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Why ERP Post-Implementation Fails? Lessons Learned from A Failure Case in China

Guo Chao Peng
University of Sheffield, g.c.peng@shef.ac.uk

Miguel Baptista Nunes
University of Sheffield, j.m.nunes@shef.ac.uk

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Guo Chao Peng, Department of Information Studies, University of Sheffield, Sheffield, UK, g.c.peng@shef.ac.uk

Miguel Baptista Nunes, Department of Information Studies, University of Sheffield, Sheffield, UK, j.m.nunes@shef.ac.uk

Abstract

When thousands of Chinese companies have implemented ERP systems as a means of optimising business processes and improving management efficiency, how to realise the full benefits promised by these systems and achieve continuous ERP success emerges to be the real challenge faced by practitioners. This paper reports on an empirical study that aimed to examine and explore factors that can affect ERP performance and even trigger ERP post-implementation failure in the Chinese context. The research took a Chinese manufacturing firm, which recently failed in ERP exploitation, as a case study. It adopted an inductive research design supported by in-depth interviews and participative observation as the main methods of data collection. The findings identified that ERP exploitation failure in the case company was not just caused by technical pitfalls of the system, but more importantly was also attributed to critical problems related to top management, IT professional and system users. By drawing on the findings of the case study, the researchers identified a list of key lessons and recommendations that are valuable for helping Chinese companies to play more successfully in ERP usage and exploitation.

Keywords: ERP, Post-Implementation, Exploitation, Failure, China.

1 INTRODUCTION AND BACKGROUND OF STUDY

Traditionally, information systems (IS) were developed by using different data repositories and programming languages to support a single business area. These IS applications are very often totally isolated and cannot exchange data with each other, which resulting in very low efficiency of their use but extremely high maintenance cost (Peng and Nunes, 2008). This phenomenon is described as "islands of automation" (Loonam and McDonagh, 2005), which is widely perceived as one of the major challenges faced by the IT industry in the 1970s and 1980s (Laudon and Laudon, 2006).

Enterprise Resource Planning (ERP) systems, which are cross-functional IS packages, emerged in the 1990s as an essential solution towards resolving this IS integration issue (Laudon and Laudon, 2006). ERP consists of a set of software modules that aim to collect data from various key overlapping business processes, as well as storing the collected data in a single and comprehensive database where they can be shared by other parts of the firm. As a consequence, ERP allows information that was previously fragmented in different isolated systems to flow seamlessly throughout the entire business, and also facilitates company to integrate its discrete business processes from different functions into enterprise-wide processes (Shehab et al., 2004; Laudon and Laudon, 2006; Peng and Nunes, 2008).

These features of ERPs have resulted in a continuing high implementation rate of such integrated systems in modern companies in recent years (Buonanno et al., 2005). In China in particular, companies often set ERP implementation as a top priority in their IS development agenda (Pan et al., 2009). In light of this fact, China's ERP sales has grown dramatically from US$ 70 million in 2000 to US$ 1.04 billion in only the first half-year of 2008 (Liang and Xue, 2004; Peng and Nunes, 2009a).

However, when more and more companies reached the "go-live" milestone of their ERPs, how to achieve the full capacities and benefits of the system in the post-implementation phase emerge to be the real challenges faced by practitioners (Willis and Willis-Brown, 2002; Peng and Nunes, 2009b). In particular, Liang and Xue (2004) stress that ERP innovation is an ongoing process during which many conditions could change. Thus, even if the system is implemented, it does not necessarily lead to efficient ERP performance in the long run, which in turn can significantly impact on business competence (Gattiker and Goodhue, 2005).

Due to these facts, ERP post-implementation emerges as an increasingly important topic that requires immediate attention from IS researchers. However, despite the need for research in this area, current studies on ERPs focus largely on system implementation and project management issues (e.g. Gupta et al., 2004; Kim et al., 2005; Woo, 2007). In contrast, there is a scarcity of studies addressing the organisational exploitation of ERPs after the implementation phase (Peng and Nunes, 2009b).

