

DEVELOPING A SUCCESSFUL IMPLEMENTATION PLAN FOR ERP: ISSUES AND CHALLENGES

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ABSTRACT

This paper commences with a brief description of Enterprise Resource Planning (ERP), follows by a discussion of the benefits provided by an integrated ERP system. Next, the paper describes several critical issues that managers must consider before making the final decision to integrate all the business functions in the organization. These issues are categorized under fundamental issues, people, the organizational change process, and the different approaches to implementing ERP. A well-defined plan is the first step to a successful ERP implementation. Therefore, this paper concludes with a flow chart, depicting many of the activities that must be included in an ERP implementation plan.

Keywords: ERP implementation, end user resistance, system integration, fundamental issues, management support, organizational change process.

INTRODUCTION

The vision of an integrated information systems started in the 1960s, evolving from the inventory tracking systems to Materials Requirements Planning (MRP), and finally to Enterprise Resource Planning (ERP) (1). Today, almost every organization integrates part or all of its business functions together to achieve higher efficiency and productivity.

ERP is the process of integrating all the business functions and processes in an organization to achieve numerous benefits. First, a single point of data entry helps to reduce data redundancy while saving employee's time in entering data, thereby reducing labor and overhead costs (4). Second, the centralization of information, decision-making, and control leads to increases in efficiencies of operations and productivity, as well as coordination between departments, divisions, regions, and even countries. This is especially true for multinational corporations (MNC), in which global integration could result in better communications and coordination around the world. The global sourcing and distribution of parts and services could also provide appropriate benchmarks for operations around the world. Third, the sharing of a centralized database provides business managers with accurate and up-to-date information to make well-informed business decisions. Further, it reduces data redundancy while improving data integrity at the same time. Fourth, functional integration will consolidate all sorts of data, such as financial, manufacturing, and sales, to take advantage of bulk discounts. ERP is especially important for companies who are "intimately connected" to their vendors and customers, and who used electronic data interchange (EDI) to process sales transactions electronically. Therefore, the implementation of ERP is exceptionally beneficial to businesses such as manufacturing plants that mass-produce products with little changes (1). Nevertheless, the revolutionary and innovative ERP software system quickly expands into other business areas such as finance and retailing. ERP also provides companies with a competitive advantage over their competitors.

IMPORTANT ISSUES TO CONSIDER BEFORE IMPLEMENTATION

Before integrating business functions, managers must consider several important issues that will help them decide whether an ERP integration is the right choice for their organization (6). These pertinent issues are classified under the following categories: fundamental issues, organizational change process, people, and the different approaches to implementing ERP.

Fundamental Issues

First, managers must consider the fundamental issues of system integration by analyzing the organization's vision and corporate objectives (4). For instance, does management fully understand its current business processes, and can it make implementation decisions in a timely manner? Is management ready to undertake drastic business process reengineering efforts to yield dramatic outcomes? Is management ready to make any changes in the structure, operations, and cultural environment to accommodate the options configured in the ERP system? Is the organization financially and economically prepared to invest heavily in an ERP implementation?

Next, management needs to decide on the key related implementation and business issues and how to proceed. Certainly, ERP is not suitable for companies that are experiencing rapid growth and change in an unstable environment, are undergoing change in the corporate management and philosophy, or that will be experiencing merger or liquidation in the near future. Understandably, there will be more foreseeable system integration problems if one of the merging companies is in the midst of an ERP upgrade because it must deal with scalability, a new IT infrastructure, and a different corporate culture simultaneously (7). Further, ERP integration is not recommended for companies which require a lot of flexibility to succeed or which manufacture products that are constantly changing (4). Similarly, companies that have very little experience with formal information systems or have constantly changing information systems requirements will not benefit from an ERP implementation.

Finally, organizations need to exploit future communication and computing technology to integrate the ERP system with e-business applications. Oftentimes, additional new hardware and specialized professionals are needed to run the powerful software system. Depending on the size of the company and the modules installed, the cost of implementation can range from one million to five hundred million dollars, and will take as long as two years for a mid-size company and seven years for a large, multinational corporation to complete.

People

People-related issues such as corporate philosophy and leadership style can play an important role in the ERP implementation process. Research has concluded that active top management support and commitment are essential to the success of any system implementation. Frequently, executive councils and steering committees consisting of top managers are developed to plan and manage the IT initiatives (8). Such senior managerial involvement tends to increase the optimization of IT business values.

Employees can be quite wary of any kind of change in the business processes, particularly during periods of economic downturn. Ill-trained employees who fight the changes in the business process tend to be poor performers. Therefore, to increase the chance of a successful ERP implementation and to reduce users' resistance to change, end users, especially those who are very knowledgeable with the operations, must be involved in all stages of the implementation process. Employees must also be educated about the ERP installation. Such educational endeavor should include a concise introduction to the basic concepts and architecture of ERP systems, including actual screen shots of the function modules. During these training sessions, it is important to discuss the managerial issues involved and to build a basic understanding of the integration concepts prior to the actual installation of the ERP system. Further, any Business-to-Business initiatives, reengineering projects, alliances, and the introduction of new technologies should also be addressed.

