ERP Implementation in China: Brief Summary and Case Study
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Abstract: This paper is a summary of or study on several ERP implementation projects in China from 2002. These projects cover several industries including manufacturing, port and electricity. We summarize the current situation of ERP implementation and point out the problems during the course of ERP implementation in the companies we studied. We used case study as our research methodology and provided two short case studies of implementing ERP system in two manufacturers.

Keywords: China, Enterprise Resource Planning (ERP)

Appearance of ERP (Enterprise Resource Planning) is like nothing but a sudden. There are plenty of articles, advertisements, posters promoting ERP since the year 2000. And this phenomenon is much obvious in China. Many enterprises embrace the benefits brought by the adoption of ERP in their companies. But still there are much more failure examples of ERP adoption, many companies run into confusion or even difficulty. According to our survey, we even use the phrase “near escape” to describe the effects of ERP adoption in Chinese companies. And we hold that the theory of ERP itself does not contribute to the high failure rate of ERP adoption but our understanding and the method do. Therefore, it is necessary and crucial for us to re-consider the theory of ERP and its adoption methodology.

As known to us, ERP is only a method to improve the management practice of enterprise, the relationship between ERP and enterprise is just like the relationship between shoes and foot. These two things should be fit together; otherwise one might not feel comfortable. In this paper, we aim to find out those issues causing uncomfortable problems and propose some suggestions on ERP adoption.

This paper is organized as following, we first look back from the literature and summarize the ERP development situations in China; the second section summarizes the benefits and the problems of ERP adoption in China; in the third section, we studied two cases on implementing ERP system in China.

1. ERP development in China

The concept of ERP was first proposed by Garter Group Inc., it is a set of standards for enterprise managerial systems. It is a managerial thoughts of further development to supply chain oriented management based on MRP II (Manufacturing Resources Planning). Looking backward on the adoption and development of ERP in China, we categorized it into three stages:

The first stage is starting period. This stage ran through the whole 1980s, the main characteristic of this stage lies in the improvement, adoption and partial implementation of MRP II. There were many managerial problems in the companies: the productivity of China’s manufacturing labor was only 10 percent of the western countries. The product delivery cycle time was very long, the inventory cost was very high and the asset utilization rate was very low. To change this situation, some leading manufacturing companies in China adopted MRP II systems from other countries, as the leaders in MRP II adopter, they
underwent many difficulties: the first problem lies in the system itself or technology problem, the MRP II systems imported from other countries are running on mainframe or large server, they lack of openness and compatibility, the operations of these system are quite complex and the improvement of systems are very difficult. In addition, many of these systems did not finish the localization works, and they did not have related technical support and service. Therefore, some experts and academics made a statement of “three one third”, that is one third of MRP II systems can be used in China; one third can be used after some modification; and one third can not be used totally. As well, this stage was also called “three one third” stage.

The second stage is growing stage. It ran through 1990 to 1996. The main characteristic of this stage is that MRP II/ERP has been adopted and promoted well and achieved quite good results. In this stage, the statement of “three one third” was repudiated by practices. And this stage is also called “end of three one third”. In this stage, foreign software providers still played a major role. Many manufacturers stood up and the market changed a lot, which become a serious challenge for traditional managerial styles and methods. In this stage, China also started its key project of 863 CIMS (Computer Integrated Manufacturing System), some companies even improved their productivities by 30 times. MRP II in a refrigerator factory in Guangzhou was evaluated as class A by American Production and Inventory Control Society Inc. It is not deniable that MRP II users have achieved something in this stage. Several factors contributed to the achievement above. One is the development of computer technology such as client/server architecture and network communication technology; the second is the reform and innovation of Chinese companies. They actively participated in adopting the management styles and methods; they also actively adopted new tools in management to improve their productivity and efficiencies. The third is that foreign software providers completed their localization works for the systems. Their products have been upgraded to be good in universality and compatibility. The last factor is that people themselves have changed their mind and accumulated some experience in management after several years of study and exploration. Here we should point out that although Chinese companies achieved something but they still have some problems in this stage. Generally speaking, Chinese companies lack of overall planning when they choose MRP II systems, MRP II adoption was limited in manufacturing industry, they did not introduce the concept of supply chain management into their management, some companies even bought systems without knowing well their requirement and the functionalities of those systems, which caused great waste.