As one of the few exceptions the study of Liang et al. (2007), published in MIS Quarterly, investigated how institutional pressures and top management commitment can affect ERP assimilation and the degree of its usage. Another recent research by Peng and Nunes (2010a) identified a range of cultural, organisational, and technical barriers and risks that can trigger ERP post-implementation failure in China. However, when these previous studies produced a set of generalisable findings by using cross-sectional questionnaires, they did not explore in-depth human insights into the ERP exploitation issues under investigation. Given the close link between ERP and its application context (Xue et al, 2005), there is a clear need of more in-depth case studies to investigate the post-implementation phenomenon in different specific contexts (e.g. China).

The realisation of these research gaps motivated our in-depth case study presented in this paper. This empirical study focused on a failure case of ERP post-implementation in China. By using in-depth interviews and participative observation, the study identified and explored inductively a set of critical factors and issues that led to ERP exploitation failure in the context of a Chinese manufacturing firm. By drawing on the findings of the case study, the researchers identified a list of key lessons that are valuable for helping Chinese companies to play more successfully in ERP usage and assimilation.

The paper is structured as follows: the next section presents the research methodology and the case company in details. Subsequently, the research findings are presented, followed by a discussion of the lesson learned. The last section discusses the implications of the study, with conclusions drawn.

2 RESEARCH METHODOLOGY

2.1 Research Question and Case Study Approach

The research reported in this paper aimed to answer the question:

"*What factors will make ERP fail in the post-implementation phase in Chinese firms?*"

According to Saunders et al. (2003), a case study is especially capable of generating answers to "what" research questions as the one set out above. Furthermore, ERP post-implementation is a context-related phenomenon. As such, it is difficult to draw an explicit line to separate ERP from its application context (Pan et al., 2009; Xue et al, 2005; Newell et al, 2000). Therefore, when a case study is particularly useful in obtaining in-depth qualitative evidence to investigate "a contemporary phenomenon within its real-life context" (Yin, 2003; Eisenhardt, 1989; Benbasat et al., 1987), the suitability of a case research approach is further justified. Given these considerations, a case study design was adopted for this research.

However, it should be noted that given the limitation of the case-study, the results of the research will not be easily generalisable to all companies in China. In other words, the above research question can only be partially addressed by this paper. Nevertheless, it is hoped that the study, together with foregoing IS research (Liang et al., 2007; Peng and Nunes, 2010a), will provide researchers with deeper insights into ERP post-implementation issues in the Chinese context.

2.2 Case Description

The Chinese company involved in this case study is NYE (the real name of the firm is disguised for confidentiality purposes). NYE is a state-owned enterprise (SOE), which has over 58-year operational history. It currently employs about 450 staff, with annual revenue of 170 million RMB.

In the 1990s, the company was the largest manufacturer of electronic and telecommunication products (e.g. TVs, hi-fis, DVD players) in the Guangdong region in China. However, due to the country's continuous economic reform and the entrance of foreign companies into the gradually open Chinese market, China's business environment has become increasingly competitive (Peng and Nunes, 2009a). As a consequence, NYE is experiencing escalating economic and market pressure in recent years. Moreover, in response to the national SOE reform policy (Garnaut et al., 2005:46-50; Yusuf et al., 2006:156-157), the company underwent a process of internal restructure and transformation in 2002. After this institutional reform, NYE can no longer receive substantial support (e.g. funds and financial support) from the government as it did in the past. This change has certainly raised further operational and financial problems in the firm.

Faced with these very hard conditions, in 2003 NYE implemented ERP as a means of replacing its legacy systems to improve efficiency and competitiveness. However, after using the system for a number of years, the company experienced a set of critical ERP exploitation problems, which made managers and users perceive that the ERP investment was in fact a significant failure.

2.3 Data Collection

In order to identify and explore ERP exploitation challenges and issues in NYE, this case study followed an inductive approach. In-depth interview was used as the main method of data collection, which is supplemented by participative observation to enable triangulation (Yin, 2003).

The interview schedule was semi-structured and used open-ended questions that focused on each interviewee's understanding of, experience with, and concerns about the implemented ERP system and its usage. Different sets of interview questions were developed and used to explore ERP issues related to the roles of interviewees (e.g. IT manager, system users). Moreover, all interview instruments were originally developed in English and then translated into Chinese (which is the native

language of all interviewees). The Chinese version of the interview instruments was one that being used. Consequently, 18 in-depth interviews were conducted with key members that have direct engagement with ERP in the firm, namely the managing director, the IT manager, and managers and users in the four main departments (i.e. sales, financial, production, and purchasing department) (Table 1). All interviews were digitally recorded with prior permission, and lasted for 40 minutes to 1 hour. In order to enhance the trustworthiness of data (Robson, 2002; Saunders et al., 2003), written transcription was done on the same day that the interview had taken place.

