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A Case Study of ERP Implementation Issues

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Abstract

We discuss strategic issues related to deploying Enterprise Resource Planning (ERP) systems in terms of their applications, suggested benefits, and proven failures. After this broad explanation of ERP systems as they pertain to today's business world, attention focuses to the difficulties in implementing SAP ERP systems in a Midwestern business. Finally, a review of recommendations for increasing Return on ERP Investment is provided.

1. Introduction

Enterprise Resource Planning (ERP) systems are hot issues in today's "costs at a minimum, profits at a maximum" business world. In fact, a recent study predicts that the ERP market will expand at a compounded annual growth rate of 11 percent to reach $25 billion by 2004 [4]. This is attributed largely to the fact that once a business can get past the kick in the pocketbook they take when implementing the system, ERP provides the business with an integrated suite of computer applications that result in a seamless flow of information across the organization with promises of future cost savings. Post implementation, newfound efficiency, and effectiveness from this "seamless information flow" are some acclaimed ERP benefits that are the drivers of the cost savings [3].

1.1. Benefits

While one might view ERP systems as merely improving or updating existing technology (as was the case at the time of Y2K), many business managers believe that ERP systems are implemented for far more significant strategic reasons [1]. Some of these well-known benefits are as follows:

- Cross-functional business processes are brought to the forefront and allow information to be shared horizontally, between functions and business units; and vertically, from the front-line to the strategic levels,
- Operating costs are reduced,
- Production cycles speed up,
- Identification of excess inventories/better management of inventories,
- Improved customer satisfaction by improving late deliveries and customer service resources,

- ERP-enabled business processes and data are standardized and normalized,
- Organizational boundaries dissolve – creating a business where departments are constantly "talking" to one another,
- Independent business units are integrated – forming one business unit,
- Jobs broaden and/or are redefined via expanded information access,
- The availability of information fosters empowerment of employees,
- There is system-wide accountability and visibility that helps to ensure people do things right the first time,
- More accurate demand forecasts are generated.

1.2. Who Benefits?

Charlie Rooney, a partner at Orr & Boss, Inc. consulting firm in Plymouth, Michigan identifies the following six major internal factors that determine whether or not ERP should be implemented in an organization [5].

1. If its supply chain includes multiple distribution centers and plants, an ERP system is almost essential.
2. If its manufacturing is capital intensive, ERP will have a larger impact due to its ability to manage peaks of demand by building inventory for forecast sales.
3. With complex production processes that have many levels of intermediate products, ERP systems can help control inventory while avoiding stock outs.
4. Where set up and clean up are a major part of total cost, the ability of an ERP system to aggregate demand and control the number of batches helps minimize cost.
5. ERP systems can cut transportation costs by using Demand Requirements Planning to ensure that warehouses are supplied from the plant that can do so at the lowest total cost. They also minimize freight out by aggregating shipments and enforcing discipline in choice of carriers. This is important in industries like consumer caulk, where transportation cost is a major portion of total supply chain costs, and
6. If the company has built up a fragmented set of legacy systems over the years may be sufficient

reason to upgrade to an ERP package. Modern systems can do so much more, and there are great advantages to working from a common database.

1.3. The Failures

While ERP benefits are sought after in today's productivity and efficiency oriented corporate climate, they do come at a price, and sometimes it is more than what the investors were expecting to take on. In fact, the current consensus is that many companies have failed to reap the significant benefits that a massive investment in ERP warrants. The question that arises is why? Below are some reasons are that ERP projects have failed to bring the expected results.

- They represented very large investments for the organizations concerned,
- They have been very painful to implement and left the organization drained and resistant to launching further projects,
- They have not taken into consideration the all the hidden costs in the form of the internal resources deployed and the consequent loss of focus on the business associated with an implementation, and
- They delivered limited business benefits over and above installation of new base systems infrastructure.

The following situations add to the notion that, historically, organizations have not been able to recognize all the benefits ERP has to offer:

- Organizations develop over-ambitious project plans that underestimate the scale and degree of difficulty of implementing ERP. Then when the magnitude of the task becomes clear, the organization scales back and sacrifices benefits,
- There is a bandwagon effect whereby projects are pushed through with flimsy business cases and the claim that, because everybody else in the sector is implementing ERP, it must be the right thing to do, and
- Since ERP is so expensive to implement, many try to minimize cost by reducing the amount of business change involved.

