

Rethinking ERP success: A new perspective from knowledge management and continuous improvement

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Abstract

Most IS research about ERP implementation stops short at system start-up and seldom addresses post-implementation issues. However, ERP implementation is a continuous improvement effort and continued efforts after system start-up will influence the ultimate success of an ERP implemented system. We defined a four-phase ERP refinement model that incorporated knowledge management (KM) into each major implementation phase. This knowledge-enhanced ERP implementation model adds insights when used to investigate ERP success. It also provides practitioners with a guideline for incorporation of KM into their ERP strategy to improve success rates of ERP systems.

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1. Introduction

A great deal of time, efforts, and costs has been directed toward the implementation of enterprise resource planning (ERP) systems. Such systems are beginning to be adopted by many medium to large businesses. Over 60% of the U.S. Fortune 500 had adopted ERP systems by 2000 [7,19] and projected spending on ERP adoption was an estimated \$72.63 billion [1]. ERP projects are a large investment and commitment by an organization. Their inherent size and scope has often lead to complexities. Research of ERP implementation has mainly focused on their initial start-

up [4,8,10]. There has been little research effort in the area of post-implementation support [20]. Many organizations see the start-up of an ERP system as the final goal instead of a milestone, but many ERP systems have been discontinued 3 months to a year after they were “successfully” completed [17], which shows that a static view of ERP implementation is inaccurate, not strategic, and potentially costly.

ERP implementation projects rarely have a static ending point. Consequently, continuous improvement activities are generally required to lengthen the life of these expensive systems. A critical process inherent to the lifecycle is knowledge management (KM) [5].

The knowledge created during ERP implementation and management is a significant resource for an organization and it should be properly managed [2] and the knowledge needs to be created and shared in each phase of ERP implementation, as well as post-ERP

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projects. Due to the size and scope of an ERP system, it therefore becomes a strategic asset of the organization.

To understand the process of integrating KM into ERP lifecycle, a model is needed for assessing and validating an organizations' efforts. As stressed by Nonaka and Konno [11], a knowledge forum, "Ba", is an important platform where knowledge can be shared and new knowledge created. Our research model focused on an organization's KM execution structure – the "Ba" of ERP KM – and how this knowledge structure helps manage knowledge throughout the ERP implementation phases. It addresses both the processes used during the initial creation of knowledge and those processes used to maintain it. Although organizations are becoming more knowledge-focused, fundamental project management methodologies are still needed to embrace KM properly [6]. Systematic incorporation of KM into ERP project management is strategic and critical [16].

We therefore believed that ERP implementation was an enterprise-wide continuous improvement effort which consisted of initial ERP implementation plus a series of post-implementation projects and that to make enterprise systems successful, KM must be incorporated into each implementation phase of ERP implemented projects strategically and systematically. The model was established by consolidating knowledge theory [12] with fundamental ERP implementation methodology.

2. ERP implementation methodologies

Traditional system implementation methodologies provided practitioners with guidance of managing the tasks in a software implementation project. Progressively, these methodologies evolved into a set of "recommended collection of phases, procedures, rules, techniques, tools, documentation, management and training used to develop a system" [3]. The traditional linear (waterfall) approach assumed that systems would typically be superseded by newer systems. However, as IT systems become more integrated and software package costs increased, the wholesale replacement of IS has become prohibitively expensive. Complex IT systems are leveraged, upgraded, expanded, and refined, but are definitely not replaced.

An ERP system is unlikely to be replaced. Instead, it will be reworked and retooled to satisfy new or updated business processes and IS infrastructures [14]. Thus, the ERP lifecycle, like all legacy systems, normally relies upon the system's perpetual maintenance. Each new project builds on the previous work.

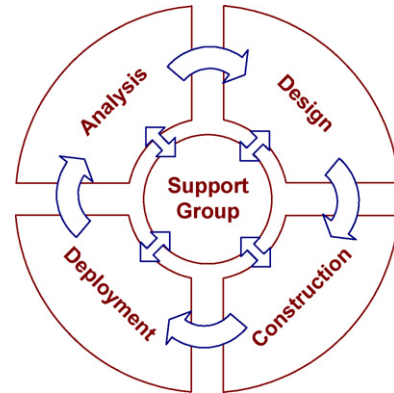


Fig. 1. ERP continuous improvement phase model.

As Fig. 1 shows, the support group is the focus for all phases and across projects. ERP implementation teams are created and disbanded but the central support group persists and coordinates all necessary deliverables and skills required for maintenance and support of the system. This assumes that the support group has access to all information, deliverables, and knowledge from different project phases, because the original data and associated business rules are important to subsequent projects. As the custodian of the system knowledge, the support group can ensure that the information is available and utilized. Thus it is the eventual recipient of the phase deliverables and knowledge once a project team has completed its specific tasks and activities. Of course, this group is not solely technical in nature but becomes the knowledge storer and provider, like the "Ba" of Nonaka and Konno.

The use of third party resources is typical of many ERP projects. These include Subject Matter Experts from the software vendor or consultants hired to augment an organization's skill base. To maintain self-sufficiency the organization must capture this intellectual capital, retain and manage it, and responsibly deploy it as needed.

3. Knowledge management

Sarvary provided an appropriate definition of knowledge and KM: "Knowledge is information plus the causal links that help to make sense of this information. KM might be seen as a process that establishes and clearly articulates such links". Knowledge management includes knowledge capture, documentation, and sharing within a project team or organization. It has increasingly become a business process, supported by database technologies and activities aimed at the creation and sharing of knowledge.

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