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WORLD MARITIME UNIVERSITY

Shanghai, China

**RESEARCH ON APPLICATION OF 3PL IN AIR
CONDITIONERS INDUSTRY**

By

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China

**A research paper submitted to the World Maritime University in partial
Fulfillment of the requirements for the award of the degree of**

MASTER OF SCIENCE

INTERNATIONAL TRANSPORTATION AND LOGISTICS

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ABSTRACT

Recently competition became fierce in air conditioning industry. At PRD, one of the biggest processing zones in the world, there are a lot of air-conditioning factories; they are developing themselves continually by using low cost of labor, low cost of material and integrated supply chain system. As one part of them, the Electra Shenzhen Air Conditioning Company has a very good performance before. But now, performance has become decline competitor cause of lack of scale and capacity of output is limited. At high end, because core technology was controlled by Japan air-conditioning company, the Electra Shenzhen Air Conditioning Company hard to get break through and occupy market. At low end, because the cost of material is keeping high, scale and capacity is not enough, marketing share became low and low, the Electra Shenzhen Air Conditioning Company will lose it power of competence. Cost control becomes one major aspect to improve it management and enhance competence.

The purpose of the thesis is try to identify the situation of the Electra Shenzhen Air Conditioning Company in the competition through external and internal environment analysis, point out problem of the Electra Shenzhen Air Conditioning Company and gives the solution according to these analyses, help it keep sustainable development and survive in competition.

Although 3PL concept has become more popular, there is no developing standard. Every different company should try to develop and implement the logistical strategy based on its own characteristic. This paper concludes it is a feasible approach for Electra Shenzhen Air Conditioning Company to succeed by the cooperation with a 3PL company on reconstruction and consolidation of the logistics and supply chain management of the company.

KEY WORDS

3PL, Electra Shenzhen Air Conditioning Company, Logistics, supply chain management, Air condition Industry.

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CHAPTER 1 INTRODUCTION

1.1 Background of air-conditioning industry

(1) In 2007, the national output of air-conditioners is 290 million sets, an increase of 21% over 2006, breaking the highest historical record, but the sale drops by 8%, and profit by 12%, with the first negative growth appearing in sale within 10 years. Besides, tremendous product sock incurred has seriously affected the healthy development of the air-conditioning industry as a whole.

The huge demand space in the air-conditioning market has attracted large quantities of new comers. At present, the capacity in the air-conditioning industry has exceeded 300 million sets/per years, showing a sign of obvious surplus. Therefore, in Chinese air-conditioning industry, supply has far exceeded demand. Meanwhile, due to the fact that products tend to be homogenization, various air-conditioner manufacturers try to seize much market share mainly through price competition, and thus the competition in this area has become a continuous price battle. Cost will be maintained at a higher level, air-conditioning enterprises are still confronted with pressure of cost control.

(2) To realize the advantages in industrial competition, air-conditioning enterprises

must consolidate the strategic integration of upstream resources.

- (3) Various mainstream air-conditioning enterprises are enhancing production capacity to obtain scale advantages, and the capacity in the whole industry shows serious surplus.
- (4) In 2007, strong enterprise becomes more competitive, and industrial centralization gets further consolidated.
- (5) To seek for advantages in operational costs, trans-regional development is a necessity.
- (6) With the development of China's air-conditioning market, enterprises with foreign investment have gradually moved the center for air-conditioner manufacturing and market to China, further strengthening the competition in this area.
- (7) Large chain systems are further expanded and gradually boost up their power of speech in the industry. Among the factors influencing the competition pattern, the strength of channels has been upgraded to an unprecedented height.

1.2 The Structure of This Thesis

This thesis is organized in four parts covering six chapters.

The first part covers chapter 1 which introduces the purpose of the thesis, the research methodology and the limitations of the research.

The second part covers chapter 2 to introduce the logistics mode of 3PL.

The third part is macro and microenvironment analysis, and makes description of the problems faced by Electra Shenzhen Air Conditioning Company and the

causes and impacts, which includes the chapter 3 and chapter 4.

The fourth part (chapter 5) is the conclusion process where the logistic strategy of using 3PL has to be chosen according to the result of research before.

The last section is the conclusion.

At beginning of this thesis, the problem faced by the Electra Shenzhen Air Conditioning Company is point out. SWOT analysis is used to define its internal strengths and weakness in face of external opportunities and threats, using PEST analysis and Porter's five force theory as a way to thoroughly explain the external environment they faced, and also takes the main air-conditioning factory in China including Media, Gree and Haier as main rivals to be compared and analyzed. By comparison, the comparative advantages and disadvantages of the Electra Shenzhen Air Conditioning Company are clearly identified, trying to show what they should do to get over its problems and acquire the opportunities. And structural analysis of the market and competitors is made in order to understand market forces and anticipate developments and competitive moves from competitors.

