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Factors affecting the effectiveness of implementation of
ABC system in Chinese manufacturing company

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Abstract

This study is conducted based on an empirical study in a Chinese manufacturing company. The main objective of this study is to explore the influence factors of the ABC implementation in the manufacturing industry under the Chinese context. The unstructured interviews by telephone and internet are carried out for collecting relevant ABC information. There are several findings generated in this study. The first one presents that the ABC implementation will be obstructed by the inadequate staff trainings during the different stage of the process. Secondly, there is a positive association between the ABC implementation and the top management support. Thirdly, the level of the conversation and coordination between different departments, such as Financial and Production Departments, will relatively affect the implementation of ABC system as well. For example, a lack of cooperation between different departments will set back the ABC implementation. At the end of this study, the limitations of this study are put forward, and correspond future researches are stated as well.

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Chapter one: Introduction

1.1 General Background

1.1.1 Chinese Business Environment

During the period from 1949 to 1978, the business environment in China was planned economy (Duh et al., 2009). Afterwards, the economic transition was taken place in Chinese business environment. The market form of China transformed to the nationally unified domestic market, which was based on socialist public ownership (Duh et al., 2009). Under the emerging social market economy, a range of management accounting changes had been taken place since 1985, such as the convergence of accounting standards between China and Western countries.

In order to have a better performance during the process of emerging market challenge and economic reforms, the advanced management accounting techniques which were proposed in Western countries were extensively applied and adopted by Chinese companies, such as the activity-based costing (ABC), total quality management, just-in-time and lean production (Krumwiede). Since China joined the World Trade Organization (WTO) in 2001, the Chinese companies were confronted with a competitive global market, and they were aware of the importance of these management accounting techniques (Xiong et al., 2008). Therefore, many Chinese firms started to implement modern management accounting techniques. In terms of the management accounting techniques mentioned above, the ABC gained a mass of interests in Chinese manufacturing companies (Duh et al., 2009).

1.1.2 Prior Accounting System Used in China

Thanks to the wide research of and the attention on the ABC system in Western countries, a great deal of scholars and researchers in China began to

concentrate on the implementation of the ABC system. There were several aspects interested by them, such as the concepts of ABC and the classification of cost drivers.

Before the introduction of the ABC system in China, the major accounting system used in China is the traditional volume based costing system (Pan and Zhou, 2002). Traditional volume based costing system allocates overhead expenses by product volume, which is inapplicable in some companies. It will lead to significant increase of overhead expenses that allocate to each product at the initial stage, so that the product costs are inaccurate to some extent (Roztocki et al., 2004). Horngren et al. (1999) stated that too few pools of indirect costs were used under the traditional approach, so that allocated average costs are excessively high.

Traditional volume based costing system is inclined to misunderstand product costs based on a single cost driver, which has a negative effect on decision making, such as pricing or product emphasis (Johnson, 1991). Cooper (1988) also suggested that under the traditional volume-based costing system, there are several elements would affect the cost allocation, such as the product amount, the size and the complexity.

ABC is designed to prevent cost distortions in product costs and provides a process view, which the traditional volume based costing system cannot provide (Alsmadi, Almani and Khan, 2014). However, the information about current practice status of ABC in China is relatively inadequate. The problems Chinese companies will confront during the implementation of ABC is also less known. Therefore, this study is carried out to discuss and analysis which factors will influence the implementation of ABC in Chinese manufacturing company based on the previous studies.

1.2 Research Objectives

Having discussed the general background of Chinese business environment and the prior accounting system, this section identifies the research objectives and the research questions of this study.

The primary objective of this study is to conduct an empirical study to investigate the influencing factors of ABC implementation in Chinese manufacturing companies. Evidently, the ABC system is a system that assigns the organizational expenses to individual products, services and customers based on the activities, where the indirect costs are accurately allocated by the chosen cost drivers (Gosselin, 1997). The companies that adopted ABC system have an increasingly development and improvement on their cost management, so that the costs of products became more accurate and reliable (Anderson, 1995). As a result, the ABC system is regarded as a cost-effective management technique, and it provides a skillful way for making a better decision.

However, although the ABC system was regarded as a refined costing system and gained huge popularity in developed countries (Anderson, 1995), it still remains under utilised in the developing countries. Moreover, relatively limited researches have been carried out in developing countries due to the vast difference between business, economic and cultural circumstance of these countries (Liu and Pan, 2007). The problems faced by the companies in developing countries are little known to some extent. Therefore, the main objective of this study is to explore which factors will affect the implementation of ABC system, such as the difficulties of the ABC implementation.

1.3 Research Methodology and Research Questions

Since the key objective of this research is to explore the influencing factors of

ABC implementation in a Chinese manufacturing company, an in-depth understanding of the viewpoint and beliefs of individual people within the Chinese context is of paramount importance. Therefore, a thorough empirical study in a Chinese manufacturing company must be conducted, since such study cannot be interpreted by analysing numerical data. Also, a detailed investigation of a target company would help understand the specific view and understanding of the ABC implementation in Chinese manufacturing companies. The qualitative research approach is much more suitable for this kind of study. Therefore, according to the objectives of this study, the case study method will be used in this research.

In terms of the data collection, the primary data of this research is collected by conducting interviews, and the interviewees were chosen from the employees of the target company, NingBo PingRong Casting CO., LTD, such as the leader of the Financial, Planning and Production Department. Moreover, secondary data is derived from the company website.

In order to achieve the objective of this study that proposed above, some research questions are presented as follow:

1. What are the objectives for adopting Activity-Based Costing (ABC) in NingBo PingRong Casting CO. LTD (hereafter referred to as PingRong)?
2. What are the difficulties and obstacles of ABC implementation?
3. What is the level of the ABC implementation in PingRong?

By exploring the answers for these research questions, the main influencing factors of the ABC implementation in the target company will be discussed in this study.

1.4 Structure of the Study

This study covers six main chapters;

The first chapter, **Introduction**, is to provide an overview of the study. It illustrates the background, objectives of this study, following by the research questions and a brief introduction of the research methodology.

The second chapter, **Literature Review**, underlines the reviews of the prior worldwide researches on the relevant topic. The theoretical background and relevant researches of the similar topic are displayed in this chapter, and also the comparisons and contrasts between the viewpoints from various researchers are reminded.

The third chapter, **Research Methodology**, provides a presentation and justification for the choice of the methodology as well as the data collection and analysis methods.

The fourth chapter, **Results and Analysis**, shows an analysis of the target company based on the data collected from the interviews. Then, the results and discussion of implications are presented. The discussion of implications interpret the connection between the results of this study and the existing theory. Also, some recommendations are proposed based on the results.

The last chapter, **Conclusion**, summarises the outcomes of this study, and underlines the limitations. Moreover, it also includes the suggestions and directions for the future research.

Chapter Two: Literature Review

2.1 Introduction

This chapter focuses on reviewing and discussing the previous theoretical and empirical literatures in the aspect of the implementation of the Activity-Based Costing (ABC) system around the world, primarily discussing the influencing factors of the ABC implementation in both developed and developing countries. Firstly, it reviews ABC in developed countries, following the review on ABC in developing countries. Finally, it discusses the management changes in China during the past few decades, and the current situation of the ABC implementation in China. Also, the influencing factors will be reviewed in this section based on some researches in Chinese companies. The overall summary of the literature review is given in the end.

2.2 ABC Implementation in Developed Countries

Since the late 1980s, concepts of ABC were introduced in developed countries and this accounting system began to be adopted. Then it gained considerable attention in the aspect of academic and professional literature (Anderson, 1995; Friedman and Lyne, 1995).

In the last decade, many companies have decided to design and apply the ABC system (Shield, 1995; Krumwied and Roth, 1997). A survey was conducted in Norwegian manufacturing firms showed that 40% of them had adopted ABC (Bjørnenak, 1997). Bruggeman et al. (1996) conducted a study among 88 Belgian companies (manufacturing and servicing), and he concluded that about 20% of them have applied ABC with several forms. In the United Kingdom, a survey was conducted by Innes and Mitchell (1991), indicating that ABC was used by only 20% of 251 participants, and it was applied in the areas of cost management, product pricing and performance measurement.

Zhang and Che (2010) classified two aspects of influencing factors from previous researched, which are technical variables as well as contextual, behavioural and organisational variables. In terms of the technical variables, they indicated that some previous researchers were willing to pay much more attention to technical factors, such as the recognition of main activities, the option of cost drivers and the problems in accumulating cost data. However, these technical factors are not enough to demonstrate the factors influencing the effective implementation of ABC. Therefore, they shifted their focuses from technical variables to other variables, such as contextual, behavioural and organizational variables.