Position	Number
Managing director	1
IT manager and staff	3
Departmental managers in:	
Sales area	1
Financial area	1
Production area	1
Purchasing area	1
System users in:	
Sales area	2
Financial area	3
Production area	3
Purchasing area	2
Total	18

Table 1. Number and positions of interviewees.

In addition, participative observation was used to gain further insights about how the current ERP system was actually used and exploited by its daily users in the company. This participative observation was conducted using a structured observation schedule that framed the process itself and enabled the researcher to interact with the informants. Conversations and activities were recorded by taking notes and the use of a field diary.

2.4 Data Analysis

The data collected was analysed by using a thematic analysis approach. Thematic analysis is one of the predominant techniques to be used for analysing qualitative data (Christofi et al., 2009). It is a process of searching, identifying and exploring codes and themes that emerged as "important to the description of the phenomenon" (Daly et al., 1997), through "careful reading and re-reading of the data" (Rice and Ezzy, 1999:258). Following guidelines given by prior researchers (Braun and Clarke, 2006; Rice and Ezzy, 1999), the thematic analysis conducted in this study consisted of five stages, as summarized in Table 2.

Stage	**Description of the process**
1. Getting familiar with the data	Get known the data by reading and re-reading the data set.
2. Coding the data	Developing the coding scheme, and coding the textual data in a systematic fashion across the entire data set by using NVivo.
3. Connecting codes with themes	Collating codes into themes, gathering all data relevant to each theme.
4. Reviewing themes & developing concept maps	Checking if the themes work in relation to the coded quotes and the entire data set, generating concept maps of the analysis.
5. Reporting findings	Final analysis of selected quotes, relating results back to the research question & literature, presenting findings.

Table 2. Five stages of the thematic analysis.

As a result of the data analysis, the researchers identified and explored a set of 11 critical ERP exploitation issues experienced by NYE. These identified ERP problems were localised around four main categories/themes, namely top management, IT professional, system user and system-related issues. In order to organise and represent these findings systematically, a concept map was used. Concept map is a "graphical tool for organizing and representing knowledge […and includes] concepts, usually enclosed in circles or boxes of some type, and relationships between concepts" (Novak and Cañas, 2006). It is a useful tool for sharing, discussing and representing concepts and findings derived from qualitative data analysis (Nunes et al., 2006). Following these guidelines, a concept map was produced as shown in Figure 1. Radiating from the centre of the map are the four key problem areas identified, which are in turn linked to specific ERP problems and their associated impact as emerged from data. This concept map was then used as the frame for reporting the findings in the next section.

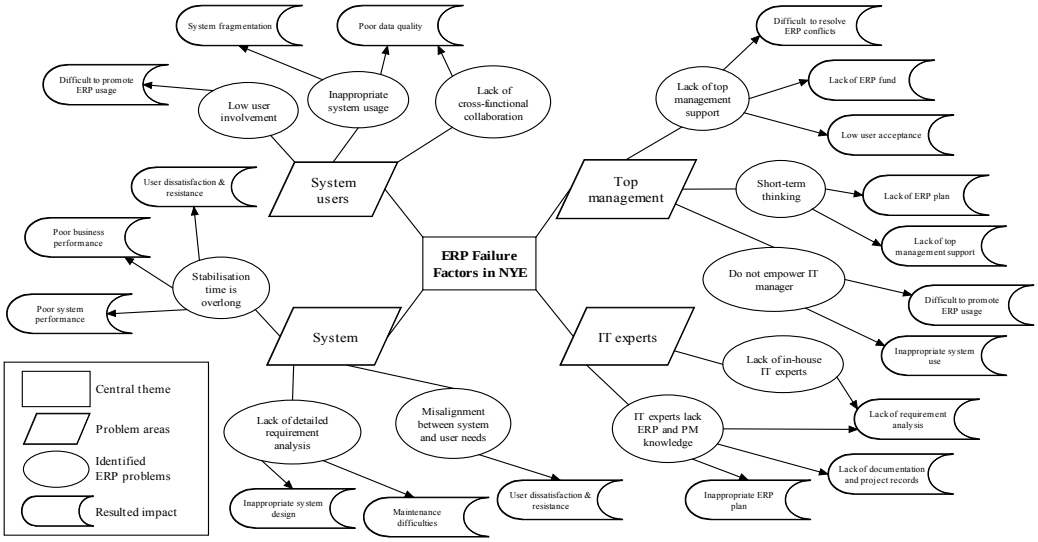

Figure 1. Concept map of research findings.