From the above comparison and study, strategies are pointed out. Using 3PL to reduce logistic cost and get value-added services from 3PL has become a feasible strategy for air-conditioning company to realize its long-term objective. For air-conditioning company like Electra Shenzhen Air Conditioning Company, integrating supply chain and out-sourcing logistics could assure its sustainable development. Because with the help of 3PL, the company could put more resource and pay more attention on building core competency. In the view of 3PL, advantage and disadvantage are critical factors to be considered and decision making process to be pointed out. The project of 3PL using in KELONG is taken as a persuadable case to show how well the integrated logistics and using 3PL strategy is. It covers the analysis of current situation and the methods for using 3PL in air-conditioning company.

1.3 The Limitations of The Research

The economy of China is running well and China's entry into WTO reflects Chinese government's determination on joining in global competition. This makes Chinese industries face huge challenges and opportunities never before. Especially, the air-conditioning industry that is constituted different factory with different system of ownership, will meet more and more intensive competition from outside. Companies among this industry should carefully discern on their internal and external situations.

This research aims at helping Electra Shenzhen Air Conditioning Company improve its logistic management with 3PL to reduce its cost, enhance its core competency, compete with its existing rivals and potential competition, and lead it to leading position in future. For this purpose, the author focuses the research on the location range, the mainland of China, and on the other air-conditioning companies of the same class in this region. As one staff serving in this industry for many years, the author has tried to dedicate his experience, knowledge on this thesis as much as possible. However, the efforts made by the author are restricted by three factors. First, the experience and knowledge are too limited; second, the related data and materials are not easy to be accessed; third, focus on logistic which is only one aspect of Electra Shenzhen Air Conditioning Company. In this sense, the author has made some assumptions about the status of the competitors. Of course, the assumptions are made based on the understanding of the industry and some information from the statistical of bureau.

1.4 Literature Review

1.4.1 PEST

PEST analysis is very important that an organization considers its environment before beginning the marketing process. In fact, environmental analysis should be continuous and feed all aspects of planning. The organization's marketing environment is made up from:

1. The internal environment e.g. staff (or internal customers), office technology, wages and finance, etc.
2. The micro-environment e.g. our external customers, agents and distributors, suppliers, our competitors, etc.
3. The macro-environment e.g. Political (and legal) forces, Economic forces, Sociocultural forces, and Technological forces. These are known as PEST factors.

Political Factors

The political arena has a huge influence upon the regulation of businesses, and the spending power of consumers and other businesses. We must consider issues such as:

1. How stable is the political environment?
2. Will government policy influence laws that regulate or tax your business?
3. What is the government's position on marketing ethics?
4. What is the government's policy on the economy?
5. Does the government have a view on culture and religion?
6. Is the government involved in trading agreements?

Economic Factors

Marketers need to consider the state of a trading economy in the short and long-terms. This is especially true when planning for international marketing. We

need to look at:

1. Interest rates
2. The level of inflation Employment level per capita
3. Long-term prospects for the economy Gross Domestic Product (GDP) per capita, and so on

Sociocultural Factors

The social and cultural influences on business vary from country to country. It is very important that such factors are considered. Factors include:

1. What is the dominant religion?
2. What are attitudes to foreign products and services?
3. Does language impact upon the diffusion of products onto markets?
4. How much time do consumers have for leisure?
5. What are the roles of men and women within society?
6. How long are the population living? Are the older generations wealthy?
7. Does the population have a strong/weak opinion on green issues?

Technological Factors

Technology is vital for competitive advantage, and is a major driver of globalization. Consider the following points:

1. Does technology allow for products and services to be made more cheaply and to a better standard of quality?
2. Do the technologies offer consumers and businesses more innovative products and services such as Internet banking, new generation mobile telephones, etc?
3. How is distribution changed by new technologies e.g. books via the Internet, flight tickets, auctions, etc?
4. Does technology offer companies a new way to communicate with consumers e.g. banners, Customer Relationship Management (CRM), etc?

1.4.2 SWOT

SWOT analysis is a tool for auditing an organization and its environment. It is the first stage of planning and helps marketers to focus on key issues. SWOT stands for strengths, weaknesses, opportunities, and threats. Strengths and weaknesses are internal factors. Weaknesses and threats are external factors.