Shield (1995) had same argument with Zhang and Che (2010) that the association between the technical factors and the ABC implementation is not very strong to some extent. Shield (1995) carried out a survey in 143 firms to explore the empirical evidence of which various behavioural, organizational and technical factors were associated with the effective implementation of ABC. It indicated that study emphasis should be put in the matter of organizational culture, competitive strategies, and learning and incentives. These variables play a vital role in helping employees decide which administrative innovations were more effective and useful. It found no significant connection between the technical factors and the effective implementation of ABC. In other words, achieving architectural and software perfection is not sufficient for the general or long-term effectiveness of ABC implementation. Meanwhile, Krumwided and Roth (1997) also believed that obstacles of the ABC implementation are capable to be conquered if the company is willing to pay more attention to behavioural and organizational variables that were previously identified by Shield (1995).

According to a case study carried out by Anderson (1995), it showed that there

are several factors promoting the effective implementation of ABC in the target company of his research from 1986 to 1993. These factors can be grouped into two kinds, behavioural or organizational factors and contextual factors. This empirical study focused on finding influencing factors which are able to affect the change of the cost management system. In this research, the ABC implementation is segmented into 4 phases, which are initiation, adoption, adaptation and acceptance. Behavioural and organizational factors, such as staff training and support from top management, have a vital impact on several phases of ABC implementation. While as the contextual variables, such as competition and compatibility with existing systems, affected different phases of the ABC implementation.

A survey of 4 target sites in the USA were conducted by McGowan and Klammer (1997). It examined 53 employees to research whether the degrees of employees' satisfaction would affect the implementation of ABC. They also examined their views of the factors related to the level of satisfaction, such as top management support, performance evaluation system, adequate training and training resources and information quality. Their result concluded that there are a range of different perspectives related to ABC, and it depends on the role of the individuals involved. Besides, this research verified the positive relevance of environmental variables to the implementation of ABC, such as user involvement and the quality of information. The importance of these variables presented the variation in the satisfaction of the ABC implementation, extending beyond the organizational level.

One empirical study was conducted in 161 Canadian manufacturing companies by Gosselin (1997). He classified the ABC implementation into two stages, the adoption stage and the implementation stage which follows the adoption stage. This research examined the influence of business strategy and organizational structure on the adoption and implementation of ABC. This

study presented that prospector strategy is connected with managers' decision making during the adoption stage. The organizations with high vertical differentiation have a positive relation with the adoption of ABC. At the same time, the centralization and formalization play a significant role in the implementation stage, and they have an impact on companies' decision to use ABC. The results from this research described that strategy and organizational structures do affect, to some extent, decision makers in adopting and implementing ABC.

Krumwiede (1998) also divided the ABC implementation process into several stages. He carried out a survey of U.S. manufacturing firms to discuss whether the contextual and organizational factors would have different influence at different stages of the ABC implementation process. The outcome of this study confirms it. Firstly, he concluded that different factors affected the various stages of the implementation of ABC. Then, he found the direction and level of importance for each factor is diversified by stage. For example, certain contextual factors, such as competition, relevance to managers' decisions and compatibility with existing systems, were related to the ABC pre-adoption and adoption stage, while various organizational factors, such as support by upper management and investment in training, affected the other ABC implementation stages. The results of this study is similar with Anderson's (1995) and Gosselin's (1997).

A survey in 21 field research sites of two firms was proceeded by Anderson and Young (1999). It mainly examined the structural relation between the organizational and contextual variables, such as information technology, task characteristics and organizational structures. The results of this research presented the stability of the association between evaluations of ABC implementation and factors related to context and implementation process. Anderson and Young (1999) pointed out that organizational factors, such as

top management support, are considerably important during the process of the ABC implementation. Meanwhile, although the process of implementation clearly influences the outcomes of the ABC implementation, both the process and the outcomes are directly influenced by the contextual variables. For example, managers are possible to support the implementation of ABC if the company has a good performance with high reward expectancy, and also, evaluators tend to have a positive evaluation of the ABC system under the good performance.

Friedman and Lyne (1997) carried out a case study to research the operational and organisational consequences in relation to the ABC implementation. This research forecasted on that the prospect of the ABC implementation will be promising and positive in the short term. In the matter of the research findings, as the process is repeated among the research company, Friedman and Lyne (1997) considered that the associations between management accountants and the operational managers are increasingly enhanced, the distance between them will be reduced, not only for the individual accountants who conducted the analysis of activity, but also for the whole Financial Department. They claimed that the management accountants would not confront risks during the short term.

Furthermore, Major and Hopper (2005) undertook a case study in a telecommunications company in Portugal, which was carried out to examine the relationship between the technical and contextual factors and the implementation of the ABC system. This company confronted a series of severe problems. For example, production engineers of this company were reluctant to use the ABC system, leaving its accuracy and usefulness doubtful. Production personnel had difficulty in understanding the ABC system relating to their jobs. In contrast, commercial managers who have the responsibility of pricing and investing possessed high satisfaction with the ABC system, since

they considered that it performs better on the aspect of the accuracy of product costs than previous systems. By applying the ABC system, the requirements of regulators and financial markets would be met. Major and Hopper (2005) interpreted that the lack of staff trainings, and weak communication and coordination between different departments in exchanging and sharing the basic ABC information would result in the resistance in adopting the ABC system in the organisation. Beside, they were aware that among these identified factors that are associated with the ABC implementation, adequate support from top management is the key factor to enable the ABC system accepted by employees, and to make sure that the ABC system can work effectively and efficiently. This conclusion was consistent with the findings of Shields (1995).

Refer to the benefits derived from the ABC implementation, Turney (1989) proposed that after applying ABC, managers would be aware of the importance of product combination, making a rational and wise decision on determining the mix of product group, pricing products and evaluating new skill. Apart from that, Turney (1989) also declared that ABC was a flexible, imperative and cost-effective technique for manufacturing companies, since it was significantly suitable for the competitive manufacturing industry. Meanwhile, Gunasekaran et al. (1999) also noted that for modern manufacturing environments, ABC was the best method. They also indicated that ABC was an excellent approach for assessing the performances and costs of activities, products and customers.

The review of the above studies which were progressed in several different developed countries in the terms of the ABC implementation. It states that the ABC implementation can be influenced by a variety of factors, such as top management support, adequate staff training and business strategy. The benefits brought by the ABC implementation cannot be neglected, although

some limitations and demerits of it still exist. Additionally, the impact of the ABC implementation in developing countries is supposed to be quite different, since developing countries may have different culture, economic circumstances and accounting standards with developed countries. Many cross-cultural studies have proved that these discrepancies would cause modification of accounting techniques and practices of one country to adapt the circumstance of another country (Daley et al., 1985). The key studies for researching the implementation of ABC in developing countries will be reviewed in the next chapter.

2.3 ABC Implementation in Developing Countries

As highlighted by Liu and Pan (2007), a large amount of ABC researches had been done in developed countries while very few researches had been conducted in developing countries. Chongruksut Brooks (2005) also pointed out that although a range of studies relating to ABC had been proceeded, few had been conducted in South East Asia region, to some extent.

Mwita (2000) pointed out that adopting the ABC model as an efficient technique in developing countries would have a positive impact on overcoming demerits emerging during the process of decision making, which is considered as an over-centralised management style, especially in the public servicing industry.

Moreover, the benefits of using management accounting techniques, such as ABC, were previously discussed by Luther and Longden (2001). They conducted a survey in 139 respondents in South Africa, comparing with the companies in UK. They realized that the benefits derived from management accounting techniques in South Africa are quite different with those in UK equivalents. Besides, they mentioned that the factors resulting in management

accounting change in South Africa were different with those of UK as well. It is mainly due to the fact that South Africa is a country with high uncertainty, rapid change and vast opportunities for economic growth (Luther and Longden, 2001). The outcomes of this study endorsed some previous conclusions referring to contingent influencing factors for management accounting techniques and changes, such as the variability of economic circumstance, the intensity of competition and the diversity of culture. It is consistent with the opinion of Hopper et al. (2009).

Brewer (1998) proceeded a case study in Malaysia and the United States to research the association between the international culture and ABC implementation. ABC had been implemented in both Malaysian and American plants, and the plant in Malaysia used 'top-down' approach, which indeed had a significant impact in the contributions for effectively applying ABC under its national culture. Brewer (1998) explained that the cultures of Malaysia are high-power-distance and collective, so that the subordinates from this kind of cultural context would be more comfortable with the 'top-down' approach. It contributed to the successful implementation of the ABC system. Conversely, the ABC implementation in the American plant with low-power-distance and individualism orientation presented an entirely different situation. As a result, it was clearly demonstrated that the ABC implementation can be influenced by cultural factors. However, it did not figure out that a different culture would lead to ABC failure.

