Fit Between Strategy and IS Specialization: A Framework for Effective Choice and Customization of Information System Application Modules

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ABSTRACT

As organizations implement enterprise systems, the issues of whether to “build or buy” new IT modules, and if buying, how much to customize, continue to be key concerns. In this article, we develop a framework in order to better understand effective information system module choice and customization from a strategy perspective. Analysis of the strategic importance of the IS module can provide general guidance for the amount of specialization that is appropriate. To illustrate these ideas we apply them to four case examples.

Keywords: application modules; customization; enterprise IS; enterprise resource planning; IT strategy; specialization

INTRODUCTION

Over the past decade, there has been great interest in integrating organizations’ information resources across their multiple business functions. This integration should provide better support for business processes, more efficient resource utilization (Emery, 1975; Gustin & Daugherty, 1995), and it should open new business opportunities (Rockart & Short, 1989; Venkatraman & Kambil, 1991). While there has been a general question about the business value of IT in the past and the so called productivity paradox (Brynjolfsson & Hitt, 1996; Brynjolfsson & Yang, 1997), more recent publications on this issue, however, provide evidence that IT can provide business value, and rather focus on how firms can apply IT to generate business value (Melville, Kraemer, & Gurbaxani, 2004). This paper addresses an important aspect of how business value can be achieved in the context of the integration of packaged information systems.
To accomplish this type of integration, an organization has three general options. It could build its own custom information system solution to exactly meet its needs. It could purchase a collection of packaged information systems (each from a different vendor) that it would then integrate using middleware (a best-of-breed approach). Finally, it could implement an enterprise system (ES), (also known as an enterprise resource planning or ERP system\(^1\)). An ES is a collection of packaged business software modules from a single vendor that offers “best practice” business processes, a common underlying database, and tight integration across all business functions (Davenport, 2000). By choosing among these three options and by deciding how much additional customization to apply, a firm will, in effect, make a decision about how “specialized” its IS modules will be. By “specialized” we mean how unique to a particular business context.

In this paper, we assume a strategic perspective and focus on the problem of deciding how specialized an information system (IS) module should be in the context of ES implementations. We argue that from a strategic point of view, the degree of specialization has two related consequences. First, we make a case that specialization is usually necessary if a firm hopes to leverage information systems for continued competitive advantage, since unspecialized modules can be obtained by competitors with relative ease. Second, specialized modules are more likely to exactly meet business requirements, thus improving business efficiency and/or effectiveness. These two consequences are related since competitive advantage often comes from having unique and valuable business processes which are supported by effective IS modules.

However, a problem arises because specialization does not come for free; in fact it can be quite expensive (Gill, 1999; Stedman, 1998). Excessive customization, as one form of specialization, has been associated with a number of failed ES implementations (Levin, Mateyaschuk, & Stein, 1998; Stedman, 2000), while other reports blame a lack of fit with the specific business requirements of the firm (Gattiker & Goodhue, 2002; Harris, 2000) as an obstacle to ES success. Thus, finding the right balance of specialization is critical, yet difficult to achieve.

“Perfect fit” with business requirements may not coincide with the optimum of specialization, as costs increase proportionally with increasing specialization efforts, but the margin of gained benefits eventually become increasingly smaller as the “perfect fit” is approached. Over-specialization, beyond this optimum, does not yield sufficient benefits to offset the costs, and can reduce a firm’s bottom line. However, identifying a precise optimum in practice is difficult, as a variety of factors and stakeholders influence actual decisions to choose or customize IS modules.

Therefore, we take a strategic perspective and use the notion of strategic importance as an approximate but easier-to-use approach to determining the best amount of specialization by considering the impact of specialization on competitive advantage to the firm, using ideas from the resource-based view of the firm (Barney, 1991). From a strategic alignment perspective, it is important to create a “strategic fit” between the IT infrastructure and an organization’s business and IT strategy to achieve business value (Henderson & Venkatraman, 1993). This leads us to a four-quadrant guide to IS module specialization. In order to assist the reader in understanding the value of this four-quadrant guide, we report evidence from four case studies that populate the four quadrants. The four-quadrant guide is useful for understanding and evaluating customization decisions made by the organization.

**ESSENTIAL ELEMENTS OF A CONCEPTUAL FRAMEWORK**

In this section, we briefly define and describe the essential elements of the framework for thinking about the module specialization issue.
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The Use of ICTs in Small Business
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