Moreover, all data gathered through interviews and observation was originally in Chinese. The initial temptation of the researcher was to translate the full set of interview transcriptions from Chinese to English prior to data analysing. However, as highlighted by previous researchers (Twinn, 1997; Temple and Young, 2004), misrepresentations, misinterpretation and errors can often occur during translation. As a consequence, the original meaning of the data in the transcription may be relatively changed or lost after the translation process, which in turn impacting the development of codes and themes from the data and also affecting the quality of data analysis (Twinn, 1997). Due to these considerations, the data analysis process in this study was carried out based on the original Chinese data set. Subsequently, only selected quotes were translated into English in order for them to be presented in the finding section. It was deemed that this approach could help to reduce the probability of potential translation errors, and thus raise the quality and credibility of findings.

3 RESEARCH FINDINGS

3.1 Case Analysis – IS and ERP Usage in NYE

NYE has its own IT department to be responsible for all IS-related issues (e.g. system implementation and maintenance). Prior to ERP implementation, the company already had rich experience in adopting and using information systems, as introduced by the IT Manager of the firm:

> Information system is certainly not a new concept to us. In the mid 1980s, a small software programme was developed by our in-house staff to support the hitherto manual processes of bookkeeping and stock

> control. The development and use of this early system were very successful. Our people enjoyed using it and were actually amazed by the power of IT. The IT department was thus established in the 1990s. Since then, more and more IS applications had been used in our different individual functions, e.g. sales, finance, inventory, production and purchasing (IT Manager).

In the early 2000s, ERP became very popular in China. Also at the same time, faced with the new and more competitive business environment (as discussed in section 2.2), the top management team of the company realised that "the legacy isolated systems and the traditional management mode had become gradually inefficient in supporting our business needs" (Managing Director of NYE). Due to these reasons, the top management team took a strategic step to discard the traditional systems by investing almost 1 million RMB in purchasing a new ERP system in 2003. Given their previous success in IS adoption and usage, managers and staff of the firm initially felt "very positive and motivated about the ERP project" and expected that "ERP can help us to enhance our core competitiveness and strengthen our position in the market" (IT Manager of NYE). After 9 months of implementation, the system went live in mid 2004. By the time of data collection, ERP had been in use in NYE for more than four years. Nevertheless, the actual outcomes of ERP innovation in NYE were found to be far different from the firm's original expectations:

> In my understanding, an ERP package should be an integrated system. However, in my firm, I feel our ERP is more like a fragmented system, of which different parts are like independent islands and have not been properly integrated together (Managing Director).

> I am very disappointed with our ERP system, which is full of inadequate data at the moment. Instead of supporting our daily operation, the system just messed up so many things. As a result, we currently still have to use the legacy systems to do the job, and the ERP system is only there for show. I cannot see the future of using this system (Production Manager).

These statements clearly show that ERP exploitation in the case company was fraught with undesirable outcomes and disappointments. The Financial Manager of the firm concluded that:

> The initial idea of implementing an ERP system was good, but the outcomes now show that this investment is in fact a crucial failure. This in turn drives our company into a more serious crisis (Financial Manager).

As mentioned in section 2.4, the analysis of the in-depth qualitative data collected identifies a variety of critical problems that led to this significant ERP failure in the case company. By using the established concept map (Figure 1) as scaffolding, the following sections discuss intensively these ERP issues in the context of NYE.

3.2 Top Management Issues

Despite the fact that the ERP project was originally initiated by the top management team, lack of actual support from top managers was found to be one of the major ERP problems in NYE. Specifically, although top managers of the firm continually claimed the importance of the system, they seem to make only verbal support rather than actual commitment to both ERP implementation and exploitation, as cogently stated by the IT Manager:

> Our top managers often state that ERP is an important and useful tool for the business. But other than that, they neither drive nor get involved in any specific ERP activities during either the project or maintenance stage. They tend to adopt a hands-off approach on most ERP issues and rely merely on the middle management to handle these problems (IT Manager).