Another study was conducted by Waters et al. (2001). In this study, the ABC system was used as a non-government and non-profit health care provider during the period from 1997 to 1998 in Peru. Waters et al. (2001) claims that the implementation of the ABC system in developing countries, such as Peru, was quite useful and practical. This study demonstrates that ABC can be used to calculate the actual unit costs of services. Compared directly with the prices

charged for the same services, these costs show the effective income generated in that service. This unit cost results are able to be directly applied to pricing policy. Besides, they demonstrated that the establishment of ABC depend on the clear indication of managers' targets in cost. They proposed a potential constraint for the ABC implementation, which was the availability and organization of cost information. It is widely acknowledged from this study that in order to efficiently apply ABC, the information of cost category and department was needed.

Additionally, Morakul and Wu (2001) proceeded a case study on the budgeting system in three largest state-owned enterprises in Thailand. The purpose of this study was to examine whether the culture differences would influence the implementation of cost accounting system that had used USA accounting concepts in Thai circumstance. They mentioned that the system, which has empowerment and the redistribution of power would have high resistance. It is different from the research findings from the bsUSA. This study makes some contributions to the cross-cultural behavioural research in accounting. It attempted to answer the question of whether the modification of ABC is needed when transferring accounting practices from one culture to another. Therefore, in order to adapt to the economic and cultural environment in Thailand, several modifications of the ABC system were required when organizations tried to apply this new cost accounting system (Morakul and Wu, 2001).

Another survey was conducted in Thailand by Chongruksut and Brooks (2005). The study found that the adoption rate of ABC in Thailand was relatively high (35 percent) comparing with other Asian countries. It showed the companies which contained high variation in product complexity, large amount of capital equipment and complicated production service processes preferred to adopt ABC, since these companies confronted with fierce competition and increasing

growth of cost. In line with prior literature, top management support was regarded as the most important factor that would influence the implementation of the ABC system. According to the outcomes of their research, several benefits could be drawn from the process of the ABC implementation, such as more accurate allocation of the costs of the products and services as well as improved cost control. However, some problems were identified as well. Firstly, a great deal of work was required to achieve ABC, followed by difficulty in collecting data of cost-drivers. Secondly, ABC is time-consuming. It took up a lot of managers' time to support and adopt ABC. Then, lack of co-operation among different departments also blocked the implementation of ABC (Chongruksut and Brooks, 2005).

Questionnaire surveys among 39 of the largest 100 firms in Saudi Arabia were carried out by Khalid (2005) in 2003. This study specifically focused on the degree of the ABC implementation in Saudi Arabia. It discussed the impact of some organizational and technological factors on the implementation of ABC, and the reasons for applying or refusing ABC. He found that the adoption rate, which was about 33.3 percent, of the ABC system in these large firms was considerably high compare with the observation of other prior studies. The results showed that the ABC implementation was directly related to the size of firms, since implementing ABC requires huge resources, and large-sized firms are more capable to afford it than small ones. Also, Bjørnenak (1997) claimed that large-sized companies have enough required resources, such as funds, so that they are more likely to adopt ABC. In terms of the production diversity, Khalid (2005), Bjørnenak (1997) and some other scholars all claimed that there is a positive relationship between the diversity of products and the possibility of the ABC adoption. Besides, Khalid (2005) also explained the reason why some firms never considered ABC, which was their satisfaction with their existing cost accounting system, and also, they held sceptical attitude toward the credibility of ABC because of the unsuccessful cases of the

ABC implementation in the past.

Ismail (2010) managed a research, combining case study and survey approaches together, to discuss how ABC system can be used in higher education institutions and what the benefits of ABC implementation are. He explained that the implementation of the ABC technique was cost-efficient and capable to provide right information and feedbacks to the university administrators, since this kind of effective cost management system is capable to create higher value for the institutions. In addition, this study also explored the obstacles and challenges, such as information systems supports, for the effective implementation of ABC in higher education environment. Ismail (2010) summarized that the empirical study confirmed ABC methodology is an important alternative for public universities to consider to transfer to competitive entities, since it is flexible, timely and able to provide critical information to the management of public universities.

A study with two data collection methods, survey and case study, was organized by Maelah and Ibrahim (2006) to examine factors influencing ABC success among manufacturing organizations in Malaysia, especially in the adoption stage. This empirical study showed that ABC was adopted by 36 percent of organizations in Malaysian manufacturing industry, while the remaining 64 percent did not. It found that the most vital factors were decision usefulness, organization support and internal measures. Whereas, the other four factors, cost, IT, training as well as learning and growth were relatively unimportant. This finding was in accordance with previous studies that examined such relation. For example, Cooper (1988) proposed that the decision usefulness of cost information is connected with the cost of errors associated with it. Shields (1995) claimed that top management support is a key factor to influence the ABC implementation.

Joshi (2001) arranged a study to compare Indian companies with Australian companies on the aspect of the ABC implementation, examining the benefits received from it and their intentions of future emphasis on these practices. His findings revealed that the adoption rate of traditional management accounting practice was higher than developed techniques in India. It was due to a lack of knowledge focusing on the current state of management accounting practices in India, and Indian companies were not flexible in applying new management accounting practices (Joshi, 2001). They were more likely to adopt, even rely on, traditional management accounting systems. These viewpoints are presented by Joshi's (2001) study, he stated that the modern management accounting practices, including ABC technique, were difficult to be accepted in Indian owing to the diversity and confusion of culture. In addition, Joshi (2001) found that Indian management generally avoids riskw, and the managers of these research companies were quite conservative and less innovative in adopting new management accounting techniques. The fact is that Indians have a long history of their heritage, so it would take longer time for them to change their behaviours and social outlook (Joshi, 2001). It could reflect the adoption of new management accounting practices.

The review of the above studies reveals that the local culture, economic factors or others should be considered before implementing ABC. Apart from that, in the terms of the ABC implementation in China, a number of literature will be reviewed in the next chapter.

2.4 The Management Accounting in China

The change of management accounting practices in China could date back to the late 1970s, when the Chinese government undertook its economic reform program (Islam and Kantor, 2005). During the initial socialist period in China, all enterprises had to meet production quotas, and the government controlled

prices and investment decisions. Managers at the individual level did not consider decision-making and did not bear any economic responsibility for the performance of the enterprise. However, the prior systems were unable to be used at present-day China (Islam and Kantor, 2005).

Recently, the Chinese economy has been booming for three decades, it is mainly owing to the fact that abundant labour with competitive prices, to some extent, are available in the Chinese manufacturing industry (Liu and Pan, 2011). Also, the Chinese enterprises gain more autonomy. As a result, some management accounting techniques, such as capital budgeting, just-in-time inventory practice and activity-based costing, attracted more managers' attention (Islam and Kantor, 2005).

The popularity of ABC in Western countries and its widespread coverage in Chinese management accounting textbooks have made it an attractive management accounting technique for both academics and business managers in China (Wegmann, 2011). Chinese academics began to be engaged in researching the ABC implementation in 1990s, and little achievements have been realized by them (Pan and Zhou, 2002). Yang and Chen (2009) claimed that after knowing some concepts, such as cost objects, activities and cost drivers, they started to study the implementation of ABC and do some detailed calculations. This new management accounting technique was introduced in Chinese manufacturing industry first, especially advanced or high-tech industrial companies, followed by service industry (Yang and Chen, 2009).

Since China joined the World Trade Organization (WTO) in 2001, many Chinese firms started to implement modern management accounting techniques, such as standard costing, activity-based costing (ABC), balanced scorecard (Xiong et al., 2008). Xiong et al. (2008) explained that it is due to the

fierce competition Chinese firms confront from multinational firms, and the traditional low cost accounting strategy adopted by most Chinese firms would not compete on this new international markets. The international harmonization pushed forward the accounting reform program in China. However, there are only few studies attempting to examine ABC practices in Chinese companies. Zhang and Che (2010) indicated that more researches should be conducted in developing countries, such as China. Since China is one of the fastest growing economies in the world, it would have interest in knowing whether the implementation of ABC will be influenced by the similar factors as in Western countries.

