

Project stage Modeling to Implement the Enterprise Resource Planning System

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ERP시스템 구축을 위한 프로젝트별 모델개발에 관한 연구

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Abstract

Combining a qualified group of people and following through the appropriate phases in the necessary order is crucial to project success. Companies face a wide range of issues and obstacles during implementation that can remain until they start using the system. Benchmarking Partners categorizes these problems into three groups: people issues, process issues, and technology issues

Companies should try to implement ERP software as quickly as possible. In fact most companies now use a technique commonly referred to as a rapid implementation methodology.

This paper outlines the challenges companies can anticipate during implementation and identifies and describes the six common steps of an ERP project. The paper also discusses new approaches, known as rapid ERP methodologies, that are designed to help companies hasten the implementation of such systems.

요 약

프로젝트를 성공적으로 수행하기 위한 ERP시스템의 구축은 학자마다 여러 단계를 제시하고 있으나 아무리 구체화된 계획을 가지고 출발하더라도 ERP시스템을 구축하다 보면 시스템을 사용하기도 전에 여러 가지 문제점과 장애물에 직면하게 된다. 따라서 ERP를 구축하는 데 발생할 수 있는 문제점을 최소화하기 위하여 실제 컨설팅회사의 벤치마킹의 자료를 근거로 3가지 쟁점에서 나타나는 12가지의 변인을 가지고 ERP프로젝트의 단계별 모델을 개발 제시 하였다. 여기서 실제사례의 주요 내용을 6단계 기준에서 분석하고 나아가 전과정을 집행하기 전에 비용과 시간을 절약하기 위한 몇가지 주요 기준과 선택적 요인을 기술하며 나아가 단축되고 빠른 방법의 단계별 모델도 축소화하여 제시하고자 한다.

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I . Prefatory remarks

This paper reports project stage modeling for selecting the most appropriate strategy to implement the Enterprise Resource Planning system in an organization. The approach examples could be adopted through which ERP is planned and effectively implemented on a consistent basis through the entire organization. the scope of this paper is to report on ERP strategy of enterprise modelling experience and lessons learned in the process of ERP implementation. Through the case studies, this paper presents an strategic ERP project module. Alternative ERP considers these problems into three groups. Namely, those are man power issues, process issues, and technology issues etc. And this paper provides a structured Module of implementation of ERP. The ERP project describes common ERP implementation methods. This paper outlines the challenges companies can anticipate during implementation and identifies and describes the six common steps of an ERP project. the paper also discusses new approaches, known as rapid ERP methodologies, that are designed to help companies hasten the implementation of such systems.

II . The general issues

Even the strongest teams with the most detailed plans encounter difficulties during an ERP project.

According to the 1998 Benchmarking Partners study conducted for Deloitte & Touche Consulting, companies face a wide range of issues and obstacles during implementation that can remain until they start using the system. Benchmarking Partners categorizes these problems into three group : People issues, Process issues, and Technology issues. According to the study, the most common issues that arise during an ERP project relate to people : Problems with the project team, Capabilities of internal staff, Training, Change management, Managing and working with consultants, Allocating and prioritizing, etc. The second most common problems relate to the implementation process: Reaching goals and realizing benefits, Project management, Difficulty reengineering business processes, Transitioning from one stage of the project to the next.

Although most companies consider technology the least significant of their problems during an ERP project, they must address several technology issues: Managing the assorted applications in the ERP package, Managing upgrades or enhancements to the software, Software functionality, Setup of reports.

III . Phased Implementation of the Project

When ERP systems were initially widely implemented, companies usually tried to implement all the modules in an ERP system across all parts of their business simultaneously. This method, referred to as the big bang approach, entails significant risk. The projects are enormous and require extraordinary project

management leadership. They can easily become uncontrollable and result in missed deadlines and budgets. As a result, most companies now institute gradual implementations conducted in phases. Typical ERP projects comprise six steps : preparing the project, outlining business processes, configuring the system to support those processes, testing and validating the system which includes end-user training, performing final preparations, and using and supporting the system. A company taking a phased approach might implement the financial and sales applications first, for example, and then implement the HR and manufacturing systems. The stages of an Enterprise Resource Planning Project are as follows:

Step1	Step2	Step3	Step4	Step5	Step6
Project preparation	Plan business processes	Configure the system	Test and validate system	Final preparation	Go live

Figure 1. The Stages of an Enterprise Resource Planning Project

Implementers should not place time limits on each phase. Different companies will spend varying amounts of time on each step, depending on their objectives. In some cases, companies are under a tremendous amount of pressure to install their ERP system by a specified date. Generally, companies should try to implement ERP software as quickly as possible. In fact, most companies now use a technique commonly referred to as a rapid implementation methodology.

