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Intranet-based Training Facilitates ERP System Implementation: A Case Study

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Abstract

Enterprise Resource Planning (ERP) systems enable organizations to gain better control over their operations and costs by tightly integrating related business functions. This results in substantial savings. They provide a migration path from legacy systems to a client server environment. They also offer a solution to the year 2000 problem. This has led to a sharp increase in the demand for these systems. Implementation of ERP systems, however, is considered to be a high cost high risk project. Training is a key factor in implementation success. ERP implementation affects the roles of a large number of employees in an organization, who must be trained within a relatively short time period. Organizing and delivering such training in a cost effective and timely manner is a challenging task. Trainers are using innovative methods to accomplish this. Web-based training is recently gaining popularity as a convenient and economical means for imparting training to a large group of widely dispersed audience. In this article we describe an innovative use of intranet-based training to facilitate ERP implementation in a manufacturing organization.

Introduction

Enterprise Resource Planning (ERP) systems provide software support for major business operations in an organization. They provide a migration path from antiquated legacy systems, consisting of disparate mainframe based software, to a standardized client server environment. The cross functional process models of business supported by ERP systems enables an organization to redesign its business processes and eliminate inefficiencies inherent in the functional model supported by legacy systems. Tight integration among various processes in an ERP system provides better control over operations and costs. This can result in substantial savings to the organization (Stein 1997). ERP systems also provide a solution to the much publicized year 2000 problem. Thus, they offer an efficient and effective data management approach to take an organization to the next millenium. The demand for ERP systems is growing rapidly (Allnoch 1997, Weston 1997). Led by the top three vendors, namely, SAP, Baan, and PeopleSoft, the 7 billion dollar ERP market is reported to be expanding at 40% annually (Dilger 1997).

ERP implementation is considered to be a high cost, high risk project (Vasilash 1997). Besides the high cost of ERP software, its implementation is often associated with reengineering of business processes to eliminate inefficiencies carried over from legacy systems. This results in widespread organizational change. This change combined with the complexity of ERP software significantly raises the risk associated with ERP implementation. According to an estimate, about 25% of ERP projects fail, costing millions of dollars to businesses (Bartholomew 1997). The role of training to facilitate software implementation is well documented in MIS research (Nelson & Cheney 1987, Santhanam & Sein 1994). Training improves the proficiency of end users in using the software and contributes to a higher level of utilization and acceptance of the software. Training also plays a critical role in successful implementation of business process reengineering (BPR) projects (Grover et al. 1995). BPR changes the roles and responsibilities of employees in an organization. Employees affected by such changes must be retrained to acquire new skills. Training plays a key role in successful ERP implementation, which combines aspects of BPR and software implementation. Users must learn new skills to match the new roles created by process reengineering. They also need to be trained to use the ERP software, which replaces the mainframe based legacy software system.

Training consumes a sizeable part of the ERP implementation budget. According to an estimate, training costs may be as high as 15% of the implementation budget for such projects (Slater 1998). Training for ERP implementation has two features that make it a difficult and expensive operation. Software packages, such as MRP systems and Order processing systems affect the activities of a small section of employees in an organization. In contrast ERP implementation affects an entire organization or a business unit that is the target of implementation. This requires that training must be imparted to a substantially large user

group. In some cases the user group may be dispersed across the country or over several countries. The time frame to impart training is relatively short, as it must coincide with ERP implementation. Training the whole organization within a short timeframe poses a number of challenges with respect to planning, organizing, and delivering such training. Organizations are turning to innovative methods using new technologies to impart such training. In this article we describe the experience of an organization in using the corporate intranet as a training medium to facilitate ERP implementation.

Intranet as a Training Medium

The corporate intranet offers a rich medium of communication within the organization (Bernard 1996). Ease of use, cross platform compatibility, security, and the ability to handle diverse data types, including text, audio, video and multimedia data, are some of the features that make it a useful medium for information dissemination. While the popularity of intranets as a communication medium is growing, organizations are also realizing its potential as a medium for delivering training to employees (Stevens 1996). Traditionally training is imparted in a classroom setting using printed material. With the advent of powerful and affordable personal computers and multimedia technology, computer-based training is growing in popularity. So far CD ROMs have been used as the primary medium for delivering computer-based training. Some of the benefits of the intranet over CD ROMs as a training delivery medium are: lower cost, company wide access to training material, easier content modification, on line performance evaluation and monitoring, support for training management functions, access to information on the world wide web, and interaction between trainees and trainers.

The existing corporate intranet infrastructure can be used for delivering training. The training material can be set up in an internal web server and can be accessed by all employees of the organization all over the world. The cost and time required for doing this is much lower compared to the cost and time for creating and distributing training material through CD ROMs. Web-based training material can be easily modified in a central location. The revised material can be instantaneously made available to end users. This makes the intranet very useful as a training medium when the training material is likely to change frequently. It is possible to set up test modules on the web and evaluate and track the performance of trainees. The intranet can be used by the training department for managing training related functions, such as publishing schedules for courses and signing up employees for training. A large amount of useful information is already available on the world wide web. This information can be easily accessed from the intranet to supplement the course material developed in house. Finally, it is possible to set up chat rooms to provide a forum for interaction between trainees and trainers. All these characteristics make the intranet an ideal medium for delivering training to a large number of employees in an organization in a cost effective manner. Inadequate bandwidth for delivering multimedia data is considered to be one of the constraints in delivering web-based training. However, this is more a problem with the internet rather than the intranet, which can be designed to have adequate bandwidth.