A case study was conducted by Liu and Pan (2011) in Chinese manufacturing companies. This study is more likely to be the most comprehensive review of ABC in China. They mainly focused on the investigation of how ABC system applied in their target companies, comparing the implementation of ABC system with a traditional Chinese state-enterprise accounting system. Liu and Pan (2011) insisted ABC is a tool for providing more precious opportunities to learn more knowledge about management accounting. For example, it is able to alter accountants' recognition about accounting from only performing monthly financial reporting and book keeping previously to using accounting information for internal purposes. Their research also demonstrated several factors that could promote the development of the information system, such as support from top managers, market competition as well as the high percentage of experts. The existing literature on the implementation of ABC in China can be inspired significantly by this study, since it examined a successful ABC implementation under Chinese organisational context.

An investigation was managed by Abdallah and Wei (2008) in the Bank of China. It mainly focused on the matter of which factors would lead to the failure of the ABC implementation in the bank context. Their study summarized six

factors which would obstruct the implementation of ABC by interviewing 18 employees of their target bank branch. Abdallah and Wei (2008) listed these six factors in their research: lack of clear business purpose about the implementation; lack of education in ABC; poor ABC model design; lack of participants; individual and organizational resistance to change; and few outsourcers available. Although some factors had been discussed before, Abdallah and Wei (2008) believed that their study was new in terms of its application to the bank sector in China, which makes a huge contribution to the knowledge of ABC in practice.

Chen et al. (2001) operated a pilot survey in 1999 to recover the implementation and benefits of ABC in Hong Kong. In their survey, 11 percent of questionnaire respondents were adopting ABC, while 5 percent had already known it and might use it in the next year. It was perhaps surprising that roughly 45 percent of all respondents were little or not familiar with activity-based costing system. They speculated that the ownership structure of companies and the rapid growth of firms in the past decade brought about the low adoption rate of ABC in Hong Kong. Although the adoption rate was relatively low, the companies who had used ABC had gained a lot of benefits as expected, such as accurate cost allocation (Chen et al., 2001). Nevertheless, problems were still existing. They reminded that ABC system is time-consuming and difficult to learn and implement, so that some companies were unwilling to adopt it. This view is consistent with Chongruksut and Brooks' (2005). Besides, some other factors also gave rise to the low adoption level of ABC in HongKong, such as satisfaction with existing cost accounting system and a lack of top management support.

Additionally, Xiong et al. (2008) conducted a survey study to investigate the implementation of the ABC system in Chinese manufacturing companies. This survey invited 133 participants, and their results suggested that the number of

Chinese manufacturing companies who have already used the ABC system was relatively low. However, some concepts of the ABC system had indeed been widely used by Chinese companies, such as allocating manufacturing overheads based on the multiple cost drivers rather than single one. Meanwhile, approaches for effectively adopting these concepts of ABC system were also achieving great attention in Chinese manufacturing industries (Xiong et al., 2008). They recommended that Chinese companies should consider their specific production process variety when using ABC, since it would be easily failed by simply copying ABC from Western firms. This opinion is similar to Supitcha and Frederick's (2001).

2.5 Summary

It can be easily known from these reviewed literatures that the studies of ABC implementation were usually adopt survey research design or case study design.

The literature reviewed above recovers the situation and development of ABC implementation around the world, and reveals several kinds of factors, such as top management support and adequate training, that will promote or obstruct the development of the ABC system in both developed and developing countries.

Additionally, according to the literature of the ABC implementation in developing countries, it is obvious that the influence of the ABC implementation on different countries which have different cultural or economic circumstance may be of many differences. Therefore, considering these factors is of paramount importance for developing countries before adopting the ABC system.

Chapter Three: Research Methodology

3.1 Introduction

This chapter will discuss the methodology of this study. A proper research methodology is of paramount importance to all researches, since it shows the background of the research and the basic techniques that are employed by the researchers. This chapter is grouped into three sub-chapters. The first section focuses on the research design, it interprets research methods and the case study method. The next section is the case design and data collection, with a brief introduction of the target company and a demonstration of the research questions and unit of analysis. The data sources are stated at this section as well.

3.2 Research Design

3.2.1 Research Method

In business studies, researchers are expected to collect data and information through primary sources to answer their research questions, then which research method to use should be considered (Ghauri and Grønhaug, 2005).

Each study, both quantitative and qualitative, has specific features, and these features compose the final research design. A research philosophical paradigm can direct the development of studies (Elghrabawy, 2012). There are two research paradigms usually applied in the economic and social studies, which positivism and interpretivism. Collis and Hussey (2013) claimed that positivism is supported by the view that reality is self-existent, which means it is independent of people. It is based on empirical researches, such as observation and experiment. Whereas, interpretivism is grounded in the belief that social reality is highly subjective, since it is shaped by our perceptions. In other words, they concluded that 'positivism focuses on measuring social

phenomena, while interpretivism focuses on exploring the complexity of social phenomena with a view of gaining interpretive understanding'. As a result, the study results of interpretative researches, such as case study, is highly current, since interpretivists have different contextual relevance on the aspect of methods, paradigms, environments and time (Collis and Hussey 2013). Besides, the positivism is associated with empiricism, and positivists are inclined to employ deductive approach, while the interpretivists prefer to adopt inductive methods, where the data is collected and applied in developing theories.

It is easy to know from literature review that both quantitative and qualitative methods are able to be used in measuring potential problems, such as interview and questionnaire. Therefore, qualitative methods are expected to be more appropriate in this study. It is primarily owing to the fact that qualitative methods essentially emphasize on individual's understanding of their own experiences, while quantitative methods pay more attention to the objective information in a given environment (Creswell, 2003). Moreover, qualitative research methods focus on exploring the essence and depth of the data which came from complex and contextual data, thus the qualitative data collected by interpretivists is more likely to be rich in detail and nuance on the levels of meanings. Otherwise, the validity of qualitative research method cannot be easily present by quantitative research method (Collis and Hussey 2013).

The research scope of this study is related to ABC in China, both the current implementation situation and the influencing factors of ABC. Therefore, it is necessary that the researcher should have enough knowledge of Chinese context, such as human behaviour, experiences and beliefs. Therefore, in order to have a better understanding of the ABC implementation in Chinese cultural and economic contexts, an exhaustive and in-depth research of the ABC implementation in China should be carried out. Therefore, qualitative

research methods will be adopted in this study on this occasion. Qualitative research is more likely to be applied for uncovering people's experience or behaviour, and sometimes for knowing a phenomenon which is few known (Ghauri and Grønhaug, 2005). Collis and Hussey (2013) concluded that qualitative data collected by qualitative researches is regularly transient, and it is able to be understood within specific context. Its results always have a high degree of validity.

In conclusion, this study is based on the interpretative paradigm and applies an inductive approach and qualitative techniques.

3.2.2 The Case Study Method

There are five major research methods: experiments, surveys, archival analyses, histories and case studies (Yin, 2009). Case study will be applied in this study when taking into account the previous analysis as well as the fact that this research will be conducted in a single company.

Ghauri and Grønhaug (2005) claims that case study is often used in business studies, especially when the circumstance of the research is relatively hard to study outside its natural environment. Also, when the concepts and variables under research are hard to quantify, the case study will be the best research method to adopt (Ghauri and Grønhaug, 2005). Yin (2009) stated that it is not quite appropriate for business studies to adopt experiment or survey, since too many variables should be considered in this kind of research, which will be more complicated if using experiment or survey.

Case study is regarded as an empirical study. Yin (2009) claimed that case study prefers to deal with questions, such as "how?" and "why?", in a real life setting, and the researchers only have little control over the events. The fact is

that such questions should be traced over time, rather than mere frequencies or incidence (Yin, 2009). Besides, he pointed out that case study is more likely to focus on the measurements of contemporary events, especially when the relevant boundaries between phenomenon and context remain unclear. Furthermore, Yin (2009) also stated that researchers would gain more knowledge about their interested phenomenon when considering the organisational and behavioural factors instead of merely concentrating on technical factors.

3.3 The Case Design and Data Collection

3.3.1 The Case: NingBo PingRong Casting CO., LTD

For the empirical research, this study chooses a sample of a manufacturing company in China, NingBo PingRong Casting CO., LTD (hereafter referred to as PingRong). This company is an exported foundry in NingBo City, ZheJiang Province, China. Its products are exported mainly to the United States, Canada, UK, Germany, Spain and other European countries. There are a plenty of materials produced by this foundry, such as carbon steel, low alloy steel, stainless steel and high chromium cast iron. These materials have all reached the various international standards. PingRong uses the processes of sand casting to produce mainly spare of the pumps, mining equipments, construction machineries, agricultural machineries, vessel parts and transportation equipments.