Strength could be:

- 1). company's specialist marketing expertise.
- 2). a new, innovative product or service
- 3). location of company's business
- 4). quality processes and procedures
- 5). any other aspect of company's business that adds value to your product or service.

Weakness could be:

- 1). lack of marketing expertise
- 2). undifferentiated products or services (i.e. in relation to company's competitors)
- 3). location of company's business
- 4). poor quality goods or services
- 5). damaged reputation

Opportunities and threats are external factors. For example:

An opportunity could be:

- 1). a developing market such as the Internet.
- 2). mergers, joint ventures or strategic alliances
- 3). moving into new market segments that offer improved profits

-
- 4). a new international market
 - 5). a market vacated by an ineffective competitor

A threat could be:

- 1). a new competitor in company's home market
- 2). price wars with competitors
- 3). a competitor has a new, innovative product or service
- 4). competitors have superior access to channels of distribution
- 5). taxation is introduced on your product or service

1.4.3 Five Forces Analysis

Five forces analysis helps the marketer to contrast a competitive environment. It has similarities with other tools for environmental audit, such as PEST analysis, but tends to focus on the single, stand alone, business or SBU (Strategic Business Unit) rather than a single product or range of products.

Five forces analysis looks at five key areas namely the threat of entry, the power of buyers, the power of suppliers, the threat of substitutes, and competitive rivalry. (M. Porter, 1980)

a. The threat of entry.

- 1). Economies of scale e.g. the benefits associated with bulk purchasing.
- 2). The high or low cost of entry e.g. how much will it cost for the latest technology?
- 3). Ease of access to distribution channels e.g. Do our competitors have the distribution channels sewn up?
- 4). Cost advantages not related to the size of the company e.g. personal contacts or knowledge that larger companies do not own or learning curve effects.
- 5). Will competitors retaliate?

6). Government action e.g. will new laws be introduced that will weaken our competitive position?

7). How important is differentiation? E.g. The Champagne brand cannot be copied. This desensitizes the influence of the environment.

b. The power of buyers

1). This is high where there a few, large players in a market e.g.

2). If there are a large number of undifferentiated, small suppliers e.g.

3). The cost of switching between suppliers is low e.g.

c. The power of suppliers

1). The power of suppliers tends to be a reversal of the power of buyers.

2). Where the switching costs are high e.g.

3). Power is high where the brand is powerful e.g.

4). There is a possibility of the supplier integrating forward e.g.

5). Customers are fragmented (not in clusters) so that they have little bargaining power e.g.

d. The threat of substitutes

1). Where there is product-for-product substitution e.g. Where there is substitution of need e.g.

2). Where there is generic substitution (competing for the currency in your pocket) e.g.

3). We could always do without e.g.

e. Competitive Rivalry

This is most likely to be high where entry is likely; there is the threat of substitute products, and suppliers and buyers in the market attempt to control. This is why it is always seen in the center of the diagram.

CHAPTER 2 Logistics Service Mode of 3PL

2.1 3PL Research Overview

3PL is a business mode by which the supplier provides logistics services to the logistics enterprises other than the purchaser. In fact, 3PL means that a professional logistics intermediate in the logistics channel provides other enterprises with some or all logistics services within a certain period by means of a contract.

Contractual relation, individualized service, professional function, systematic management and network information characterize 3PL. (Luo Wen Pin, 2003)

Outsourcing, 3PL and contract logistics generally mean the same thing (Lieb, Millen and Wassenhove, 1993). It involves the use of external companies to perform logistics functions, which have traditionally been performed within an organization. The functions performed by 3PL service providers can encompass the entire logistics process or select activities within that process.

A key rationale for outsourcing of logistics functions is the intensified globalization of businesses. During the last two decades, globalization has emerged as a major force of shaping business strategies, leading firms to develop products designed for a global market and to source components globally (Cooper, 1993). This has led to more complex supply chains requiring larger involvement of managers in logistics functions. Lack of specific knowledge of customs, tax regulations and

infrastructure of destination countries has forced firms to acquire expertise of 3PL service providers. As result firms are concentrating their energies on core activities and leaving the rest to specialist firms (Byrne, 1993; Foster and Muller, 1990; Trunick , 1989).