The third stage is called matured stage (1997 till now). In this stage, ERP plays the key role. Adoption of ERP has spread to the second and the third industry. In addition, with continuously practice and exploration, the effect of ERP adoption has also been significantly improved. And ERP adoption comes to a matured age. With the rapid development of its economy, the third industry in China develops very well, financial industry becomes the core of modern economy and information industry becomes the leaders of modern society, which cause the demand of software solution for multiple industries. Therefore, ERP becomes the key role and spread its functions to every industry especially the third industry. But in this stage, there still exists some problems, these problems include: companies did not integrate business process re-engineering with ERP implementation, which makes computer application replacing manual work only, the functionalities of ERP systems can not be fully performed. The second problem comes from the ERP providers, the market of ERP is not very matured, some irresponsible software providers even sold their systems without knowing whether the system is suitable for their customers or not.

2. Benefits and Problems of ERP Adoption in China
2.1 Benefits of ERP Adoption

In a direct way, benefit refers to the difference between input and output but actually it is very difficult to measure the benefit of ERP from this point of view. Therefore, we assess the benefit of ERP from the points of improvement of managerial efficiency, improvement of the speed of data processing, improvement of turnover rate of merchandise, improvement of feedback speed of post-sales service for customers and so on.

Table 1 is the summary for the implementation benefits of ERP from some scholars and implementation consultants. From table 1, it is clear that the direct benefits that ERP brings to the enterprises obviously behave at the level of the improvement of delivery efficiency. And this is based on the precondition that the improvement of purchasing efficiency. If the delivery efficiency were improved, the customer satisfaction degree would improve accordingly and the market share would escalate. Then we can draw a conclusion that the benefit of ERP mainly behaves on the aspect of exploiting resources but not saving costs.

<table>
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<tr>
<th>Item Name</th>
<th>Direct Benefit</th>
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<th>Direct Benefit</th>
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<tr>
<td>Rate of on time delivery</td>
<td>More than 96%</td>
<td>Reduction in producing cost</td>
<td>2%~3%</td>
</tr>
<tr>
<td>Reduction on storage</td>
<td>30%~50%</td>
<td>Reduction in waiting for raw materials or workers</td>
<td>60%</td>
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<tr>
<td>Reduction in delay delivery</td>
<td>70%~80%</td>
<td>Reduction in manufacturing cost</td>
<td>12%</td>
</tr>
<tr>
<td>Acceleration of funds circle</td>
<td>5%~10%</td>
<td>Reduction in management staff</td>
<td>10%</td>
</tr>
<tr>
<td>Reduction in purchasing cost</td>
<td>3%~5%</td>
<td>Improvement of producing ability</td>
<td>10%~15%</td>
</tr>
<tr>
<td>Shorten the period of order in advance</td>
<td>40%~50%</td>
<td>Reduction in the rate of unqualified products</td>
<td>2%~3%</td>
</tr>
<tr>
<td>Reduction in management cost</td>
<td>3%~7%</td>
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(Data source: Secretary office of enterprise information manager of the ministry of labor and social security of China, Digital China Corporation.)

Exploiting resources and saving costs are very important to any enterprise. The difficulty of exploiting resources and its impact on enterprises would probably be more important. But to a successful ERP project, its efficacy mainly behaves on exploiting resources and it could not equally say that ERP is a good dote medicine for exploiting resources. In fact, ERP could only make good things better and could not provide timely help.

Let’s take a factory that specially provides products for the ministry of railway of China as an example. In recent years, the order for goods from the ministry of railway cut short year after year. Some of the employees were laid off. The salaries of those who are on post are halved. The factory faces a severe problem of survives. Therefore, leaders of the factory leave no stone unturned to seek solutions. Finally they got a good dote medicine---ERP, which is provided by a management consulting company. The factory loaned more then ten million Yuan (about one point two million US dollars) from the bank and meticulously organized a series of ERP knowledge propaganda, training, planning and other preparation jobs for ERP implementation. The factory got a unified mind for ERP implementation. Most of the people were looking forward to the implementation of ERP to bring their factory out of difficult position.