IV. Step 1: Project preparation

During this phase, the company decides what resources will be required to complete the

implementation project within its budget and deadlines. A project team is formed during this step, and companies decide whether to hire consultants and how many may be required. This is also the time to determine whether contractors will be necessary to perform technical work that the in-house IT organization will not have time to complete.

If those services have not yet been negotiated, Step1 is the time to do so. After the project team is formed, the group should begin preliminary project team training, formally starting the project.

(1) Formation of the Team

ERP projects are different from most other projects companies pursue. Few other systems affect as many parts of a company or regulate as many important business processes as ERP software. Consequently, companies must ensure the success of their ERP system by assigning effective staff to the project team. According to one ERP change management manager, "If companies can operate business as usual without the people they put on their ERP teams, then they have picked the wrong people for the team." ERP project teams usually involve two types of people : technical works who understand how to work with the ERP system and business people who understand how the company operates. Both types of participants are vital to the project's success, but the people who understand the business arguably the most important members of an ERP team and almost always lead the ERP project. Even an ERP expert would fail to develop a system that met the needs of the company without the help of team members who are very knowledgeable about the business. Project team members should also have the authority to make decisions regarding how a process will be completed. These team members are often called business process owners or

business experts.

- (2) Companies should designate an ERP team member who will be responsible for coordinating end-user training and education. Training is critical in an ERP project.
- (3) Hundreds of companies provide ERP services. Those services may include all or some combination of these offerings: ERP implementation, End-user training, ERP selection, ERP maintenance and support.
- (4) The project team should overview the system it will be using. This phase usually entails visiting the vendor for an introductory session or bringing the vendor in-house to conduct the introduction.

V. Step 2 : Gathering Business Requirements and Documenting Business Processes

During this phase of the project, the team determines how the business will operate after the ERP system is in use and how the system itself will work.

(1) Deciding How the Business Will Operate.

ERP teams usually refer to this task as business process modelling. This step involves deciding how and when various aspects of business are completed and how the company uses information. Business process modeling is crucial to the success of the ERP project because it allows the team to model the system's technical functions to support company operations.

- (2) To understand what is involved with this

step, consider the questions a team might ask to map its company's sales process : A typical sales cycle. What type of information do sales gather. Do the salespeople travel?

- (3) Several products are available to help companies through the process of mapping out or modeling business processes. Some ERP providers offer business process modeling tools. Business process modeling gives companies an opportunity to develop a common set of business terms. Surprisingly, or perhaps not, as ERP teams work through this phase, they often discover that people from different parts of the company have different ideas of what seem to be obvious terms.
- (4) While business process modeling creates the enterprise concept, gathering business requirements details how daily work is accomplished and establishes the finer details of specific tasks and transactions.
- (5) Most project teams allot time during this phase to gather requirements from people the company. The teams confer with salespeople, order entry clerks, business analysts, workers on the production line, service and repairmen, accountants, CSRs, and others to discover how the company accomplishes its daily tasks.
- (6) Consider some of the questions that must be answered regarding how a company takes customer orders. First, How does the order from appear?
Second, What type of information does the order entry person need to complete the forms? Third, In what order is the information entered? Other questions must be answered regarding how a company processes its travels expenses: What information does the company require about the employee ?. What

financial information is required? In what order should the information be entered? Does the expense form require approval? By whom and when?

VI. Step 3 : Configuring the System

After the team has mapped the main business processes and gathered the business requirements, the members must configure the infrastructure of the ERP system to operate accordingly. ERP software configuration occurs in the software configuration table. Project teams modify the information in these tables to tailor the particular parts of the ERP system to their companies' needs. Depending on the ERP system, many options are available for each task the system performs.

Configuring an ERP system can take a long time- several months to more than one year, depending on the scope of the project- and can be extremely complicated. Although most companies hire consultants to perform the technical configuration, even highly skilled consultants will not configure the system well if the company's ERP team has not mapped business processes and gathered user requirements effectively.

VII. Step 4 : Testing and Validating the System

Before going live on an ERP system, the system must be validated or tested to ensure that it works technically and that the business process configurations are practical. Going live on an ERP system without testing the package first is an invitation to disaster. Project teams that question the importance of ERP testing should consider the financial impact of using an unstable system. According to Software Economics Letter, downtime, or the periods during which major systems such as ERP are inoperable, can directly cause lost revenue. The higher a company's annual revenue, the more money it loses for every hour its systems fail to operate.