An equally important development that is impacting the logistics industry is the increased emphasis on supply chain management as a source of competitive advantage. In the last two decades, the quest for time based competence led initially to a rapid adoption of new manufacturing methods like just-in-time, flexible manufacturing systems, computer aided manufacturing and so on by organizations. These methods have brought about significant improvements in supply chain performance through their focus on compressed manufacturing lead times and improved quality. However, further enhancements in supply chain performance will necessitate speeding the flow of information on orders to upstream supply chain partners, and expediting logistics activities like storage and delivery of material or products through the entire supply chain (Bhatnagar, Sohal and Millen, 1999). A recent research carried out on supply chain management practices in China highlights that the opening of China economy and globalization of businesses has been a key factor for the China industry to align supply chain integration and form partnerships for minimizing inventories. China organizations are increasingly deploying supply chain strategies for logistics improvements – to increase sales revenue, enhance profits, reduce order to delivery cycle time and minimize inventories.

Logistics is therefore emerging as a key frontier of competition in the future. Good logistics performance requires a tradeoff between the need to reduce overall supply chain inventory and lead times, while simultaneously capturing economies of scale and improving customers service for enhanced business performance. Versatility of 3PL service providers enables them to maintain this trade-off by turning fixed costs into variable costs for companies using their services (Trunick,

1989). The use of 3PL service providers has gained prominence in this context.

Empirical studies have tested the following factors in defining the extent of usage (Lieb, 1992; Dapiran, Lieb, Millen and Sohal, 1996; Bhatnagar, Sohal and Millen, 1999):

- (1) Length of experience with 3PL firms
- (2) Level of commitment to the usage of 3PL services
- (3) Percentage of the total logistics budget allocated to 3PL service providers
- (4) Specific logistics services outsourced (Warehouse management, shipment consolidation, fleet management, order fulfillment, product returns, carrier selection, logistics information systems, rate negotiation, product assembly, order processing, inventory replenishment, order picking, inbound transportation, outbound transportation, labeling and packaging, distribution, custom clearance and forwarding, import export management, customer service/support).

At the same time, studies indicate that firms outsource logistics functions for a variety of reasons. Watson and Pitt (1989), Sheffi(1990), Foster and Muller (1990), and Bardi and Tracey (1991) have suggested the following reasons for the growth of logistics outsourcing in America: need to focus on core activities, better transportation solutions (e.g., consolidation), cost savings, customized services, reducing inventory, penetrating markets, becoming more active in international shipping, gaining the use of sophisticated technology, need for more professional and better-equipped logistics services. Gooley (1992) added flexibility as another reason for outsourcing based on his experience with European firms. By understanding the reasons for outsourcing of logistics services, 3PL service providers can gain insight into the benefits sought and provide focused services. A 3PL service provider with experience, focus and expertise is regarded as more competent, compared to those service providers who profess to be “all things to any consumer” (Sink et al., 1996).

The research on supply chain management practices in China has identified that

outsourcing of logistics activities is growing in popularity for China organizations and there has been an increase in the number of 3PL providers over the last couple of years (Luowenping, 2003). The major reasons cited for usage of 3PL services include – cost reduction, strategic reasons, process effectiveness, and lack of internal capability.

Usage of 3PL services is a strategic decision and hence it is necessary to perceive and quantify the impact it has on business performance. The purpose of engaging in third party relations is seldom cost reduction along, but a combination of service improvements and efficient operations (Larsen, 2000). Studies based on user firms indicate that the decision is worthwhile if it has an impact on one or more factors depicted in Table 2-1.

Lieb et al. (1993), Dapiran et al. (1996), and Bhatnagar et al. (1999) have observed that the future usage of third party logistics services is a function of the current level of satisfaction of the firm with the logistics services provider. The authors have also explored the changes in the level and the nature of outsourcing of logistics services by the user firms. All the above studies indicate high levels of satisfaction with third party logistics services providers, which will translate in increased outsourcing in the future. Typically, firms start with the outsourcing of few logistics services, moving over to activities which have maximum impact on logistics performance and then increase scope of usage of logistics services with perceived and quantifiable impact on overall business performance.

The above studies provide a robust framework for the research methodology for analyzing the 3PL practices in China. The input variables to the research framework depict the organization-specific characteristics, such as the extent of usage of 3PL services, the reasons for outsourcing and the impact of usage of 3PL services. The output function of future usage of 3PL services is influenced by the three input variables.