Project managers must take charge of the implementation process at all times. They must oversee the reengineering of the key business processes, reassign job responsibilities, restructure the organization's chart, and redefine work relationships. Further, they must also learn how to manage the software vendors and any outside consultants.

The Organizational Change Process

ERP implementation requires organizations to reengineer their key business processes in fundamental ways, revamping old ways of conducting business, redefining job responsibilities, and restructuring the organization. For major multinational corporations (MNC), the ERP systems must be customized to address global issues where different countries have different ways of doing business, and to incorporate country-specific business practices pertaining to accounting, tax requirements, environmental regulations, human resources, manufacturing, and currency conversion into the integrated systems. While integrating the information systems across various countries, three types of misfits (relating to data, process, and output) can occur due to incompatibilities between software functionality and organizational requirements as well as differences in cultural and regulatory environments (9). The unique context of each country in which an organization operates must be carefully enmeshed into the traditionally Western-biased business practices inherent in the ERP systems.

Diese, et al. (2000) describes an eight-level process that managers can use to manage change. The first step is to create a comprehensive change vision and to make the vision operational. Then, a change strategy is defined to assess readiness change within the organization, to select the best change configuration, and to establish change governance. The third process is to develop leadership, in order to lead the change program and to develop leadership capability. Commitment from teams is built through communication, managing resistance, and transferring of knowledge and skills. The fifth process is to manage employee and stakeholders' performance by establishing needs, and implementing performance management and people practices. Business benefits are delivered through the building of business cases, and quantifying and sustaining benefits. The next process is to develop culture in the organization by understanding the current culture, and then to design the target culture and to implement cultural

change. The final process is to design the organization by understanding the current organization, and then to design the target organization and to implement organizational change.

Different Approaches To Implementing ERP

Another important question for managers to consider is how much to implement. Depending on the tasks and processes involved in the installation process, there are several approaches to implementing ERP. For instance, is the organization embarking on an ambitious journey of revamping the whole enterprise using a complete integration, or is the organization employing a franchising strategy of implementing a partial integration across a few divisions with uncommon processes (5)? The complete integration approach was quite popular during the 1990s among the Fortune 500 corporations because ERP implementation was touted as the perfect solution to the Y2K problem. On the contrary, the franchise approach is employed by large or diverse companies that do not have many common processes across the organizations. Individual ERP software packages with its own database are installed in each business division, while common processes sharing common information are installed across the organization. This is a good strategy for companies who would like to ease into ERP implementation, by starting with a pilot installation and slowly moving into other business units. Another approach is for small companies interested in experimenting with ERP, by starting with a few key processes or a particular module. Such “canned” processes would require little reengineering, thereby maintaining minimal disruption to the daily business operations. However, such IT endeavors seldom result in extensive benefits to the organizations.

The bigger the organization, the more complex the business processes are and the greater the difficulties in implementing the ERP system (1). Organizations considering a partial implementation must deal with the problems associated with using multiple vendors. They also need to consider simultaneous versus piecemeal implementation because of the ripple effect caused by decisions made in one module. In general, in order to maintain a smooth transition of the business processes and operations, simultaneous integration of the whole system, instead of functional or departmental integration, is highly recommended.

ERP CHALLENGES

When implementing ERP systems, most organizations will encounter different kinds of challenges. A problematic ERP implementation in mid-August of 2002 costs Agilent Technologies Inc. \$105 million in revenue and \$70 million in profits (11). The major problems encountered by Agilent include the need to convert all orders in the legacy systems to an Oracle-friendly format, problems in the configuration process, and the management’s inability to prepare for a fundamental transformation of the company’s key business processes. A-DEC Inc., a dental equipment maker located in Newberg, Oregon, installed Baan’s ERP system to integrate manufacturing, distribution and financial information processing (12). Unfortunately, the company lost a lot of business because employees were falling behind on processing orders, building products, and shipping goods to dealers. Many of the people-related problems include employees not understanding the newly installed system, which subsequently led to low performance; end users resisting and fighting the changes in the business process; and end users receiving insufficient training. In 1999, a failed company-wide rollout installation of SAP AG’s

ERP applications caused teddy bear maker Russ Berrie and Co. \$10.3 million and three years (10). Subsequently, in 2002, Russ Berrie and Co. implemented a new departmental phased installation using J.D. Edwards & Co.'s OneWorld Xe suite of ERP, CRM, and financial applications.

THE ERP IMPLEMENTATION PLAN

The flowchart in Figure 1 depicts several activities that must be performed before implementing an ERP system. First, managers must conduct a feasibility study of the current situation to assess the organization's needs by analyzing the availability of hardware, software, databases, and in-house computer expertise, and make the decision to implement ERP where integration is essential (2). They must also set goals for improvement and establish objectives for the implementation, and calculate the break-even points and benefits to be received from this expensive IT investment. The second major activity involves educating and recruiting end users to be involved throughout the implementation process.