The reality that must be faced now is that organizations must take action – brainstorming solutions that will allow them to realize the benefits of an investment in ERP [6].

2. Difficulties and Issues in ERP Implementations

Company XYZ, a Midwestern multi-national company operates five major manufacturing facilities and ten minor facilities worldwide. XYZ elected to implement the SAP Enterprise Resource Planning Software in order to integrate its facilities and improve:

- Their current slow and dysfunctional New Product Development Process,
- Customer Focus (specifically for Large Accounts),
- Operating Systems efficiency: it operated five independent computer systems which required high maintenance,
- Business structure: it had functional silos.

To solve these problems, XYZ decided to assemble a "Customer First" Team to address the future needs of the business. The team was made up of project management and a project team. The objectives of the first phase of the Customer First team were to:

- Identify customer expectations (for external and internal customers),
- Understand the current processes,
- Identify improvement opportunities,
- Determine future process vision, targets, and goals, and
- Develop a Vision

XYZ met these objectives by conducting 220 interviews of customers, vice presidents, departmental directors, middle management, and general staff. The results of the interviews indicated that XYZ would realize significant business benefits via process redesigns. However, these benefits could not be attained without a common vision of how the business would operate and a business that was prepared to make the change.

The team also determined that the current processes and infrastructure could not efficiently support the requirements of increased customer demands following recent business expansion and acquisitions as well as implementing internal growth strategies. To enable the recommended processes to be successful, a new ERP solution was required, since it was key to obtaining the benefits associated with the redesign. The recommended solution consisted of the following elements:

1. XYZ decided to implement the following modules of SAP Enterprise Resource Planning software:
   - Materials Management,
   - Sales and Distribution,
   - Production Planning,
   - Warehouse Management,
   - Human Resources,
   - Business to Business,
   - Advanced Planning Optimizer (Forecasting Tool),
   - Financial Accounting/Controlling,
   - Costing, and
   - Customer Relations Management.

2. XYZ hired consultants from IBM to help with the implementation process. The ERP system was implemented in early 2002 in order to allow XYZ to enter data into the system and test the system before "go live" which was scheduled for July 2002.

The month of July was chosen because it has historically been a relatively slow period for XYZ's operations, allowing sufficient time and resource capacity buffers for the SAP implementation project. As "go live" date approached, XYZ's Information Systems and SAP staff, who had performed transactions within a testing environment in the SAP ERP system, wrote procedures. A "Day in the Life" simulation was run in late May 2002. The SAP systems live production environment was turned on for one day and phony manufacturing orders were entered into the system to simulate an actual day of work. Then the data that the system generated was studied for error and corrective action was taken wherever necessary.

The transition to a new system occurred in July 2002. There was a state of confusion and the Production and Inventory Control department, as well as the SAP help desk, and IS department were pummeled with a lot of questions. The disturbance is expected to have a significant effect for several months. After "go live" the following six major obstacles to a smooth SAP system implementation were been identified:

1. There was a lack of tools for generating necessary reports/ the new system wasn't customized to the business and everyone fumbled to find some way to measure their progresses,

2. There was a lack of knowledge regarding the forecasting module and no back-up plan as well an unacceptable consultant turnover,

3. Data had been overlooked and wasn't entered into the system causing many errors,

4. The integrity of some of the data entered into the system was poor, once again causing costly errors,

5. There was a lack of time necessary to successfully implement the project. Management pushed for a quick transition to a new system to save money on current system software licenses,

6. Since "go live" XYZ has been making sure that their process goals are in line with the business goals, by setting proper priorities for each process and putting disciplinary measure in place. They have also identified four main implementation issues:

   - Always develop back up strategies and computer infrastructure systems,

   - Review and understand your current processes and need before defining the need for a system (Choose or design a system around *your* business needs,)

   - Support and drive from executive staff is a must, and

   - Training, Training, Training.

We emphasize that training is a critical condition for a successful implementation. The author has witnessed many employees at XYZ having difficulty with utilizing the features of the new system because of a lack of adequate user training program. It is not that the training everyone received was poor, but by the time the system actually went live, most employees forgot what they were supposed to do. Refresher courses were available, but not mandatory, and the reality of the learning curve effect was recognized the hard way.

