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Managing Projects in a Software Acquisition Environment – Issues and Challenges

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Abstract

There is evidence that organizations are increasingly acquiring software packages rather than developing them in-house to meet their information systems needs. However, there is no systematic approach to managing projects under this scenario. In this study, we examine project management under acquisition scenario.

Introduction

A program manager of a large manufacturing firm, when asked recently about the use of software development methodologies, replied that his firm doesn't design software anymore for most of its non-critical systems but acquires them, many of which incorporate the "best business practices," and manages the acquisition process. However, he felt much of the project management appeared rather ad hoc, and expressed a great need for systematic guidance in developing systems under this scenario.

Background

Acquisition has always been an alternative in traditional systems development, and firms in the past bought system utilities, specialty application software, etc., off-the-shelf to meet some specific requirements. However, this did not change dramatically the traditional systems development process, since it basically fulfilled a well-defined need. Given the rapid pace of change in an organization's technological and business environments, and the need for increasingly shorter and shorter lead time to bring systems to market and/or use, no firm can afford to spend a significant amount of its internal resources to design systems that have already been built elsewhere, often embedding in them some of the best business practices.

According to a survey by International Data Corporation, on average, only 27 percent of information systems is built or developed in-house, the rest is acquired. As a result, *buy versus build* has emerged as one of the critical IT challenges organizations face today (Lucas, 1999) and most organizations appear to view off-the-shelf purchase as their first and most preferred option.

Research Question

Given the software acquisition as the primary trend towards software development, an important research question is: *how to manage software development*

projects when software acquisition plays a very significant role in meeting user needs?

Methodology

Prior research in software acquisition has shown that factors such as uncertainty of user needs, ability of vendor and software package to meet the user needs, etc, have an impact on package implementation (Goss and Ginzberg, 1984). Characteristics of the individuals involved in implementing systems as well as organizational characteristics, along with discrepancies between the business needs and the software package offerings are also known to have some impact on implementation success (Lucas et. al. 1988). Given the broader business implications of some of the software packages (such as ERP), their acquisition has necessitated participation of both "users" and "IS developers" (Montazemi et. al, 1996). With the growing use of enterprise wide package acquisition today, assessing the fit between the needs and package offerings has become increasingly more difficult, thus motivating many to look at the package implementation as a "change process." This has led to suggestions that effective training, continual monitoring of benefits, managing key events, etc, are needed to manage this change process (Lassila and Brancheau, 1999). Others have called for a risk management strategy in implementing package solutions (Butler, 1999).

While these studies provide some guidance, from a project management perspective, in planning and implementation of software packages, they do not provide a comprehensive analysis of how an off-the-shelf package purchase differs from an in-house software development, when viewed from a systems development methodology perspective. In our view, such an analysis is needed since many pre- and post-acquisition steps of systems development have to be realigned if package acquisition is to become an integral part of meeting user needs. This study makes an attempt to fill this void. The study is planned in three phases.

First phase involves gathering information regarding the differences in the methodologies used for developing systems with a focus on the acquisition and those for in-house development. This phase looks at prior research on systems development methodology (Whitten and Bentley's (1998), Hoffer, George, and Valacich (1998), and Dennis and Wixom (2000)) and develops a list of activities that are considered critical to building systems,

and contrasts these steps with the ones under the scenario with emphasis on acquisition. Figure 1 shows briefly the impact of acquisition on the development activities, which are currently being validated by a few practicing, IS managers.

The *second phase* looks at the management of these activities at strategic and operational levels. At the *strategic* level, we examine business drivers, which impact different systems development activities identified in the phase one. The *business drivers* are critical to ensure the success of the project. Three project managers (from a \$9B manufacturing company, \$16.9B and \$168M consulting companies) were interviewed to extract information on some of these drivers. Some of these included core nature of the process being supported, availability of software packages and skilled employees, lead time and opportunity to adopt best practices, etc. At the *operational* level, we look for information on time, effort, and skill needed for different systems development activities identified in phase one. This analysis is done for both “buy” and “design” scenarios in order to identify any significant differences. Three IS managers with 22, 30 and 33 years of systems development experience with a major software development firm were asked to provide input in support of this phase. We are currently in the process of analyzing this data, and based on some preliminary observations, we will use focus group meetings to reconcile differences among the group as well as among many other managers to arrive at a comprehensive set.

The *third phase* of the project is to understand further any significant differences between the way software acquisition is handled under two different acquisition situations: package customization and process adaptation. Acquired software packages can vary widely in fulfilling organizational business needs. Some packages are a perfect fit – business needs are what the package has to offer. On the other hand, there are software packages, which may not be a perfect fit, but good enough so that organizations acquire them. However, they require some degree of customization to meet the business needs. In some cases, it may be easier to adapt organizational business processes to the software packages, particularly when the packages claim to have incorporated the best practices. Some of our earlier research with three different firms seems to indicate that the factors, which impact the direction a firm takes (customize vs. adaptation), may involve many project and organizational characteristics.