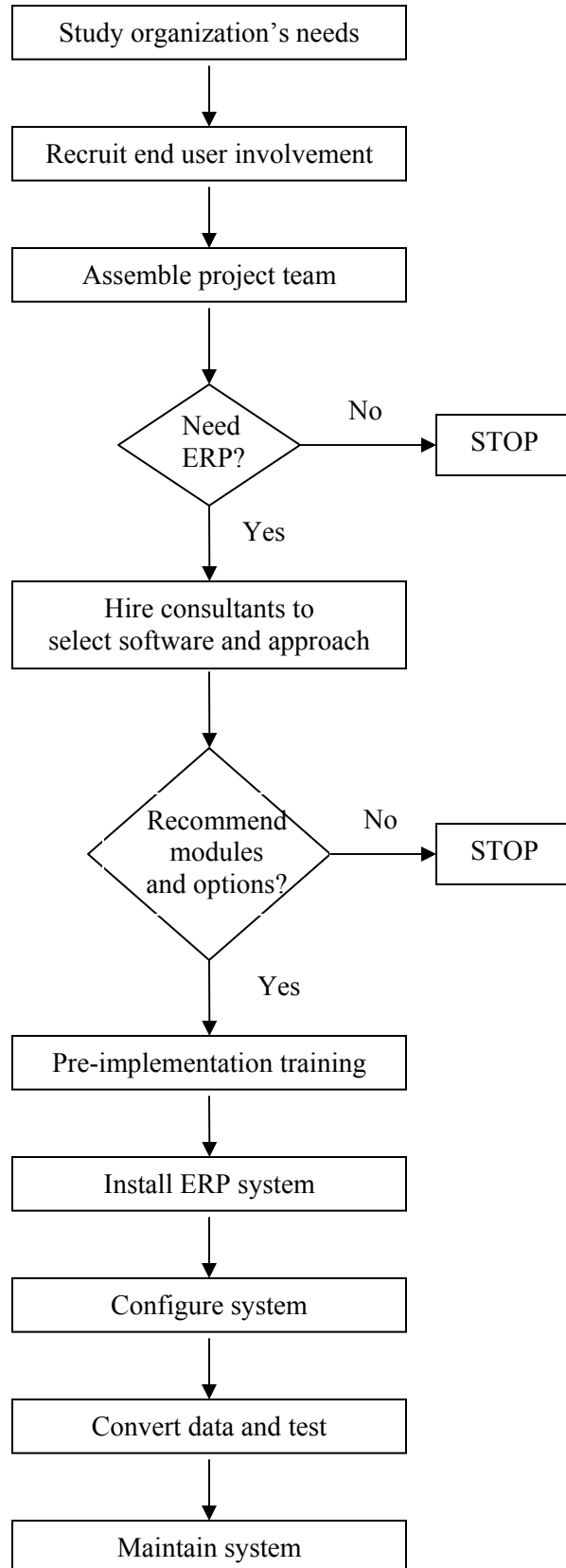
Third, managers will form a project team or steering committee that consists of experts from all functional areas to lead the project. After a decision is made, a team of system consultants will be hired to evaluate the appropriateness of implementing an ERP system, and to help select the best enterprise software provider and the best approach to implementing ERP. In most situations, the consultant team will also recommend the modules that are best suited to the company's operations (manufacturing, financials, human resources, logistics, forecasting, etc.), system configurations, and Business-to-Business applications such as supply-chain management, customer relationship management, e-procurement, and e-marketplace.

The importance of adequate employee and manager training can never be overestimated. IT analysts usually recommend that managers reserve 11% of the project's budget for training. Different kinds and different levels of training must be provided to all business stakeholders, including managers, end users, customers, and vendors, before the system is implemented. Such training are usually customized and can be provided by either internal or outside trainers.

The system installation process will address issues such as software configuration, hardware acquisition, and software testing. Data and information in the databases must be converted to the format used in the new ERP system and servers and networks need to be upgraded. System maintenance will address issues and problems that arise during operations. A post-implementation review is recommended to ensure that all business objectives established during the planning phase are achieved. Needed modifications are tackled during this phase too.

CONCLUSION

An ERP implementation is a huge commitment from the organization, causing millions of dollars and can take up to several years to complete. However, when it is integrated successfully, the benefits can be enormous. A well-designed and properly integrated ERP system allows the most updated information to be shared among various business functions, thereby resulting in tremendous cost savings and increased efficiency. When making the implementation decision, management must consider fundamental issues such as the organization's readiness for a

Figure 1 The ERP Implementation Plan

dramatic change, the degree of integration, key business processes to be implemented, e-business applications to be included, and whether or not new hardware need to be acquired. In order to increase the chance of user acceptance, employees must be consulted and be involved in all stages of the implementation process. Providing proper education and appropriate training are also two important strategies to increase the end user acceptance rate. The organization is also going through a drastic change, with changes in the way businesses are conducted, the organization being restructured, and job responsibilities being redefined. To facilitate the change process, managers are encouraged to utilize the eight-level organizational change process recommended by Diese, et al. Managers can implement their ERP systems in several ways, which include the whole integration, the franchise approach, and the single-module approach. Finally, the paper concludes with a flow chart, depicting many of the activities that managers must perform to ensure a proper ERP implementation.

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