The early period of the system implementation was plagued with system problems as well as employee mistakes. The consultant turnover was very significant, resulting in a loss of a personal relationship and user confidence that took time to build. Just when one of the consultants was beginning to bring some light to some of the problems, he/she would be reassigned. This is especially evident in regard to the forecasting tool, which is still to generate relatively accurate and usable forecasts to date.

This crisis was partially part of the consulting firm's plan to keep staff onsite at XYZ for as long as possible (at $200 per consultant, per day). In addition to the turnover, I learned that the consultants were very tight-lipped about teaching valuable information to XYZ's support staff, thus prolonging their stay even longer while XYZ's support staff scrambled to learn what they could. Furthermore, none of this was communicated to upper management for fear that there would be an even bigger slap on the informant's wrist. Everyone tiptoed around and no one was willing to upset the norm for fear of scrutiny and/or demotion. This is reflective of XYZ's traditional top-down corporate culture and reflective of the consulting firm's questionable business ethics. In the end, when project deadlines passed, SAP implementation progress ground to a halt, and the smoke cleared there were an abundance of XYZ executives pointing their fingers at one another.

In order for XYZ to maximize ROI from SAP implementation, they have institute strong leadership that will reinvent the corporate culture, while promoting an increase in data measurement tools, data integrity, and employee knowledge of the system.

3. Conclusions and Recommendations

Following Mark Smith, a co-founder of Partners for Change, there are three elements that must be managed in order for an organization to realize more benefit from an ERP implementation [6].

1. The first element is to develop an exploitation strategy. This is primarily concerned with identifying projects that utilize the base infrastructure and deliver the biggest benefits. The challenge is finding people who understand the business and its processes, understand the technology and can identify quickly where a business can change and

improve performance. The types of projects that are emerging in developing these exploitation strategies include:

- Reengineering around existing installed modules,
- Installation of new modules,
- Use of 'new dimension products' from ERP suppliers, or complementary software from niche suppliers, to get more from customer relationship management, supply-chain management, and information management, and
- Internet applications linked to ERP to open up new sales channels or fundamentally change the nature of the business,

The portfolio needs to be shaped into a program that factors in the need for upgrades and the availability of key resources within the organization.

2. The second element is the development of benefit-focused implementation plans. Developing plans that respond to the benefit opportunities available will demand the involvement of the business in identifying the potential changes that could be made and developing business requirements that will underpin those changes. The resulting plan will be more focused on activities that ensure that the business stays involved and to ensure that the changes are made.

The most critical component of this element is the development of detailed business cases. In the past it has been easy to get projects through the investment net on relatively flimsy business cases. This should not be allowed to continue and involving the right users in the development of the cases builds a sense of ownership in the outcomes.

3. The third element is the establishment of recognizable benefit delivery processes, which have been virtually non-existent around ERP projects. A formal process is required that is initiated as part of the development of the business cases and ends well after the systems and processes go live.

At an early stage, the benefits need to be well articulated and evaluated. Accountability for their delivery needs to be clearly allocated and communicated. This accountability often needs to be shared to reflect dependencies on other functions or processes and these dependencies need to be clear so that people do not wriggle out of their commitments at a later date.

Sustaining mechanisms need to be developed, e.g. inclusion of the expected results in budgets or performance measures. Having these results included in a manager's compensation arrangements is a particularly compelling technique.

Around the build-up to going live it is easy to lose sight of the original purpose of the project: it's benefit. Providing the support mechanisms around and after going live are therefore critical to retain focus on overcoming the inevitable dip in performance after going live, ramping up to a stabilized performance level as fast as possible and then going forward to delivery of the expected benefit. Installing the sustaining performance monitoring mechanisms to encourage continuous improvement also continuous improvement also contributes to building a culture of benefit delivery. This helps enormously, as there will always be the next project in the exploitation strategy to manage" [6].

3.1. Aligning and Optimizing Processes: Change Management

Additionally, organizations implementing ERP systems should focus on achieving alignment of the organizational team and scope goals. The organization needs to understand why the project is worth the pain of change. Strategic, tangible business benefits should be spelled out and ways to measure success must be well defined and understood throughout organizational ranks. Top management must be firmly and actively united behind the business goals driving the implementation. With adequate direction, the project could be much more successful because potentially resistant employees can change into project pushers.