In fact, owing to a hitherto centralised management system, top managers in Chinese companies often hold very strong power and authority (Martinsons and Westwood, 1997; Peng and Nunes, 2010b). Their contribution and engagement are therefore crucial to coordinate the very challenges (e.g. departmental conflicts) that can arise during ERP innovation (Gargeya and Brady, 2005). As such, when top management involvement in ERP was very limited, the IT Manager of NYE found that "different departments are often not willing to cooperate, and departmental arguments related with ERP usage are very difficult to resolve". Worst of all, further analysis of the interview data identified that, probably in order to remain strong control on most organisational aspects, top managers in the firm were not willing to assign substantial power to their subordinates (e.g. the IT manager). As a consequence, the IT manager further claimed that she "was not sufficiently empowered to either deal with user resistance or promote business changes entailed by ERP".

On the other hand, since China is currently at a rapid development stage, economic and market environments of the country are changing quickly and constantly. In order to react fast in this fluid business environment, top managers in Chinese firms may be inclined to adopt short-term thinking and planning, as in the case of NYE:

> As the Managing Director of the company, the things that I care most are how much sales we are going to make this month, and whether all departments can meet their monthly targets. I do not have time to think about where the company will be in the next 5 years, nor predict the uncertain future. I worry more about how to secure survival of the company at the present moment (MD of NYE).

However, such short-term thinking of top management is not conducive to the long-term exploitation of ERP systems, as confirmed by the IT manager of the company:

> Our top managers are willing to invest, say 1 million, in ERP implementation, but they then expect everything to be done in one go and no substantial ERP cost will arise afterward. However, this is certainly not the case in reality. When they are asked to invest more in ERP maintenance and enhancement, the top managers are very reluctant to do so (IT Manager of NYE).

It clearly emerged from this statement that top managers of NYE considered ERP as a one-off investment rather than a continuous endeavour. As these managers were blinded by their short-term view, and also because of a lack of understanding, they were not willing to assign sufficient fund to maintain, improve or upgrade the installed ERP system. The IT Manager concluded that "this is one of the major reasons why so many technical pitfalls of ERP have not been modified after a number of years, and why the system has not been properly enhanced to meet emergent user needs".

3.3 IT Professional and Related System Issues

Effective ERP maintenance and enhancement rely on continuous effort and contribution of a large amount of IT experts. It however became apparent from the interviews that due to high market demand of this type of professional, the IT department of NYE is currently short of qualified and skilled staff:

> In recent years, market demand for skilled IT experts has been very high, which results in high turnover of our IT people. We used to have 25 in-house IT staff before 2000, but now including myself we only have 3 IT experts remaining in the firm (IT Manager).

Due to a severe shortage of in-house IT experts, the Sales Manager highlighted that "the implemented ERP system was often not properly maintained, e.g. redundant data of the system was not regularly purged, and technical bugs were not speedily identified and resolved. These problems in turn significantly affect system performance and reduce user satisfaction".

Apart from staff shortage, further analysis of the interview data indicates another critical issue existed in the IT team. That is, the IT manager, who was also the ERP champion committed to oversee the entire life cycle of ERP implementation, did not have sufficient skills and knowledge for managing IS/ERP development projects:

> I was a programmer before getting promoted as the IT manager of the firm. So my background is concerned more with technical aspects rather than business aspects. When we initiated the ERP project in 2003, the concept of ERP was very new to me and I also don't have any IS project management experience. However, due to a lack of internal IT experts, I was just assigned the role (IT Manager).

Consequently, the ERP project team, led by this IT manager, failed to engage system users at the implementation phase to develop detailed requirement analysis, as highlighted by the Financial Manager of the firm:

> During the implementation process, the ERP team had just come to us once to ask what we want from the system. This is obviously insufficient. Also they have not produced any documents to record user requirements afterward. In fact, they seemed to just select and purchase a set of standard ERP modules from the vendor without assessing how these modules should be possibly customised to meet our needs (Financial Manager).

This unfortunate omission has led to significant misalignments between ERP and the organisation, which in turn resulted in great user disappointment and dissatisfaction at the post-implementation stage, as clearly stated by the Sales Manager:

> Since many important user requirements were not captured in implementation, the ERP system was not properly designed and configured to support our daily jobs. When using the system, we identified so many misfits between what we actually need and what the system can do. We have been urging the IT department to revamp the system to resolve these misalignments as soon as possible (Sales Manager).