Case Study

Telecommunications Corporation (TC)¹ is a leading manufacturer of high speed digital communications equipment. Its customers include Regional Bell Operating Companies, independent local telephone service providers, and domestic and international corporations. Its head office is located in a southern state, with sales offices located throughout the United States. Its products are sold through a network of more than two hundred domestic and international value added resellers and distributors. It employs about 1100 employees and had a sales turnover of \$265 million in 1997. TC's business philosophy can be summarized as "Supporting customers beyond their expectations." A commitment to total customer satisfaction is the driving force behind TC's success. This requires the company to continually develop and improve its products and services, and be highly responsive to customers' needs. The software support for TC's operations is currently provided by ASK/MANMAN, a legacy system, which is found to be inadequate to meet the computing need of the company. TC management decided to replace this computer system with an ERP system, which they felt, would better serve the company by integrating various mission critical operations and would enable it to be more responsive to customer demands. It will also help the company to migrate to a client server environment that offers a scaleable architecture to keep up with the rapidly expanding business of the company. After an extensive search, a decision was made to replace ASK/MANMAN by Baan.

An ERP team was setup with representatives from each functional area to manage ERP implementation. A training team was formed to plan, design, and deliver training for the ERP project. Its goal was to equip end users with appropriate skills to facilitate the transition from the legacy system to the ERP system. This team included IT personnel, content experts from functional areas, and technical writers. The team was headed by an IT person with extensive experience in end user training. While it is desirable to reengineer business processes before implementing ERP, some experts caution against too much change to coincide with ERP implementation (Vasilash 1997). TC's ERP team was aware of this. According to a team member, "*We didn't want to combine reengineering with new system implementation because we found some other companies doing that, which put them over budget and behind schedule.*" Consequently, the strategy adopted by the ERP team was to implement the new system with very few changes to work processes and follow it up with an extensive reengineering phase. The implication of this strategy for training was that training material developed during ERP implementation would undergo change when the

¹The name of the company has been disguised to maintain confidentiality.

company implements reengineering. In the words of the training team leader, *“Our goal was to use a training delivery medium that would let us modify the contents easily.”*

The training team used the following criteria to select a training delivery medium:

- Easy to modify
- Low cost
- Company wide reach
- Compatibility with Baan software
- Shorter learning curve for training development

The alternatives considered were: (1) traditional paper-based medium, (2) CD ROMs, and (3) the corporate intranet. The third alternative was considered the best choice based on these criteria. The company already had an intranet with web-enabled workstations available in most departments. The training material could be set up in the internal web server without much additional cost. Company wide accessibility was an important criterion because the ERP system would affect almost all employees in the organization, who must be trained within a relatively short time period.

As a first step in ERP implementation, the ERP team had developed work flow models to document business processes and roles played by different employees. This was done using the Dynamic Enterprise Modeler (DEM), a work flow modeling tool available with Baan. These models formed the interface to various training modules. This made it possible to deliver job specific training to each end user.

The training team felt that it was easier to learn and use web-authoring tools to develop training material than to learn multimedia authoring tools for developing CD ROM based training. Microsoft FrontPage was used to design and develop web pages. Lotus ScreenCam was used to document audio and video instructions about how to perform a task. On line quizzes and course evaluations were set up using Question Mark software. Gyrus Training Wizard Training Administration software was used for publishing and managing course schedules. The training modules are connected to the DEM models implemented in Baan. Wherever appropriate access is provided to internet sites with relevant information. According to the training team leader, *“The hardware and software required for developing the training material cost us very little.”* Training material is currently being developed and is scheduled for pilot testing in Spring 1998.

Lessons Learnt

The training team had a lot of experience in delivering training using traditional methods but did not have much experience with intranets. The process of developing training using the intranet has been a learning experience for the entire team. In the words of a technical writer, who is also responsible for developing the web pages, *“The web authoring tools are easy to learn and use; but organizing the material for easy access on the web was more difficult and required a few trials to smooth out problems.”* The DEM interface is a big help in organizing role specific training. Since the users use the same DEM interface in executing the tasks, the training material can be used later for on the job review. Network performance was a problem initially, but has been taken care of. Screen Cam files containing audio and video data sometimes slow down the system, but don't pose a major problem. Pilot testing will reveal the end users' perspective and the effectiveness of intranet-based training.

Conclusion

Intranets offer an economical medium for delivering training to a large number of employees dispersed over several locations. This makes it an ideal candidate for training delivery during ERP implementation. Ease of content modification and instantaneous availability of the revised content makes intranets very attractive for developing training material that are likely to change frequently. The case study demonstrates the usefulness of intranet as a training development tool from a trainer's perspective. Future research includes studying the effectiveness of intranets as a training delivery medium from an end user's perspective. This will be accomplished during the pilot testing of training material and the actual training sessions to be conducted for ERP implementation.

References

References available upon request from the first author (mahapatra.uta.edu).