

## **A Study on the Development of ERP**

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### **Abstract**

*Due to the rapidly changing global business environment and global management environment, companies must actively act for competitiveness. By examining the development process of Enterprise Resource Planning (ERP), there is a chance to optimize the organization and find measures to improve the company competitiveness. It seems examining task process, and studying the influence of ERP introduction to management performance by considering whether the excessive maintenance cost or repetitive investment toward ERP is quiet significant. The companies which instituted ERP uses “business process model” provided by “Best Practice” compare own task to choose much efficient method. This allows simultaneous realization of ERP institution and Business Reengineering (BR).*

**Keywords:** ERP, MRP, SCM, CRM

### **1. Introduction**

The accounting process which was done by hand before is not processed in the information technology environment, so that many companies are utilizing Enterprise Resource Planning (ERP) as management technique. Introduction of ERP system has significant influence on business management and brought about management revolution along with various improvements in task process.

ERP is not a simple computer processing information system. In other words, the task process itself is converted to organizational system and processed through ERP program. The ERP system constructed through this process supports the quick respond to changed managementenvironment for each division. It standardizes the task process and process financial accounting, cost accounting, tax accounting and other tasks in one system. It is expected to be a significant study in the time when the companies are aiming to improve the competitiveness by fusing accounting and information communication technology.

### **2. Theoretical background (Concept of ERP)**

ERP is also known as enterprise resource planning, corporate resource planning, and integrated information

system. Based on Best Practice, ERP is an integrated information system which utilizes the latest Information Technology (IT) to conduct purchase, sales, production, accounting, HR and other tasks and integrated management.

The Gartner group, the information technology consulting company in America which first introduced the term ERP defined ERP as "collection of application supporting harmonious management of task functions such as manufacture, delivery, accounting and other tasks". Also, America production management society defines as "distinguished system apart from the existing Manufacturing Resource Planning (MRP II), and accounting-oriented information system which efficiently manage all the resource efficiently from the client order to delivery by accepting the latest information technology".

### 3. Development process of ERP

#### 3.1 ERP Development Stage

As seen in [figure 1], the development process of ERP starts from the goal of optimizing the material commitment for production activity in MPR, and developed to the goal of optimizing the production activity in MRP II. Later, in the process of ERP development, it focuses on the optimization of management resource commitment for company activity. In ERP II, the significance of Supply Chain Management (SCM) and Customer Relationship Management (CRM) based on internet was emphasized.

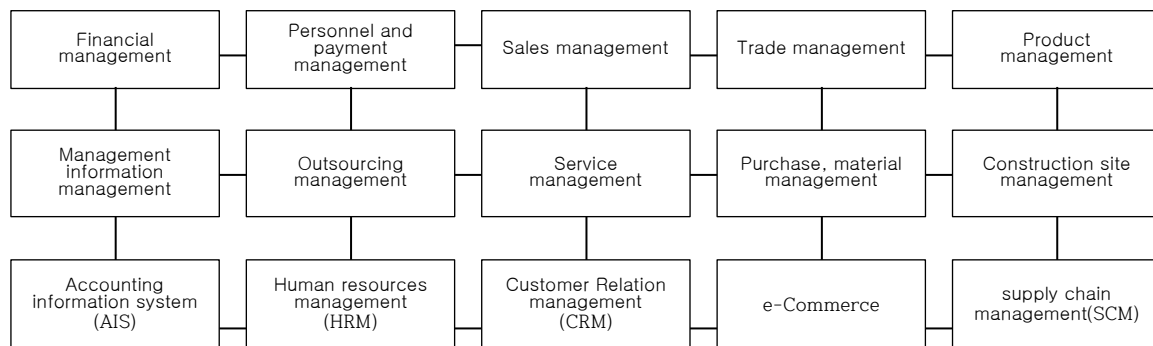


Figure 1. Configuration of ERP

#### 3.2 Role of ERP

Since the MRP introduced in the 1970s, ERP is developing along with the management environment and IT environment development. That is to say Material Requirement Planning (MRP) is a simple material management information system developed to manage the storage assets based on standard production plan, component chart and storage information. The MRP II introduced in the 1970s expanded from simple material demand and supply management to efficient management of necessary material for production. ERP introduced in the 1990s developed into system for enterprise management including production material, purchase, sales, material, accounting and Hr. Since the 2000s, it is expanded and developed into integrated system connecting various fields of information system such as e-business by expanding the original function of ERP.