To an enterprise, improving the management level, cutting down the costs and obtaining the purpose of reducing costs should give no cause for more criticism. But the first question
is, could the implementation of ERP really bring more orders for the factory? This is the question of benefit. The second is, under a situation of such a shortage for funds, is it necessary for the factory to invest so much on ERP implementation? This is the question of opportunity of ERP.

The answer to the first question is obvious. People often use the words “driven by orders” to describe the principle of ERP. What the factory above faces is not a completely free competitive market environment and its orders are not driven by the market. It lost the precondition for the existence of ERP. For the second question, we can use the sentence “a roster shouts at midnight” to describe. It is necessary to choose a suitable time to implement ERP and it could not take such action too late or too early. Generally speaking, it is better to take late than early and it is best to implement when the enterprise is flourishing.

2.2 Problems Existing in ERP Adoption

Despite all the benefits, there are many problems in ERP adoption in China. The first problem in general is that there is a lack of ERP talents. The most critical problem faced by companies is how to train professional talents who have a strong theoretical foundation as well as rich experience in ERP implementation. These talents will help companies to meet the challenges and requirements of modern development. But the lack of talents is now a bottleneck to ERP implementation.

The second problem lies in the companies’ understanding of ERP. Many companies hold that implementing ERP system is the only affair of the provider, which is completely relied on the provider but not the company itself. This might cause a sharp delay for the project. In January 1999, the project management of SAP suddenly resigned, which almost made the project run into bogging down. This case shows that a company can not totally rely on the service provider when implementing ERP system, on the contrary, it should grasp the initiative of the project.

The third problem is in the management itself. China has undergone a long time of planning economy and is to transform into market economy, management methods fell far behind of the western counterparts. Some necessary policies and norms are not ready, most of the organizational structures are in a hierarchical style, all of which are constraining the implementation of ERP systems. ERP is not only an advanced tool, but also it integrates many advanced managerial theories and methods. If a company is not ready in management practice or lack of managerial experience, the management performance of the company can not be improved even with the implementation ERP system.

The fourth problem lies in the insufficient assessment on the risk and difficulty in implementation. ERP is a systematic engineering for the whole company; it is an innovative reform for the company as well, the project includes all perspectives of a company. There are many uncertainties during the course of implementing ERP such as long cycle time, huge amount of investment, complexity of implementation. These uncertainties require the management executives of the company have a complete understanding of the risks of ERP and improve their capacities of mitigating risks. Otherwise, failure of ERP might come to the company.

3. ERP Adoption in China: Two case studies

Some scholars have pointed put that there are such problems as asking and accepting
sales commission, appointing people by favoritism and so on in China’s enterprises. They also give a suggestion by citing a story that if there are ten fingers on a foot, we should cut five of them before buying shoes and not let it be a hard job to the people who makes the shoes. Some ERP manufacturers declare that their products solidify the best management processes in the world and suggest the enterprises to reconstruct their management processes according to ERP system so that their processes could fit for ‘this best processes in the world’ [9]. It is not very difficult for us to understand why some scholars and manufacturers would hold the point of view above. This point of view is theoretically valid. But if in reality, especially the state-own enterprises where there are complex relationships extremely hold this point of view. It will be deviated from the original intention of ERP.

3.1 Case One

We have ever had the chance to know the ERP implementation procedure of one automobile manufacturer. After accepted the theory that ERP contains a more advanced management experience and practice the leaders of the factory began to introduce a set of ERP system from a famous ERP manufacturer. With the guidance of the consultants, the factory also began to do many jobs on business process re-engineering (BPR) to fit for this advanced management mode. It invested more than 14 million Yuan RMB (about 1.75 million US dollars) on the ERP project. The project involved all the employees of the factory and finally it turned out to be fruitless because of shortage of funds and the objection of employees.