The initially registered capital of PingRong was 6 million Yuan, covering the area of 30 thousands square meters. The foundry has 4 intermediate frequency furnaces and the production capacity of total furnaces is able to reach 500 tons per month equally. In terms of the sand casting, the major products of the foundry are blades, adapter, protector, bucket tooth and crusher hammer etc. The bucket teeth and adapters come in a variety of styles

in order to best achieve customers' needs and machine types. PingRong embraces challenges and focuses on developing innovative and advanced products. Besides, computer design and analysis is employed in the development stages to ensure proper fitment and optimum strength of every part. The quality and practicability of their products are better than other foundries, especially those whose products are extremely heavy.

Besides, PingRong has got the certificate of assessment, named AQA International LLC, which means this foundry, with a scope of Production of Engine Cylinder Block, has established a Quality Management System that is in conformance with the International Quality System standard, ISO 9001:2008. Thanks to the high quality control and favorable lead time, this foundry has won very high reputation among existing customers, and has been awarded as 2A grade credit enterprise in China. PingRong provides high quality products with a competitive price, which brings them a lot of profits.

3.3.2 Research Questions

According to Yin (2009), case study is inclined to deal with the questions on the aspect of “how?” and “why?”. The initial and the most important step in carrying out a case study is to determine the research questions based on the objectives of the study. The specific research questions of this study are presented as follow:

1. What are the objectives for adopting Activity-Based Costing (ABC) in NingBo PingRong Casting CO. LTD (hereafter referred to as PingRong)?
2. What are the difficulties and obstacles of ABC implementation?
3. What is the level of ABC implementation in PingRong?

The above questions should be answered during the research of the ABC implementation in PingRong.

3.3.3 Unit of Analysis

Collis and Hussey (2013) claimed that unit of analysis is talking about which data is collected and analysed. In business researches, a unit of analysis might be a particular organization, division or department within an organization, or a more general group, such as business owners, managers or advisers.

This study is a single-case study. The PingRong is the case being studied, and this company is the major unit of analysis. Data will be collected from the employees of this company. It is worth noting that research questions play a significant role in identifying which information should be collected.

3.3.4 Data Sources

The relevant data collected for this study has several sources. Semi-structured interviews are the main data collection methods. They were conducted among the employees of PingRong to collect the primary data. It is widely recognized that interview is a sound method to understand what the participants think, and what their attitudes or feelings are (Collis and Hussey, 2013). 15 employees were invited to take part in this study. Appointments were made one week before the interviews, and interviews were carried out through internet or by telephone within the office hours. In the initial data collection period, several interviews were carried for approximately 15 minutes. After reviewing the records and notes of these interviews, the rest of interview were managed to last at least 30 minutes in order to get adequate and more useful information.

Besides, a series of secondary data also could be gathered, such as the relevant information published on the company's website. Websites sources have become the most important and convenient data sources, since it is becoming progressively easier to find relevant websites (Ghauri and Grønhaug, 2005).

It is of paramount importance for a translation technique to be followed, since data should be collected from Chinese company. The interview questions were originally designed and written in English. In order to help the employees understand these questions, the English questions were translated into Chinese by the researcher. The fact is that these interviews should be carried out in all levels of PingRong, and the official language of these participants should be Chinese. The translated interview questions were reviewed by two English teachers who both have already worked on teaching IELTS tests for over 5 years. They graduated from different universities in the UK, and they are skillful in translation. Therefore, no considerable deviation in the matter of translation between English and Chinese. After that, the collected data, especially which should be presented in the study, would be translated back into English again. The whole process of the translation has been carefully monitored and amended by these two English teachers. As a result, the translation process is strictly double checked in order to ensure the consistency and quality of the data.

3.4 Summary of the Chapter

This chapter focuses on the illustration of the research design for measuring the potential problems in implementing ABC in a Chinese manufacturing company, and to state what sample was selected and how the data was collected in this study.

The main purpose of this study is to research which factors will influence the implementation of ABC in Chinese manufacturing company. Therefore, an in-depth understanding of how human beliefs and experiences will affect ABC implementation in Chinese context is required. It is only able to be achieved by adopting qualitative research approach.

On the basis of Yin's (2009) theory of case study, one Chinese manufacturing company, PingRong was chosen as the case. This company has already successfully used ABC for 3 years. Semi-structured interview is the major data collection method, and it is widely applied in case studies, since it is considerable useful in gathering the true feeling and thinking of the interviewees.

Chapter Four: Results and Analysis

4.1 Introduction

After discussing the methodology of research, this chapter is devoted to the interpretation and analysis of the results of this empirical research based on the research questions. This chapter is comprised by four sub-section. In section 4.2, the major objectives for the target company to decide on the implementation of the ABC system is displayed. It is followed by section 4.3, which provides the illustration of difficulties and obstacles confronted by PingRong during the process of ABC implementation. Afterwards, section 4.4 evaluated the level of achieving the objectives based on feedback of the interviewees. The discussion of implication and some recommendations are presented in the final section, illustrating the connection between the practical results in the current research with the ones generated from previous literature review with rational explanations.

4.2 Objectives of ABC implementation

NingBo PingRong Casting CO., LTD planned to adopt the Activity-Based Costing (ABC) system 4 years ago. After sufficient investigation, system design and communications between the management accountants and the non-accounting staffs, the company started to learn, design and implement the ABC system one year after. Before this, the company has been applying the traditional accounting system, Volume-Based Costing (VBC), in its daily operations for a long period of time. Under the traditional VBC system, only one single cost driver was considered as the main determinant in the allocation of each stream of the overhead costs by the cost accountants. The most representative ones among these independent cost drivers were direct materials and output volume.

However, even though the VBC system has been adopted in real practice for years, this allocation method seems to have been distorting product costs systematically from the current point of view. Such opinion is stated by Ms. Wu, one of the interviewees in this study. As a cost accountant in the Financial Department, she has been employed in PingRong for about 7 years and has received several times of trainings of ABC system after the company adopted the ABC system. She claimed that in modern manufacturing environments, overhead costs are a significant portion of products costs. Therefore, potential risks of overestimating the manufacturing expenses of high yield products lie in the use of the traditional VBC system. While on the other hand, low yield products are likely to be underestimated, which would influence pricing and lead to poor decision-making.

During the past few decades, with the social and economic progress, manufacturing industry gained more attention in China (Zheng, 2007). The target company, NingBo PingRong Casting CO., LTD, is a manufacturing company whose main operation is producing production materials and the components of construction machines. Due to the external environment and its unique nature of operation, the company has experienced a rapid improvement in the last few years. In order to efficiently overcome the fierce competition in the manufacturing industry, the top managers realised that it was necessary for PingRong to carry out a management accounting change, considering the economic trend that a more cost-effective management techniques would be required in the near future. Thus, the leader of Financial Department and the top managers mapped out their plan of adopting the Activity-Based Costing method, which is a modern management accounting technique, in 2012. The ABC system was developed since then and has been continuously used up to now.

In order to get hold of the objectives of ABC implementation in PingRong, several accountants were invited to take part in the interviews. One of the interviewees, Ms. Wu, commented:

'In my opinion, during the planning period of ABC implementation, the main objective for using ABC is to perfect and enhance the cost accounting system of that time, improving it towards a more cost-efficient accounting system. Then, the more precise cost information could be provided by this developed accounting system. Therefore, ABC is a excellent management accounting technique in cost control.'

This objective also were reminded by several other employees of Financial Department.

In the meantime, Mr. Chen, who is also a cost accountant in the Financial Department and has been recruited by PingRong for about 6 years, has similar understanding with Ms. Wu. He put forward that,

'The main objective for using ABC system is accurately allocating product cost. As we all know, when getting the product cost right, the pricing decision will be precise. It will influence the presentation of company's revenue and profit.'

The same question was answered by one of the interviewees, Ms. Guo, who has been working in the Budget Department for 8 years. She also offered her view on getting the calculation of cost right as follows:

'I am a budgeter, so I would like to pay more attention to the cost of company, since it has a close relationship with my work . ABC is an advanced management accounting technique to accurately account costs and reduce Non-Value added activities.'

Meanwhile, an additional employee from the Budgeting Department, Ms. Qiu, established her simipar point of view:

'To accurately calculate the cost of each product, and to offer relevant and useful information for more wise and reasonable decision-making should be considered as one of the objectives of the ABC implementation as well.'