By the end of the third phase, we hope to specifically contrast the project management differences (operational as well as strategic) between two different operating

scenarios (customization and adaptation) of software acquisition.

Implications

Given the growing trend towards the software acquisition, IS managers need to not only know how to select a software package to meet the user needs, but also make appropriate adjustments to the analysis (pre-purchase) and implementation (post-purchase) phases to ensure that the package is appropriately integrated into the firm’s day-to-day operations. By the time of the conference, we hope to shed some light on some of these adjustments an IS manager needs to make to their systems development methodology.

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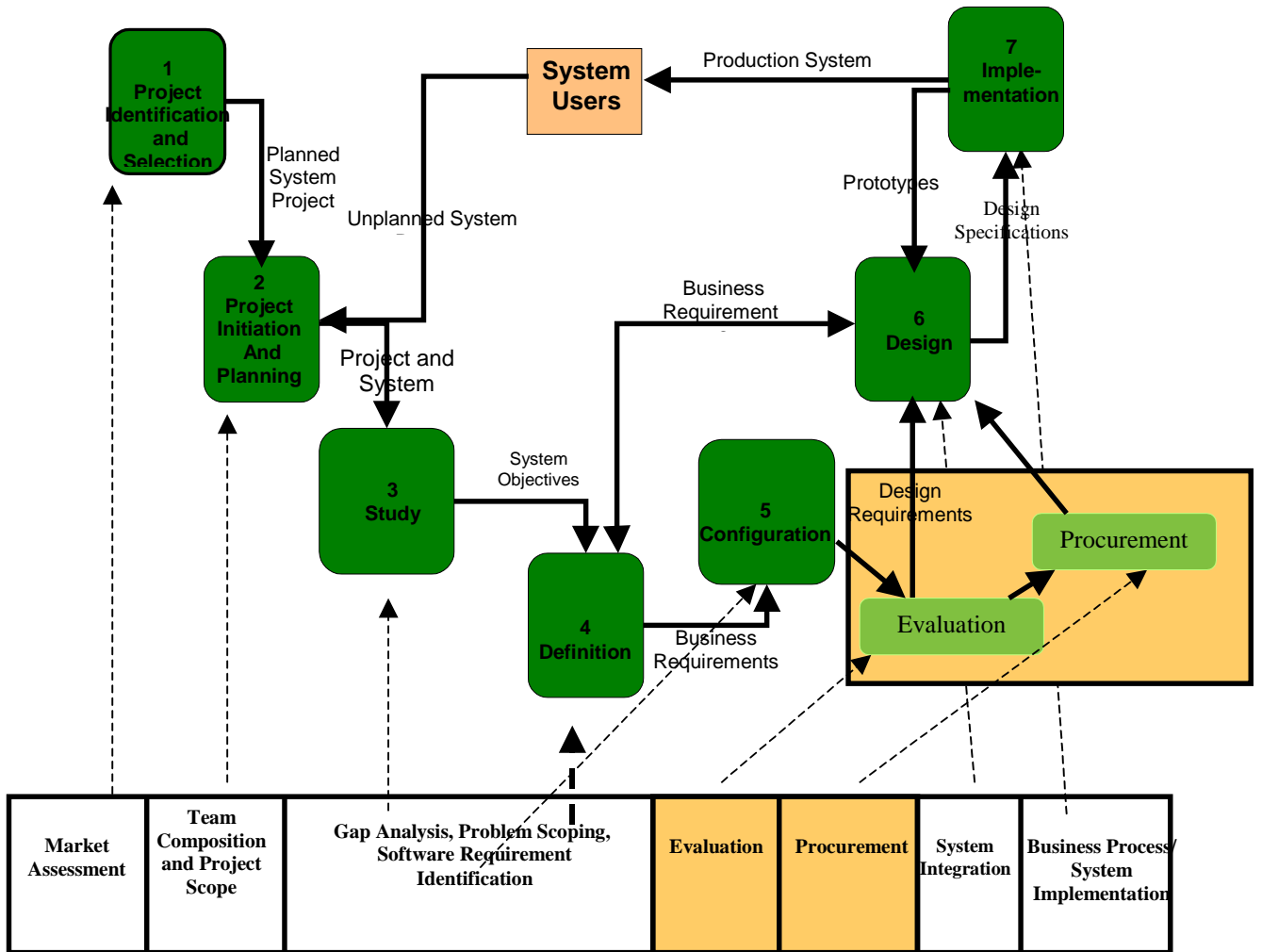


Figure 1: A Depiction of the Impact of Acquisition on Systems Development Activities