Testing helps companies avoid potential problems that could lead to financial catastrophes or problems that would negatively impact customers. To ensure that they test their ERP system thoroughly, project teams often recruit small groups of power users- employees who demonstrate a solid grasp of the business and who are comfortable with computers- to participate in the testing and begin providing real world feedback about the system.

(1) When to Test

Suggesting that testing should occur only as the fourth step in an ERP project is misleading. In fact, many ERP project teams test the system at various points throughout the entire project. For instance, Deloitte & Touche Consulting considers testing an ongoing process that is concurrent with designing and configuring the system. According to Deloitte & Touche's model, testing itself includes multiple phases that usually overlap and span from the beginning of the ERP project to the very end.

(2) Ultimately, the project team must decide whether to test throughout the process or to test immediately before implementation. In either case, testing the ERP system can and should take several months.

(3) For this reason, project teams must allot

ample time to complete each step. Testing an ERP system includes several main aspects:

- Planning the tests
- Setting up the test environment
- Testing interfaces between the ERP software and other systems
- Testing the system for availability and technical performance
- Planning and concluding a user-acceptance test or conference room pilots.
- Training power users
- Developing training materials.

VII. Step 5 : Final Preparation

In step Final Preparation, the team resolves any problems with the project. Problems that appeared during testing should be corrected and retested, and the team should perform a final validation of all the interfaces between the ERP system and other applications. The team should also ensure that all of the data that will be imported into the ERP system from existing applications is correctly formatted and ready to use. The remaining employees should be trained to use the system. By the end of this step, the company and the system should be ready to go live.

IX. Step 6 : This is the last phase of the ERP implementation and entails two major steps:

activating the system and transitioning from the old applications to the new ones. Going live is also referred to as going into production. Most project teams go live during a weekend or any other time, such as a holiday, when few employees will be working. If going live is scheduled strategically, last minute glitches that arise will have minimal impact on the business. Going live during off hours also gives the project team a few days to monitor how the system performs and ensure that the system performs appropriately the next business day.

- (1) Early ERP software adopters learned many hard lessons about long, drawn-out projects that ran wildly over budget and past schedule. Their experiences created the demand for a simpler, faster way to conduct ERP projects.
- (2) Vendors and ERP implementation consultants have responded with methods and tactics specifically designed to keep ERP projects moving. These rapid implementation methodologies and the abbreviated projects are called rapid implementations. ERP software providers have another motivation for simplifying product implementation: the midmarket unlike large companies, small and medium-sized companies cannot afford to spend years on a software project. Consequently, rapid ERP projects have become an important vehicle for entering the midmarket. Recently, almost all ERP software vendors and consultants have a rapid ERP methodology. Some argue that no company today would consider conducting an ERP project without a rapid implementation methodology
- (3) The keys to rapid ERP implementation tactics are carefully and precisely planning the ERP project, dividing the

project into phases, and setting clear milestones and checkpoints to ensure that the project stays on schedule. Often, conducting a rapid ERP project also requires installing portions of the system before others that depend on the most pressing business needs. Shortcuts have no place in a rapid project. Instead of eliminating steps, rapid ERP methodologies usually condense them, namely, they condense Phase 1 and Phase 2 into Phase 1, Phase 3 and Phase 4 into Phase 2, Phase 5 and Phase 6 into Phase 3. For instance, the team spends only a few days gathering business requirements instead of several weeks. Likewise, instead of spending six months for configuration, the team completes this phase in three months.

As refer on the above-mentioned rapid ERP implementation methodologies condense the stages of the project classified two kinds of project using rapid methodology and project not using rapid methodology. No two rapid ERP approaches are identical, nor do the vendors and consulting firms using these methods guarantee that all of the clients that use approach will complete their ERP vendors and implementation partners to learn more regarding specific rapid methodologies. Enterprises must also carefully evaluate whether a rapid ERP project is appropriate. Rapid ERP projects are vigorous, intense and demanding and are most suitable for companies with the following characteristics:

- (1) They are willing to sacrifice large group, consensus-driven decision-making and authorize a small, core team to make crucial decisions in short timeframes.
- (2) They are willing to customize their requirements to the software's definition of business

processes and procedures.

- (3) They are not planning to use the ERP project as an opportunity to make radical changes to business processes.
- (4) The team does not consider rapid implementation a means to save money but has a strong, driving business need that requires them to complete the project by a specific date.
- (5) The team understands the company's business processes enough to prioritize in the first phase of the project exactly what functionality is required from the software.