Mr. Xu is a junior accountant who joined in PingRong 2 years ago. She is a new comer and has got a master degree in accounting. She demonstrated continual criticizes on this issue:

'In my opinion, one of the objectives of operating ABC should be how to recognize the demerits of traditional cost accounting system, so that both the employees of Financial Department and the top management are able to realize the need of an improved and more high-tech cost accounting system.'

Besides, Ms. Lin, who has been employed as a cost accountant by the target company for 3 years, commented one objective of implementing ABC as follow:

'The meanings for thoroughly analysing cost driver is due to the fact that it is beneficial to recover which products are profitable while which products are waste of the resources of the company. This information is quite useful and valuable for Sale Department to determine which products should have a significant promotion.'

In general, ABC implementation in PingRong aimed at enhancing cost recognition and control effectively by identifying the most appropriate cost drivers. The main reason for the leadership and management accountants to be promoted by such motivations is the fact that the right indirect cost allocation and calculation will influence the pricing of products. Furthermore, the calculation of profit will be enhanced. The profitability of each products can be revealed as a result of analysing the products costs in order to offer useful and precious cost information for the Sale Department to decide on the particular products to be able to achieve higher sales. To summarise, it will

exert positive impacts on the revenue and profit of the company continuously.

4.3 Difficulties and obstacles

In the past 3 years, some difficulties and obstacles have been encountered by PingRong during the process of ABC implementation.

Ms. Wu experienced the initial transfer from the traditional volume based costing system to the activity base costing system. She recalled that the accountants at that period were reluctant to carry out management accounting change and were unwilling to adopt ABC. In terms of the reason, Ms. Wu explained:

'The accountants at that period were some senior accountants who had not received education on the knowledge of ABC implementation, so they were not aware of the advantages of ABC system. Meanwhile, they did not like changes, since they were afraid that they would be unable to grasp the new knowledge.

Besides, this senior accountants insisted that the traditional volume based accounting system was more beneficial and practical for our company, and the management accounting change would cause instability, which was harmful to the development of company.'

According to Ms. Wu, in order to overcome this difficulty and have a profound development in the future, the company decided to arrange training programs for employees of Financial Department during the whole period of ABC implementation. At the initial training stage, the basic concepts and benefits were introduced in these training programs, and some implementing cases from both developed and developing countries were shared by the teachers of these training programs. Although these training programs had been free arranged, the participants' population of these training programs were not ideal,

since the employees did not have enough time to take part in them.

One of the top managers, Mr. Xia stated:

'After discussing the idea of ABC implementation with the leaders of the Financial Department, I clearly recognized that our company should carry out the ABC system, since it is indeed an advanced accounting system for cost control, especially for the manufacturing company like us. I knew that the support from top management is of paramount importance. Therefore, at that time, I announced to the employees that we should experience a management accounting change. Staffs from the Financial Department must participate in the training programs, which are associated with their performance.'

This compulsory rule really stimulated employees to take part in these training programs. Fortunately, after several initial training programs, part of the employees were aware of the benefits of ABC system by reviewing the implementing cases and doing some simulated operation of ABC system. The training programs on the aspect of indirect costs allocation facilitated the employees to understand how to identify the multiple cost drivers and accurately allocate indirect costs to each product.

Meanwhile, the top managers and the leader of the Financial Department realized the demand of recruitment, especially the people who had received enough education and trainings on the aspect of ABC implementation. Mr. Zhang, the leader of the Financial Department, has been working in PingRong for more than eight years. He stated:

'The new employees have already known the knowledge of the ABC system, so they would be more willing to take part in this management accounting change. At the same time, they have grasped the relevant knowledge, so it will be easier for them to get the hang of ABC system.'

Additionally, the employees who have knowledge of ABC system were able to act as teachers of their colleagues. Namely, employees could exchange their knowledge and own opinions of ABC implementation, which is beneficial for them to grasp the understanding of the ABC system and promote the development of the ABC system in our company.'

Another one of the top managers, Mr. Wei, stated his reasons for the recruitment:

'By employing more new accounting staffs, the current accounting employees would be aware of the existence of crisis. In other words, if they were unable to meet the requirement of the top management and leader of the Financial Department, they might be confronted with resignation. At this time, the prior employees would be stimulated, and try to learn more modern knowledge, such as ABC, on their own initiative. We considered that this is a sound and beneficial tendency for the development of our company.'

It is obviously known from these interviews that recruiting new blood into the Financial Department for ABC implementation could indeed bring a lot of advantages to the company. However, a frequent change of the employees of the Financial Department exerts a unfavorable impact on efficiency and effectiveness of their work. Mr. Zhang explained that:

'A rotation of the Financial Department members, both the ordinary staffs and the leader, should not be taken place too frequently, since it will take a relatively long period for the new employees to settle themselves down to an appropriate and comfortable situation. As a result, it might influence the smooth operation of company, including the implementation of ABC, and our objectives of ABC implementation would not be fully satisfied.'

Meanwhile, the other senior employee, Mr. Qin, of Financial Department stated his view in the terms of the new recruitment:

‘Although the new employees possess the modern knowledge of the ABC system, some of them had not put these theories into practice, especially for these youth who have just graduated from college. It will take a long time to associate the theories they obtained with the actual accounting practice.’

Additionally, some other difficulties and obstacles also were mentioned during the interviews. Ms. Lin expressed her opinion on the weak communication and cooperation between different departments in offering and exchanging ABC data:

‘As I know, the key difficulty is how to communicate with other departments. Because it is too difficult to analysis data only by us in the Financial Department. Therefore, the communication and coordination between these different departments in our company are required, since it is able to improve the accuracy of the statistics.’

Let me give a small example. When balancing how much materials should be used for one product, the Planning Department should communicate with the Production Department to predict the cost data, then provide it to us. We would analysis these cost data, communicate and coordinate with Planning and Production Department to exchange our feedback. It is an effective and efficient way to confirm the reliability and timeliness of these statistics.’

The similar worry was also raised by Mr. Chen:

‘In my opinion, the coordination and communication between different departments are significantly important. If the communication and coordination between these departments do not work well, neither of them would be able to get accurate information in time. The efficiency of their work would be lowered down.’

Furthermore, he looked back at the initial stage of ABC implementation in PingRong:

'In 2012, when we just began to adopt ABC system, the interaction and communication between the Financial Department and the Planning Department were not frequently enough, so we did not get accurate information from Planning Department. As a result, we have to filter this information to get the data we need. It is time-consuming.'

Mr. Wei recalled that at the beginning period of ABC implementation, his colleagues, such as the leader of Financial Department, and himself encountered various difficulties. They were responsible for leading all employees to take part in accepting, learning and adopting the ABC system. They must adjust the relationship between the different departments to promote the harmonious atmosphere between them, so that the sharing and exchanging of relevant accounting information between these departments can be operated more smoothly. However, he mentioned that some employees were not willing to respond to them. It takes a long time to get these employees involved and makes them upset.

After experiencing the tough period during the initial stage of the ABC implementation, the top management and the leader of Financial Department were aware of the importance of forming a well-equipped and qualified ABC team. Not only are the members of this ABC team from Financial Department, but they also come from the other relevant departments, such as Production, Budgeting and Planning Departments.

Another interviewee, Ms. Qiu, also draw a conclusion in terms of the association between different departments:

'In order to make sure that the implementation of ABC can be conducted smoothly, sufficient coordination and communication between the Financial

Department and the Budgeting Department and the Planning Department should be guaranteed. The fact is that the mutual communication plays a significant role in regularly generating and conveying accounting data between these departments. It will have a long-term influence on the ABC implementation in our company.'

Mr. Huang, who had been recruited at Production Department for about 7 years, agreed with their statement that were demonstrated above. He also had the same feeling on the increasing coordination and communication between different departments during the process of the ABC implementation. For his department, he should provide relevant information to the Planning Department, and he would receive feedback on such information in the matter of confirming and correcting the information.

Another difficulty was mentioned by Mr. Xia:

'The investment of ABC implementation is considerably highly accompanied with high risks. The implementation of ABC in our company is still in an initial stage, so it is not mature enough. We still need significant investments in training, debugging and maintaining of the ABC system. It brings a lot of pressures to raising capital for our company. This difficulty will keep existing, although the implementation of ABC has promoted the increase of company's revenue and profit.'

'The main difficulty I know is the calculation and allocation of cost of materials or Work in Progress (WIP) during the process of reproduction.' Mr. Xu, the junior accountant, said, *'It is mainly owing to the fact that a set of cost data, including direct and indirect costs, will occur during this process of reproduction. It is considerably hard to calculate and attribute these costs precisely, bringing a range of difficulties to subsequent cost data collection and allocation. This problem can be possibly addressed by a more advanced*

accounting software, so I think the experts who are capable to design or use advanced accounting software are needed.'

