the basis of emphasizing the need for a strategic use of IT to help SMEs meet new challenges in the knowledge-based economy. This is followed by a brief account of the national IT plan for Singapore's construction industry known in short as CORENET. The case of a successful implementation of CORENET is illustrated by the electronic building plans submission system. Next in the chapter, focuses on presenting a study of the state of business and IT alignment in Singapore's construction industry conducted at the firm level. The purpose of the study, as well as its objectives, is to explain the key rationale and directions. From the World Bank's International Finance Corporation's classification of SMEs, three classes of SMEs have been used in the study, namely, micro enterprises, small enterprises, and medium enterprises. The chapter describes the methodology designed for the collection of data which covers the source of the questionnaire, sampling approach, reclassification of survey questions, and statistical techniques of analyzing the data. The results of the survey are presented by type of SMEs, namely, designer-SMEs and builder-SMEs, and they relate to the types of software used, extent of use of the Internet, forms of IT strategy, use of developed Singapore Standards relevant to IT, benefits gained from adopting industry IT projects, important reasons for making decisions about IT investments, and advantages and disadvantages of applying IT. The results obtained are mapped onto the four dominant alignment perspectives of the Strategic Alignment Model (SAM) to evaluate the goodness-of-fit (or goodness-of-alignment) of the designer-SMEs and builder-SMEs in four different perspectives – strategy execution, technology potential, competitive potential, and service level. The main findings are discussed in relation to the practices of micro and small enterprises, including those of medium enterprises to reveal the alignment perspectives favored by this group of SMEs for both designers and builders. Appropriate recommendations at the policy level are made to address the main issues facing SMEs in the construction industry that have resulted in the lack of use of IT. The chapter concludes with a summary of the main points covered on the state of business and IT alignment in the Singapore construction industry.

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BACKGROUND

Studies on the use of Information Technologies (IT) by small and medium-sized enterprises (SMEs) in the construction industry have found that they in general do not consider such technologies as strategic to their business (Sarshar and Isikdag, 2004; Acar et al., 2005). The extent of their usage has been also found to be limited. Broadly, Luftman and Oldach (1996) observe that the general lack of strategic application may be due to the practice whereby decisions of IT strategy are often made after the decisions on business strategy. However, an IT strategy is intended to translate business strategy into an IT infrastructure that allows the enterprise to compete effectively. Hence, they have advocated that four sets of decisions need to be coordinated right from the start and classified them as business strategy, IT strategy, business (or organizational) infrastructure and IT infrastructure. Following this concept, Voordijk, Van Leuven and Laan (2003) have translated the logical links or 'fits' among these sets of decisions into factors for success or failure of an Enterprise Resource Planning (ERP) system implementation in a large construction firm. Their study reinforces the concept of strategic alignment with empirical evidence to show that the success of ERP implementations depends on consistent patterns between IT strategy and business strategy, IT maturity and the strategic role of IT, and the implementation method and organizational change.

As a strategic resource, IT is regarded as not only providing a means for functional integration but an opportunity to enhance the competitive capability of the firm. When explained in the context of Porter's generic strategies, the importance of a strategic alignment is evident where enterprises choose to use IT to achieve cost leadership, or support a differentiation strategy, or support a niche strategy (Boddy, Boonstra, and Kennedy, 2002). Consequently, without this alignment, enterprises may end up deploying "technology for the sake of technology's or for the sake of some future promise rather than for current business needs" (McClimans, 1995, p. 31). It often translates into the firm not having derived real benefits from IT to justify further investments, whether they are measured in productivity or profit terms. While technology 'suffers the blame', a deeper understanding of the problem would point to a lack of coordination between the (strategic) role of the technology and the (strategic) need of the business. Another common scenario, especially among the SMEs in the construction industry, is the practice of using IT to computerize the administrative functions, such as, bookkeeping and invoicing, rather than exploiting it to improve technical and business functions (Acar et al., 2005; Goh, 2006). The reasons often cited by such companies are insufficient awareness or not knowing what IT can do for their business, a lack of skilled personnel and scarcity of specialist services (Goh, 2004). They relate to the same problem of a lack of coordination among the four sets of decisions as already identified by Luftman and Oldach (1996).

In early 2000, the Singapore Government presented a 10-year plan for the development of the SME sector. It is the second major policy document on SMEs, *SME 21: Preparing SMEs for the 21st Century*. The main challenge is to transform the SME sector from one that has a "weak entrepreneurial culture, insufficient management know-how and professionalism, shortage of professional and technical manpower, insufficient use of technology, outmoded, unproductive methods of operation, limited ability to tap economies of scale and small domestic market" into one that is made up of world-class entities with attributes of "professionally managed organization, excellence in process and customer service management, capabilities to create new knowledge and technology to develop high value-added products and services and ability to compete globally". In this context, the *SME 21* report specifically mentioned that the knowledge-based economy is dramatically changing the economic landscape. The growth in IT is transforming the way companies do busi-