A report written by consulting firm Aberdeen Group also concludes that rapid ERP implementation are not useful for everyone. According to the study of ASAP effectiveness, SAP AG'S rapid implementation methodology, the lower a company's ability to conform to SAP's ERP system as is, the less likely they see to succeed in a rapid ERP project. To minimize customization for rapid implementation, as follows comments accelerated SAP implementation Criteria and Opinions. If we regard Enterprise ability to adopt majority of best-practice processes in R/3 for A, Enterprise preparedness for a rapid enterprise resource planning implementation for B, Both A and B come to the high, Accelerated SAP is a strong match. A for high and B for Low will require additional time, reengineering and change management capabilities not part of Accelerated SAP methodology. A for low and B for low do not match for accelerated SAP methodology. A for low and B for high will require additional time and R/3 software modification not part of Accelerated SAP methodology.

X. Conclusion

This paper is to suggest ERP project on the implementation strategy of an ERP system involves multiple phases.

- (1) most companies consider technology namely *Managing the assorted applications in the ERP package*, *Managing upgrades or enhancements to the software*, *Software functionality*, *Setup of reports*.
- (2) Companies incur other expenses when they implement ERP systems. The HR cost must be considered: those who participate on ERP project teams must work full-time determining how the company will use the system.
- (3) End-user training and change management is crucial to the success of ERP projects
- (4) *Companies must plan their ERP software implementations carefully and devote adequate resources to the projects to gain the most benefit from their investments and to ensure the systems are installed within their planned schedules and budgets.*
- (5) Today, almost all ERP software vendors and consultants have a rapid ERP methodology. Some argue that no company today would consider conducting an ERP project without a rapid implementation methodology.
- (6) The key to rapid ERP implementation tactics are carefully and precisely planning the ERP project, dividing the project into phases, and setting clear milestones and checkpoints to ensure that the project stays on schedule.
- (7) In spite of many limit points, I found out interest phased modeling in this study, the ERP project is very valuable.
- (8) Critical factors of the success are rapid ERP projects: *Adequate training of the project team, clear communication and consistent during the project*, *Adequate human and financial resources, empowering the project team to make decision.*
- (9) Furthermore practical issues and problems will be raised in the ERP project, have been discussed integration ERP system as an adjunct to the new ERP applications.
- (10) Most companies in the same industry are assumed to use the application in similar ways. Although companies that license the *preconfigured applications usually modify the systems in some ways*, they can start using the system more quickly than if they configure the entire package.
- (11) As part of an ERP education program, project teams should also address change management, which can be a difficult concept to grasp. Those who understand it deem it one of the most crucial factors in the success of ERP projects. Ultimately, the most effective solution to training -under any circumstances- is planning ahead. Companies that recognize the strategic value of thorough end-user training and make training part of their ERP project plan will benefit significantly from their efforts.

BIBLIOGRAPHY

- [1] Baldridge, J.V. and R.A. Burnham, "Organizational Innovation : Individual Organizational and Environmental Impacts," *Administrative Science Quarterly*, June, 1993, pp.165-176
- [2] Benbasat, I., A.S. Dexter and R.W. Mantha, "Impact of Organizational Maturity on Information System Skill Needs," *MIS Quarterly*, March, 1991, pp.21-34
- [3] C. Gborra and T. Jelassi, *Strategic Information Systems : A European Perspective*, John Wiley & Sons, 1995, pp.321-335.
- [4] Erin Callaway, "Enterprise Resource Planning," *Computer Technology Research Corp.* 1999, pp.51-60.
- [5] Kirchmer, M., *Business Process Oriented Implementation of Standard Software*, Berlin et.al., 1998, pp.47-56.
- [6] Hofstede, G., *Cultures and Organization : software of the mind*, London : Mc Graw Hill, 1995, pp.35-47.
- [7] Kumar, K., "Post Implementation Evaluation of Computer-Based Information Systems : Current practices," *Communication of the ACM*, Vol.33, 1996, pp.243-257.
- [8] Martin, J., *Information Engineering: Introduction*, Prentice Hall Press, 1995, pp.34-40.
- [9] Porter, M. E., *Competitive Advantage*, New York, Free press, 1995, pp.134-148.
- [10] Scheer, A.W., *Business Process Engineering: Reference Models for Industrial Enterprises*, Springer, 1995.
- [11] SAP AG(ED.), *Customizing Procedure Model*, R/3, Walldorf, 1993.

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