Modeling Academic ERP Issues and Innovations with AST

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INTRODUCTION

Academic/industry collaboration has the potential to change learning processes and improve outcomes by integrating resources and creating opportunities that are not otherwise attainable (Wohlin & Regnell, 1999). However, each institution's culture and organizational objectives will influence the collaborative relationships developed as advanced information technologies (e.g. computer aided software engineering tools (CASE), enterprise resource planning (ERP) systems, service-oriented architectures (SOA), business intelligence tools (BI), mobile computing, and systems producing "big data") are adopted. The challenge is to facilitate mutual understanding and acknowledge distinctions in addressing each organization's goals. The aim of these relationships is the appropriation of ERPs in an innovative manner that both enriches educational experiences and benefits industry.

There are many quandaries associated with this phenomenon. How does the deployment of ERPs facilitate educational processes? To what degree should these resources be utilized? What tools and methods should be used? What is the role of the ERP vendor? Can academic independence be maintained?

Without a framework to identify relevant variables, it is daunting to begin to assess the impact of varying degrees of adoption, identify effective processes of deployment, and move towards assessing costs and benefits. Though some frameworks address academic/industry collaboration (Mead et al., 1999), few have considered the implications of ERPs on the evolution of inter-institutional collaborative relationships. This exposition augments a framework for understanding the forces at work when integrating ERPs into educational settings (LeRouge & Webb, 2002; LeRouge & Webb, 2005; Webb & LeRouge, 2009).

This article first reviews adaptive structuration theory (DeSanctis & Poole, 1994) as the foundation for the academic/industry ERP collaboration framework (LeRouge & Webb, 2002). Secondly academic/industry collaboration constructs and their relationships are discussed within the context of ERP systems. The article concludes with an integration of findings and issues from the research literature with the author's recent five-year experience integrating ERP platforms into curricula in a college of business.

BACKGROUND

Adaptive structuration theory (AST), an extension of structuration theory (Giddens, 1982), has been used as a framework to study organizational change processes during advanced information technology adoption (Poole & DeSanctis, 1992). Adaptive structuration takes a socio-technical perspective. Human actors and organizational context are introduced within this perspective as moderators of technology impact. The adoption of an advanced technology, therefore, is a process of organizational change resulting from the mutual influence of the technology and social processes. While first introduced to information systems research in the 1990's, AST continues to be one of several social theories that focuses understanding on how groups interact with and adopt technology (Hirschheim & Klein, 2012). Structuration theory, the basis for AST, has also been suggested as a foundation for understanding how firms attend and respond to unexpected use of IT (Swanson & Ramiller, 2004).

The premise of AST is that in academic settings, human actors and organizational context collectively moderate the processes by which ERPs are appropriated. Such dynamic processes affect not only insti-

DOI: 10.4018/978-1-4666-5888-2.ch081

tutional and industry outcomes resulting from the appropriation, but also the evolution of the relationship between industry and academia. The number of academic institutions adopting ERPs has been increasing rapidly since the 1990s (Rosemann & Maurizo, 2005; Leyh, 2012). The SAP University Alliance Program (UAP) now reports over 1,350 universities (SAP, 2013) and the Microsoft Dynamics Academic Alliance (DynAA) lists over 1100 universities (Microsoft, 2013). Open-source ERP platforms are now an alternative (Ayyagari, 2011). However, use is not a perfect proxy for effectiveness as ERPs serve some institutions better than others (Antonucci et al., 2004).

ERP system adoption within the context of colleges of business is of interest and has considerable impact for a number of reasons: market demand, level of commitment required, interdisciplinary functionality, and level of system sophistication. To provide insight the AST-based model (Webb & LeRouge, 2009) for organizing constructs and relationships for this phenomena is reintroduced (see Figure 1). This model is augmented by providing research findings, issues, and examples (Tables 1 through Table 9).

Advanced Information Technology Structure

Two ways to describe contributing social structures offered by advanced information technologies are "structural features," referring to the types of rules and resources embedded in the system, and "spirit," the intended purpose and utilization of the system (DeSanctis & Poole, 1994). Regarding structural features, an ERP is a comprehensive AIT solution structured to support diverse organizational processes through a large number of application modules. Each module is geared toward a functional or industry-specific process with organizations strategically choosing a set of modules to meet its goals. Additional features added to ERP

Figure 1. Adaptive structuration theory applied to industry/academic collaborations adapted from DeSanctis and Poole (1994) (LeRouge & Webb, 2002)