'One potential difficulty must be raised is the limitation of technology.' Mr. Zhang said, *'I believe most current managers in China have realized the limitation of the traditional volume based system, but the restricted technology they possess is obstructing them to design and adopt the ABC system. Therefore, sufficient IT support is also significant crucial.'*

In our company, at present, we use the Enterprise Resource Planning (ERP) for inputting accounting data, which has already played a positive role in the optimization of company's integrated management. It is due to its capability of helping company monitor its operation in time as well as simulate the analysis of data information. However, we still hope a more advanced and updated software closely associated with the ABC system will be introduced to our company in future. In order to realize this, IT support is definitely needed.'

In terms of the difficulties and obstacles they may experience in future, Mr. Wu summarized:

'The lack of stable and continuing support from leaders is the major issue we may concern. A minor example shows that, if the leader of our financial department leaves us for a new career during the process, it will be too much difficult for us to maintain the ongoing implementation of ABC. Although we will be governed by a new leader, it still leaves a negative impact on our team to smoothly carry out ABC since then.'

Mr. Wu offered her point of view on the matter of the solution to this issue:

'I suggest that every employee, including the top managers and the leaders of each departments, should be well trained and educated on the concepts and other knowledge of ABC system, which is expected to benefit to the

development of ABC environment. Under this ABC environment, the ABC implementation will be fully accepted and supported by every employees in our company, then they will have the awareness that the ABC implementation is not a job for one person or one department, it should get everyone involved.'

If this can be realized, the concern she mentioned above will not exist anymore.

4.4 Level of Achieving the Object

Mr. Zhang, the leader of the Financial Department, brought the researcher with a brief summary of the implementation level of the ABC system in PingRong. He pointed out that the implementation of ABC system indeed significantly improved the profit of company, but the precise data of the increase in profits cannot be provided. He attributed this increase of profits to the accurate allocation of indirect costs, since the accurate cost allocation provides a basis for pricing, so that the price of their company's products is more competitive. These activities led to more revenue generated and a rise in the profit of company.

'As inspired by the great performance of our company by adopting the ABC system, employees are more confident with the new adopted accounting system.' Mr. Zhang added, *'At present, all staffs in our Financial Department work tirelessly. Their work include learning new knowledge of ABC on their own initiative and sharing knowledge with each other, which contributes to the establishment of the ABC environment.'*

Besides, I am glad that the top management of our company highly support the implementation of ABC, they regularly came to our department to get hold of the implementation process of ABC system, which brings us a lot of

confidence. In our company, the management method is inclined to the 'top-down' approach, which is very general in Chinese private enterprises, since Chinese are high-power-distance and collective. Therefore, adequate top management support really avoided a lot of difficulties and obstacles for the adoption and development of ABC system in our company.'

The top manager, Mr. Xia, indicated that although some employees were reluctant to carry out the ABC system and take part in the training programs in the initial planning period, they already have the consciousness of ABC now. In other words, the ABC theory has been rooted in their mind. He recalled that it is a gratifying situation, which really encourages him and lets him believe that the adoption of ABC system is right. Therefore, Mr. Xia decided that the training programs would be continuously managed to help employees strengthen their knowledge on this advanced management accounting technique.

At the planning stage of the ABC implementation in 2011, a number of training programs were arranged. The developers of the ABC system required almost all employees from the relevant departments to participate in these training programs compulsively. Several participants who have been interviewed expressed their feelings on these training programs.

Ms. Gao is an ordinary employee of the Financial Department, she has participated in the training programs for at least ten times. She recalled the whole process of the training programs:

'In the first training programs, we got the chance to learn that although ABC was just introduced into China since 1999, it has been emerged in Western countries for a relatively longer period (than China), and the benefits of ABC system cannot be neglected. We knew from these training programs that ABC is a very functional and popular technique for effectively controlling and

managing product costs in Western countries. Afterwards, the concepts of ABC system have been intensively rooted in my mind, and it can be reflected by my action as well. For example, the reports of product costs I made are more precise and timely than before. I will continue to attend these training programs, since I cannot image any better methods to learn the ABC implementation.'

Another employee of the Financial Department, Ms. Fang, agreed on the same feeling of Ms. Gao's by looking back on the previous training programs. She stated that she has possessed great awareness of the importance of cost management now. She has managed to transfer her attention to exploring the real costs of products in the light of attending these training programs. Furthermore, changes in the self-realization of the employees were also generated by the adoption of the training programs. Ms. Fang expressed her idea on feeling that these arranged training programs made her feel she was taken seriously in this company.

Mr. Chen spoke highly of the ABC system as well. Based on his experience and understanding of the ABC system, he demonstrated his overview on the difference between ABC and the prior accounting system used by PingRong:

'The prior accounting system used by PingRong is a traditional volume based costing system. In such a system, the cost accountants tend to regard the volume of products as the exclusive cost driver. Only one single cost driver is deem as the extreme simplification. The definition of cost drivers is further developed by the ABC system. In the ABC system, efforts have been exerted in our company, in order to accurately calculates and allocates cost to products by various relevant cost drivers. The performance of our company indeed increased during the past 4 years, from the planning period of ABC implementation till now.'

Ms. Song is the leader of the Planning Department. She has been recruited by PingRong for more than 7 years. She indicated that the ABC system is a tool for assisting the employees in the Planning Department to set up plans for company, since precise product costs were delivered by ABC system, so that they are able to establish further realistic plans for the company based on these product costs. Therefore, she considered that the objective of ABC implementation, improving company's cost management and the accuracy of product costs, had been achieved,

An employee from the Budgeting Department, Ms. Qiu, expressed her comments on cost control and management:

'Recently, cost control and management are really realized in our company, it is owing to the implementation of the ABC system. Hence, the evaluation of the profitability of our company is more reliable and effective.'

Moreover, she added her comment on the aspect of the transfer of value of the ABC implementation in PingRong:

'The function of accounting system has been spread from simply delivering accounting information to making a better decision, which is due to the better communication and coordination between different departments, especially the Financial Department and the Production Department and the Planning Department.'

In terms of the future outlook, the top manager, Mr. Wei concluded:

'Apart from that, the implementation of ABC in our company still stays in the initial stage, we only have adopted it for 3 years. As far as I know from previous literature, even if in the Western developed countries, the implementation of ABC still maintains in the primary stage, even just in the immature stage. Therefore, we will encounter various kinds of troubles and

challenges in the future, but I believe all our employees have the confidence and ambitions to deal with these potential difficulties and obstacles.'

During the process of interviews carried out with the employees of PingRong, it is obviously felt that all employees who took part in the interviews were satisfied with the ABC system. They have the confidence in overcoming all difficulties and obstacles during the implementation of the ABC system and achieving their goals.

4.5 Discussion of Implication

As stated in literature review, Shield (1995), Anderson (1995) and some other scholars all argued that companies should focus on the behavioural and organizational variables rather than technical variables, which is proved by this study of PingRong. For PingRong, behavioural and organizational variables have more vital influence on the implementation of ABC system.

It is obviously demonstrated in section 4.3 that the obstacle in a lack of a general understanding of the ABC system was described by Ms. Wu as the first and major obstacle the target company confronted. This is consistent with the results of Shields (1995). Shields (1995) noted that staff training is of paramount importance during the overall stages of the ABC implementation, since it is an ideal approach for employees to share and exchange the relevant ABC information with each other and to help them have a better understanding of the concepts of ABC.

Furthermore, another one of the difficulties and obstacles mainly mentioned by her is inadequate staff training for those employees who did not embrace the general knowledge of the ABC system and were unfamiliar with the ABC system, which is a behavioural and organizational factor relating to employees'

satisfaction. This is correspondent with the finding of McGowan and Klammer (1997). Also, Anderson (1995) put forward that the adequate staff training is a major influencing factor during the different phases of the ABC implementation process.

Meanwhile, interviewees recalled that the senior accountants were satisfied with the existing cost accounting system at the planning period and were unwilling to take risk to attempt a new accounting system. This situation has been mention by Khalid (2005), Chen et al (2001) as well. They concluded it as the fact that the employees were not confident with the ABC system. Also, this situation is a presentation of the lack of full understanding of the ABC system, which is in line with the findings of Shields (1995).