When asked how the implemented ERP system can be reconfigured and enhanced to satisfy user needs, the IT manager responded that: "given the complexity and inflexibility of ERPs, it is very difficult and extremely expensive for us to make substantial modifications to the system once it has gone live. We also do not have sufficient ERP fund to do so. However, users in the company obviously do not understand and accept this situation. This has caused continuous arguments and great tension between the IT department and system users at the exploitation phase" (IT Manager).

3.4 User and Related System Issues

When the implemented ERP system does not adequately fit in the company's current work practices, an alternative solution is to improve and modify existing business processes and structure of the organisation to suit the new ERP environment (Newman and Zhao, 2008; Christofi et al., 2009). Recognising the need of business process reengineering, the Managing Director of NYE claimed that: "we have managed to do a great job to reengineer many specific processes in various key functions, such as customer order gathering and entering, material receiving and requisition, invoicing, and related approval procedures performed by managers, etc". Curiously, when asked whether users felt positive about this new business mode, the Financial Manager told a different and shocking story:

> The new business processes, accompanied with the use of ERP, just represent an ideal model of work practice. In reality, most people in the company still just do their work in the traditional way by using the legacy systems, which are the de facto systems that people actually use to store and process data. They will only input the same data, which they have already entered to the legacy systems, into ERP when they have time. Consequently, data stored in the ERP system is always incomplete and fraught

> with errors. As such, no one can rely on data of the ERP system, and we still have to use telephones or face-to-face talk as we did in the past to inform each other what has been done (Financial Manager).

It became apparent from this statement that although the company has made an effort to redesign its business processes, the new work practices are not actually being followed and adopted by users. Moreover, and very surprisingly, although ERP has been in operation in NYE for a number of years, it is not the de facto system to be used by system users to support their daily jobs. Many users might pretend to be willing to use ERP, but in fact they did not make an attempt to adapt to the ERP environment and just used the legacy systems rather than ERP to process and store important data. This clearly shows that although system users did not openly reject the ERP system probably in order to avoid personal risks, they had strong resistance to its use.

Further analysis of the interview data identified that misalignment between ERP functionality and user needs (as discussed in section 3.3) was the initial reason that led to user resistance and dissatisfaction. Moreover, because top managers failed to provide tangible support to ERP and the IT manager was not adequately empowered (as discussed in section 3.2), no effective actions (e.g. implement strict ERP rules to impose adequate system usage, punish user mistakes by salary deduction) were taken in the last few years to manage, control and regularise user activities. When users did not receive adequate pressure and instruction from the management and also did not need to take any consequences even if they had made significant user mistakes, they became increasingly indifferent and careless when operating and using the ERP system. Due to such inappropriate system usage, a lot of incomplete, duplicate and inadequate data was entered and stored into ERP. Consequently, the Financial Manager concluded that:

> Data in the ERP system has now become fragmented and unusable. Since ERP requires very high data accuracy in order to work efficiently, poor data quality made the implemented ERP system fail substantially in exploitation (Financial Manager).

4 FURTHER DISCUSSION AND LESSONS LEARNED

Following the investigation of the failure case at NYE, the researchers identified a list of valuable lessons and recommendations, which fellow Chinese managers should be particularly aware of, in order to increase the possibility of ERP success:

- Previous IS experience is frequently mentioned in the literature as a critical factor to drive ERP success (Zhang et al., 2008; Leidner and Kayworth, 2006). However, the failure case of NYE clearly indicates that even if companies have been very successful in previous IS adoption, they still may not easily handle the implementation and exploitation of ERP, which is very different from traditional ISs and may very often be the most sophisticated, expensive and influential system that companies have ever adopted in their hitherto IS history. Therefore, Chinese managers and users in these companies should not be blinded by their previous IS success and also cannot become over-optimistic towards ERP adoption and usage. Careful planning, thinking and even brainstorming are always necessary when dealing with ERP issues.
- The role of IT manager or ERP champion is of paramount importance to ERP success (Nah et al., 2003), and therefore must be carefully selected. It is particularly dangerous and problematic if this critical role is undertaken by a fairly inexperienced IT manager who may be strong in programming but have limited ERP knowledge and project management skills. As in the case of NYE, the project team, led by a less qualified ERP champion, made some critical and unforgivable mistakes (e.g. fail to conduct detailed requirement analysis), which caused significant system usage difficulties and problems at the post-implementation phase. Moreover, the ERP manager must be adequately and sufficiently empowered in order for them to manage user resistance, resolve department conflicts, and promote changes resulted by ERP use. Nah et al. (2003) thus state that it will be a good practice to assign a senior executive or top manager, who also has extensive system and project knowledge, to be the ERP champion.