Looking upon the procedure of ERP implementation, adopting the best ERP product, hiring an experienced consultant and carrying out the principle of ‘the head of the enterprise should be on duty’, theoretically, there is nothing to be blamed. The main problem is that people make a mistake that cutting the feet to fit the shoes and being eager for quick success and instant benefit. For example, under the traditional system the enterprise mixed material purchasing and planning together. The people who were in charge of purchasing and planning enjoyed the benefit brought by sales commission. But after the implementation of ERP, their privileges would be lost in one night. As the main users of ERP system, these people would sabotage inactively or reject ERP project by adopting their powers.

In fact, the problem of the factory is not whether it is necessary to implement ERP or not, but how to implement, that is the problem of strategy. ERP implementation is a procedure of power reallocation in some sense. When cutting the feet to fit the shoes meets the situation being eager for quick success and instant benefit, the possibility of failure would be rather high. It is not reasonable to assign the material planning and purchasing functions on one people. But it has existed for many years. But things exist would have their rationalities and inevitabilities, the crux is whether to adopt the strategy that reform step by step or to adopt the ‘shock therapeutics’ which is an absolutely revolutionary one. On the condition that there is a large difference between the enterprise’s management level and the advanced management mode, the enterprise should act according to actual circumstances. Otherwise it should improve its management level step by step and implement ERP when the mature chance comes. In a word, it is not suitable to talk about ERP when the enterprise could not run well itself.

3.2 Case Two

During our study, we also chose a material supplier as our example and went through its
processes of implementing ERP system in that company. The company is a small company who mainly provides material supply and purchase service for electric companies. This company has stable revenue and a good profit. To make the overall management level higher, the executives of the company decided to implement ERP. Its intent is to reduce costs and improve management level. They tried hard to improve profits by reducing cost. After comparing some ERP products in the market, the company decided to invest on an individuation ERP system act according to its actual circumstances. The main business processes are showed as the figure 1.

**Figure 1: Major business processes of a material supplying company**

During the course of ERP system development, the leaders of the company emphasis that all the business processes should be modernized by ERP. But in practice, the situation usually is that plan could not keep pace with changes. After the ERP was put to use, the planners had to establish plans and modify them constantly. And in the worst condition, the planners had to modify the same plan for ten times! ERP does not free the planners from heavy business works but make people be slaves of computer system.

In fact, it is not necessary for the company to pursuit complete modernization on plan establishment since it is not timely needed among the whole processes and it can fully be finished all by hand and put into the computer at one time.

### 3.3 What We Learned from the Cases

In the two cases, they adopted modularization of the systems, it is an idealistic idea. In fact most of the perfect things are not practical. In summary, two problems should be taken into account during the course of ERP development.

First, do not try to pursuit technological advance excessively. Everything has a concept of limitation. It is true that things will develop in the opposite direction when they become extreme and it is also true for ERP construction. The goal of enterprise is to maximize its profit and not to maximize or optimize ERP. We could not put the incidental before the fundamental. What ERP pursuit is to eliminate information insular island completely. Integrating all the resources in the enterprise and sharing with each other is just an ideal.

Second, it is necessary to make it clear that ERP system is a system combining human with computers. It is also necessary to divide what should be finished by human beings and what should be finished by computers, and also what is the interface between human and computers. Otherwise ERP would only bring negative effects. Basically speaking, there is no difference between ERP based on computers and ERP based on pens, papers and abacus. The difference just lies in the computing abilities.
If the computer finished all the works automatically, it seems that it is very advanced technologically. But it is also meaningless from this point of view to talk about ERP. But ERP is just a semiautomatic system, total automatism is the highest goal it pursuits.

4. Conclusions

Articles about ERP and its relative problems are widely issued on all kinds of magazines, books and websites. People share different opinions with each other. This paper simply summarizes the problems faced by ERP implementation of medium and small state-own enterprises in China. Some points of view might be extreme to some extent and it is not suitable for all kinds of industries.

No articles could include all the problems since there are so many enterprises in China. But one is sure that the theory of ERP is benefit for any enterprise. What is more, during the course of ERP implementation, we should not be restrained by the doctrines of ERP. It is necessary to make it clear that ERP is to serve for management and management is ERP’s fountainhead impetus. But if we break away from realities, any best theories would be meaningless.

Reference