The purpose of organizational alignment is to align people, work group structures, and the cultural environment with the business flows that are defined from the business case vision and functional design. This is done to enable the organization and the employees to optimize and leverage the ERP system and its supporting processes. This discipline is the key integration point for the teams who design the business processes and configure the systems. Through this discipline, the change management team obtains a deep knowledge of the business processes, which is essential in order to support the change process in a way that will add tangible value to the organization.

The results of an annual CIO survey performed by Deloitte & Touche Consulting in 1998 point to the need for heavy investment in the area of change management. In this survey, one of the questions the executives were asked was what were the major barriers to the successful implementation of a reengineering program. Out of the top 10 issues listed, only the last one pertains to technology; the others relate to cost to people and change management. People and organizational issues were also identified at the top of the list of factors that contribute most to the success of change.

A recent survey of 259 executives in major U.S. corporations conducted by the American Management Association demonstrated a low level of success for all aspects of the change management effort in their organizations. Executives were asked to rate the importance of various aspects of the change management in terms of the success of change initiatives. They were also asked about how successful their firms have been in

actually dealing with these aspects. The results demonstrated the poor performance of change management programs within these corporations. The results show that top management rates the importance of its own role in change initiatives much higher than their actual rate of successful implementation. When asked to pin point the primary reasons why some or all aspects of change management were not successful, respondents most often cited a lack of sufficient attention to and understanding of, change management issues.

Far too often, the change management and training elements are downgraded to the final stages of the project life cycle. For some companies they are even considered low priorities. Nevertheless, research shows that a typical ERP project ends up spending approximately 35% of its overall budget on change management and training.

One of the most challenging responsibilities for any ERP program lies in dealing effectively with the alignment of people, processes, and systems. This can be achieved through a solid change management framework. Strong business ownership is one component of a solid change management plan. It involves having a leadership role assigned for the implementation. It ensures support for the program vision throughout the organization, by enabling the business to support the change at all levels with and active and visible leadership network. It also includes a process for managing the involvement, communications, and commitment of key leaders. Finally, it includes coaching managers and supervisors to better handle employee resistance during the various phases of the change adoption process.

It is also critical that the change management framework provides a combination of predefined processes, which are planned, managed, and measured. Business ownership is a critical success factor for the program; and the change management processes will achieve their goals only if they are "owned" or strategically directed and overseen by the organization affected.

The process ownership structure is linked with specific processes and functions across all business units. It is composed of decision-makers who are responsible for cross-functional processes. The objective is to translate the program vision into new business processes and supported ERP functionalities.

3.2. Nuts and Bolts System Solutions

Preventive measures can be taken with respect to the "nuts and bolts" of an ERP system. These measures are considered solutions since they are reducing the likelihood of problems ensuing later on. Some preventative measures that can boost ROI are as follows:

- When selecting a vendor, assess what impact its applications will have on the company's existing network,

- Work with the vendor to perform a technical audit to help ensure that the company's database platform will run smoothly with the ERP solution that is chosen,

- Experiment with the data-conversion utilities available in the new ERP system to discover problems early,

- Once it is determined that the utilities are adequate, convert data from the old system early and often,

- Consider the scalability (or storage space of the system) necessary to maintain business. Calculate storage per employee and don't settle for any less than is needed,

3.3. High-Quality Training

Finally, as noted in some of the companies ERP implementations, training is a top priority, and it can't be left to only to the IT department to carry out. Training resources should have two components: those allocated for IT personnel and those for end users. IT staff must be trained in the technical aspects of the software and how it will interface with the network. They need to understand both their immediate jobs as they pertain to the ERP system and how those jobs affect everyone else. In a well-run implementation, the ERP vendor and its partners train the IT staff directly and the company doesn't skimp on training the IT staff: allocating at least 4 percent of the total ERP investment to training. Rather than training the end-user employees on the full range of the ERP system's capabilities, the curriculum should focus only on those modules the employees will use. In addition, it should address employees' varied skill levels and provide an overview of the system prior to focusing on the specialized functions needed for their jobs [2].

Additionally any training plan should build in post implementation training costs. Refresher courses as well as a training center are two fundamental assets for companies to obtain in order to promote success before, during and after implementation.

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