- IT managers in Chinese firms cannot just conveniently purchase a set of standard modules from vendors without comprehensive analysis of organisational needs. In fact, user needs must be properly identified, analysed and documented at the early stage of ERP implementation. A detailed specification of user requirements should be kept and used throughout the ERP life cycle to guide system/module selection, customisation, configuration, and also enhancement. Lack of or having deficient requirements analysis and specification will result in substantial misalignments between ERP functionality and user needs, as in the case of NYE. Given the inflexibility of ERP and the limited resources available in many Chinese firms, it is reasonable to argue that not many companies may be willing or able to revamp the implemented system to remove these misalignments. As a consequence, the ERP system will not be able to deliver benefits to users.
- Top managers play an extremely important role to ERP innovation, as their attitudes "will affect not only the flow of funds and information to the project, but [more importantly] also the subordinates view the project" (Gargeya and Brady, 2005). In order to ensure continuous system and business success, top managers in Chinese companies should consider ERP as a long-term endeavour rather than a short-term or one-off investment. Therefore, sufficient fund should be assigned to ensure efficient ERP maintenance and enhancement. Moreover, they should be aware that verbal commitment will not receive too much effect, and that managers and users may often show poor cooperation in dealing with ERP problems until they see actual engagement of top management. As such, Chinese leaders need to be prepared to provide tangible and sustained support to ERP exploitation.
- Modifying and redesigning current business processes to fit in the new ERP environment is very often fundamental towards resolving misfits between ERP and the company. However, after business process reengineering, Chinese companies also need to apply efficient change management techniques to ensure that the new business model is actually being adopted by users in their daily practices. As discussed above, top management commitment is certainly the key to make this happen. Moreover, a set of rigorous ERP policies and rules should be developed and implemented strictly to ensure constant and proper use of the system in the long run. Inadequate use of the system can result in poor data quality, which can then contribute to significant ERP failure and even business disasters at the post-implementation phase.

5 CONCLUSIONS AND IMPLICATIONS

By drawing on rich qualitative evidence derived from an empirical case study, this paper presented and discussed a range of critical issues that can lead to ERP exploitation failure. The findings of the case study show that, certain ERP problems (e.g. deficient system design) that user companies encounter in post-implementation can be caused by mistakes and misjudgements (e.g. deficient requirements specification) being made in the implementation phase. When companies also fail to manage and respond promptly to the various organisational and business conditions changing overtime (e.g. emergent business needs, inadequate user behaviour), severe problems of system usage and maintenance can arise.

Moreover, the majority of ERP problems identified are in fact organisational and management problems (e.g. lack of tangible support from top management, IT manager lacks power and ERP knowledge), which in turn can result in critical system issues (e.g. misfits between ERP and user needs, poor data quality) that eventually will trigger ERP exploitation failure. These findings thus led to a very important and meaningful conclusion: potential failure of ERP in Chinese companies cannot be simply attributed to system problems (e.g. software packages and ICT infrastructure), but more importantly should be attributed to business and organisational problems, in particular human problems that are related to top managers, IT experts and system users.

The results of this study have important practical and research implications. In practical terms, although the problems identified and recommendations drawn are specific to the case company, they are likely to be meaningful and valuable for other Chinese firms, especially for those that are engaged in similar business sector and context as the one studied. Moreover, the overall lessons learned and

discussed provide useful insights for helping Chinese companies to play more successfully in ERP exploitation and diffusion. Also given the fact that Chinese managers are traditionally less willing to disclose problems and failures to external bodies in order to preserve their own and/or their firms' images (Peng and Nunes, 2010a), the findings derived from this failure ERP case in China are particularly valuable. In research terms, this study added to the knowledge of ERP in general, and contributed to the research gaps of ERP post-implementation in Chinese firms in particular. However, since the study examined only one case, further empirical research on the same subject area is highly recommended.

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