In short, MRP aims for minimization of storage asset by material supply and demand management, MRP II aims for cost reduction by production resource management, ERP aims for management revolution by enterprise resource management, ERP II aims for optimization of SCM as expanded DRP and win-win by CRM optimization.

## **4. Features and introduction effect of ERP**

### **4.1 Functional feature**

The ERP used by global company supports commerce customs, legislation, language and currency for each country. In order to exclude overlapped task and construct real-time information process system, the master data such as partner contact and product information used commonly within the organization are needed to be input just once, and the input data is shared real-time.

Regarding the characteristics of each company, the option setting is done by task operation process, and when there is change in process, the system can flexibly take counter measure. Because it can understand the management environment processed real-time, the risk can be acknowledged before and take measures. It separates the organization by each module, conduct mutual checkup and construct the inner control system to prevent the error beforehand.

### **4.2 Technical feature**

ERP is developed in 4th generation language such as Visual Basic, C++. It adopted Relational Database Management System (RDBMS) and manages creation, revision, delete of data. There are MS SQL, Oracle, Sybase, and it enables easy manufacturing and converting of data.

It is a technology which develops software by using Object Oriented Technology (OOT) to combine data and program with common feature and formation to conduct medialization and combine. Also, in case of system upgrade and change, it enables changing the necessary module.

It enables the distributed task operation through client-server, and able to allow the 3-business connected to web in internet environment. This composes multi-tier environment such as web server.

### **4.3 Introduction effect**

ERP with such function and technical feature conducts integrated process of company which removes the nonvalue-added activity such as overlapped task and task waiting time. This is because the tasks are processed simultaneously and support BPR. Such efficiency of management reduces task time and reduces necessary personnel and resources.

The purchase/material management module apprehend the real-time material condition and location, accurately predict demand and decide the necessary storage to reduce unnecessary storage and delivery price to achieve distribution efficiency. The speed, conformity, openness of information has accomplished information share for organization members to quickly utilize the accurate information and increase the operation efficiency to bring about the efficiency of information.

### **4.4 Necessity**

In 1997, when Korea requested relief loan from International Monetary Fund (IMF), ERP acted out its incredible effect in having corporate transparency required by IMF. Standard and Poor's (S&P) or Moody's of the ISA which is quite particular with enterprise credit evaluation acknowledges businesses decided by ERP. This is the main reason why many developed countries of the USA and Europe is rushing to introduce ERP. Therefore, ERP introduction is necessary for competency enhancement through increase of added value in the aspect of qualitative, quantitative aspect.

## 4.5 Implementation method

**Table 1. ERP Implementation method**

Analysis	Design	Implementation	Realization
AS-IS Analysis	Deduct TO-BE process	Module cooperativization	Maintenance
TFT Composition	GAP Analysis	Test	Evaluation
Apprehend problem	Discuss improvement	Revision	Data conversion
Install system	Decide customizing	Additional development	

## 4. Conclusion

The change in business environment is accelerating, and the companies' business process should be converted in rapid speed to adapt to such change. However, it takes longer time to reconstruct the existing system to support this, but already implemented ERP can make the conversion quick and easy by changing parameter in short time. Therefore, implementing ERP has advantage of accomplishing the goal faster than developing a system.

The past system lacked in flexibility because most of them were unit system only pursuing task in business division, but the ERP enables data integration which integrates the business activity of company. As an integrated information system, ERP contributes to managing the company in formation integrally.

Before the accounting information system was developed, it was hard to centralize the resources of company to manage. The ERP runs as if it conducts integrated management in center for the resources and accomplish huge scale economy which is advantage of centralization. In other words, ERP can be utilized as infra structure which makes the headquarter, sales office, store and field closer and overcomes the spatial and time limitation.

Company implementing ERP can choose better method by comparing the company business using "business process model" provided by "Best Practice". Accordingly, the ERP implement and Business Reengineering(BR) can be realized simultaneously. In conclusion, ERP can enhance SCM, CRM and save working hours.

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