Major and Hopper (2005), Anderson and Young (1999) pointed out that top management support is a considerably important influencing factor during the process of the ABC implementation, since top managers have the right to provide various resources that are required by ABC implementation, such as financial and technical resources. This is testified by the study of PingRong. It can be easily informed from the interviews that thanks to the adequate top management support, the progress of the ABC implementation in PingRong could be carried out smoothly, which is reflected by the matter of providing frequent and adequate staff training and visiting each departments to grasp the implementation situation of ABC system. Besides, Mr. Zhang pointed out the management method in their company is top-down approach, which plays a significant role in the effective implementation of ABC system. This is consistent with the findings of Brewer (1998).

In terms of the benefits derived from the ABC implementation, the revenue and profit indeed were increased by adopting ABC, which was reminded by one of

the top managers. It is in line with the findings of Chongruksut and Brooks (2005).

Anderson and Young (1999) put forward that managers are more likely to support the ABC implementation when the company is gaining a good performance. This view point is also support by the study of PingRong. The top manager expressed that the increasing participants' population of the training programs really inspired him, so that he decided to manage the training programs persistently. Furthermore, one employee discussed the difference between the traditional volume based costing system and the ABC system, and spoke highly of the ABC system during the process of interview based on the sound performance of PingRong, which is consistent with the idea of Anderson and Young (1999). They had ever proposed that people are inclined to have a positive evaluation of the ABC system under the good performance of the company.

Friedman and Lyne (1997) noted that the relationship between management accountants and the operational managers are increasingly enhanced, the distance between them will be lowered. This is mentioned by the leader of the Financial Department as well as the top managers in PingRong. They also claimed that discussions had ever been conducted before the implementation of ABC system, and they made the decision of ABC implementation together after surveying the applicability of the ABC system in PingRong. According to the leader of the Financial Department, the top managers often came to visit their department for monitoring and understanding the process of the ABC implementation. This is a good way to encourage employees to highly focus themselves on their own work.

Chongruksut and Brooks (2005), Major and Hopper (2005) all generated the same opinion that lack of co-operation among different departments would

have the possibility to set back the implementation of the ABC system in the company. The interviewees from different departments all referred to this matter. At the initial implementation stage of the ABC system, the poor communication between different departments indeed existed, and brought a lot of troubles to the Financial Department. Also, it would impair the trust among those involved departments. However, it had been solved and improved during the progress of the ABC implementation, which can be obtained from section 4.4. The interviewees stated that this practice had promoted the communication and coordination between different departments, especially the Planning Department, the Financial Department and the Production Department. This progress was regarded as an excellent method to enhance the accuracy of the exchanging and delivery of the relevant cost information.

Some measures should be carried out in PingRong. Firstly, they should seek sufficient IT support for developing a more advanced and updated software. As mentioned in section 4.3, advanced and updated software which is closely associated with the ABC system should be exploited by themselves or introduced from others in the future. It may have the possibility to enhance the work efficiency, or reduce the labour force to some extent.

Furthermore, the company should not only focus on importing new blood. Recruiting new employees does not mean retirement of senior staffs, since these senior staffs are experienced and more patient as well as more familiar with the current situation of the company. They are capable to provide some guidance and suggestions for the new comers in terms of settling themselves down quickly, and seriously devoting themselves to their works.

The results of this empirical study indicated that the behavioural and organizational factors mainly contribute to the effective implementation of ABC

in PingRong. The outcomes derived from this study are in line with the findings of previous studies that research the influencing factors of the ABC implementation around the world.

4.6 Summary of the Chapter

This chapter illustrates the outcomes of the analysis on the influencing factors of the ABC implementation in PingRong, including the difficulties and the factors promoting the ABC implementation. According to this chapter, various objectives were proposed by interviewees. To sum them up, the most crucial one is to gain more accurate cost information and enhance cost control by adopting the ABC system, which has been mentioned by several interviewees with the similar meanings.

Additionally, they were aware of a variety of difficulties and obstacles were emerged during the process of the ABC implementation. Some of the difficulties and obstacles reminded by interviewees were overcome during the ABC implementation process, while some of them are still existing in PingRong, The employees are trying their best to overcome these difficulties and obstacles in the future. Furthermore, the achieving level of the ABC implementation in PingRong is optimistic and delightful. The employees noted that they believe the implementation of the ABC system in their company will continue to have a good development based on the continuing support from their top management.

Chapter Five: Conclusion

5.1 Introduction

This is the last chapter of this study, and the main purpose of this chapter is to present a brief summary for this study. Meanwhile, a couple of supplements for this study are put forward in this chapter. The contributions of this study for the existing literature will be listed in section 5.2, following with the introduction of the limitations of this study. Then, in section 5.4, the suggestions for the future research will be proposed, which corresponds with the limitations stated in section 5.4.

5.2 Contributions

The study results provide several contributions to the existing literatures in the matter of the ABC implementation, especially that in Chinese manufacturing company. Although a majority of researches have carried out in developed countries to study the implementation of ABC system as well as the many successful experience of ABC implementation, the amount of studies for this practice in developing countries is relatively low than expectation. It is mainly due to the fact that there are a variety of difference between the developed and developing countries, such as the different political, cultural and economic circumstance. The findings of prior researches on the ABC implementation in developed countries only provide limited suggestions for that in developing countries. Therefore, this study enriches the research of the ABC implementation in Chinese manufacturing companies.

Furthermore, this study conducted a case study in a Chinese manufacturing company, PingRong, which has adopted ABC system for three years till now. This study is carried out to explore which factors will influence the effective implementation of the ABC system under Chinese circumstance. By interviewing the employees of PingRong, several advantage and disadvantage

factors were proposed by them. According to these results listed in Chapter four, it can be easily informed that the management method in PingRong is top-down approach, which is very common in Chinese private enterprises. Therefore, under this management method, top management support is considerable important during the process of the ABC implementation. It is due to the fact that the attention and support from top management can help employees feel they were taken seriously in the company.

5.3 Limitations

Some limitations also inevitable exist in this study. Firstly, this study was carried out base on a case study of PingRong, so the results generated by this study do not represent all the manufacturing companies in China or around the world. Also, PingRong is a private enterprise, so the results do not represent the companies which are stated-owned or listed.

Secondly, the data is collected through interviews by telephone and internet rather than visiting the target company, since the factory and office of PingRong is quite far away from the researcher's current place of residence. Interviewing by telephone and internet are the most convenient and economical method to gather data. However, some limitations inherent in such data collection method. For example, if the researcher was able to visit the factory and office of PingRong and to conduct the interviews with employees face to face, some extra information was possible to be collected. It is due to the fact that lots of detailed information can be derived from the site observation, such as the interviewees' expression, especially on the aspect of exploring the behavioural and organizational factors of the ABC implementation.

Thirdly, this study mainly emphasized on the research of organizational, context and behavioural variables, while only paying few attention on the technical variables, such as adequate IT support and introduction of a more advanced and updated software. The other potential technical factors, such as the recognition of main activities and option of cost drivers, were not mentioned by the interviewees, so that they were not discussed in this study.

5.4 Future Research

According to the limitations, some correspond suggestions for the future research are generated as follow.

Firstly, the problem of lack of representation of simple case study can be effectively addressed by the application of multiple case studies, although this kind of studies are regarded as a more complicated and time-consuming data collection method. Furthermore, the involvement of cross-case analysis can contrast the similarities and differences between these cases. As a result, the outcomes of these studies will have the possibility to provide more reference values for ABC implementation in China even around the world.

Secondly, there are various methods can be adopted to deal with the problems on the aspect of data collection. In order to supplement the credibility and accuracy of this study's outcomes, a questionnaire survey has the chance to be proceeded on a number of companies which have the similar features with PingRong. Meanwhile, the findings of this study can be raised as the hypotheses and the data collected from the questionnaire survey conducted to verify these hypotheses. As a result, the credibility and accuracy of the outcomes generated from this study can be tested.

Thirdly, in terms of the research of whether there are other technical factors existing, a supplementary research of the ABC implementation in PingRong can be proceeded in the future. At first, a small questionnaire or telephone interview of one major employee, such as the leader of the Financial Department, can be conducted to make sure whether any technical factors are existing in PingRong. It is due to the possibility that the technical factors are indeed existing in PingRong, but the influence of these technical factors for ABC implementation is negligible, so that these technical factors were not mentioned during the process of the interviews of this study.

If the answer is 'yes', a more specific research can be continuously carried out to investigate the influence of the technical factors in the matter of ABC implementation in PingRong. If not, a further research may be carried in the future when the technical factors of the ABC implementation emerge in PingRong.

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I declare that this dissertation is my own work, and that where material is obtained from published or unpublished works, this has been fully acknowledged in the references.