Table 2-1 Impact of usage of 3PL services

Factor	Identified By (Year)
Impact on Customer Satisfaction	Gooley (1992); Lieb et al. (1993)
Impact on Logistics system performance	Lieb et al. (1993);Dapiran et al.(1996); Bhatnagar et al. (1999)
Reduction in Capital investment in facilities	Foster & Muller (1990); Sheffi (1990); Trunick(1992); Fantasia(1993)
Reduction in Capital investment in equipment	Fantasia (1993); Foster & Muller (1990);Richardson (1992)
Reduction in investment in information technology	Goldberg (1990); Sheffi (1990);Trunick (1992); Fantasia (1993)
Impact on Employee morale	Bowersox (1990); Dapiran et al. (1996)
Reduction in manpower cost	Foster & Muller (1990); Richardson (1992,1995)
Improvement on specific Logistics function parameters	Minaham (1997); Mc Mullan (1996)
Improvement in inventory turnover rates	Richardson (1992,1995)
Improvement in on-time delivery	Richardson (1995)
Increasing productivity	Bradley (1995)

Source: collected by the author

2.2 Advantage and Disadvantage of Using 3PL

2.2.1 Advantage of Using 3PL

(1) Significance for Enterprise Development

A key rationale for outsourcing of logistics functions is the intensified globalization of businesses. During the last two decades, globalization has emerged as a major force of shaping business strategies, leading firms to develop products designed for a global market and to source components globally. This has led to more complex supply chains requiring larger involvement of managers in logistics functions. Lack of specific knowledge of customs, tax regulations and infrastructure of destination countries has forced firms to acquire expertise of 3PL service providers. As result firms are concentrating their energies on core activities and leaving the rest to specialist firms.

(2) 3PL is a solution for “bottleneck” of E-commercial

One perfect transaction consists of four basic flows: information flow, commodity flow, financial flow, and physical distribution. During the operation of e-commercial, information flow, financial flow, capital flow all can rely on the instantaneous realization of network, but the physical distribution becomes the “bottleneck” of e-commercial, which restricts the e-commercial development for a time. From the practices worldwide, the main idea to resolve this “bottleneck” is the using of 3PL. The 3PL does not attend in the business, but provides the service for the whole process from production to sales, and enterprises like Electra Shenzhen Air Conditioning Company who enjoy this kind of service take the principle of “mutual trust, win-win cooperation”, and Electra can optimize the physical distribution to the maximum extent by right of self-advantage, and choose the most suitable transportation to accomplish the physical distribution.

(3) 3PL is benefit for the owner to establish core ability

Generally speaking, the productive enterprises like Electra lay emphasis on the core ability of R&D and marketing. In this way, with outsourcing the logistics to the third part; the enterprises will be able to concentrate more resource on building their core ability.

(4)3PL is able to provide flexible service and bring more benefit to customer

Provided that the enterprise is a supplier of raw material, and the customer needs rapid supply of good, thus the regional warehouse is necessary. Through the storage service of 3PL, Electra Shenzhen Air Conditioning Company requirement could be satisfied fully, and will not be effected on the management flexibility due to the building of new-facilities or capital allocation for long-term lease. Electra is a supplier for finished products, then the using of 3PL will supply more diversified service to the end-user (for example, provide service, such as short-time storage management to enterprises who can meet customer requirement owing to temporary shortage), meanwhile bring added value to customer and enhance the customer satisfaction.

(5)3PL is helpful for improving enterprise image

The supplier of 3PL can be strategic partner with Electra Shenzhen Air Conditioning Company rather than competitor, they take care of customer, and make the supply chain management open through the global information network, and the customer can come to know the progress of supply chain at any time. The suppliers of 3PL are logistics experts, they utilize the excellent facilities and competent employee to control the whole supply chain perfectly and reduce the complexity of logistics, meantime they reduce the delivery period on the basis of worldwide transportation network and service provider (sub-contractor) and improve the service and build brand image. The suppliers of 3PL make the customer-oriented logistics scheme with objective of lower cost and high efficiency through tailor-made designing, which ensure Electra to be more competitive.

(6) 3PL is of extremely importance in supply chain management

By definition, the supply chain is a network that is composed of raw material suppliers, production enterprises, wholesalers, retailers, end-users and others involved in the production and distribution. By the self-advantage of 3PL, it will

simplify the complicate supply chain and harmonize the supply chain well, finally make the supply chain stabilization and supply chain management orderly.

Summarily, please refer to Table 2-2 for the advantage of outsource when comparing with self-support logistics.

Table 2-2 Comparison of two logistics management

Outsource	Self-support logistics
Concentrate on the core business, outsource to 3PL company	Pursue big and complete, use the self-support logistics
Lower cost	Higher cost
Improve the service quality and bring more benefit to customer	Inferior service quality
Easy to use high technology	Difficult to utilize high technology
Decrease non-pivot capital to achieve higher ROI and utilization ratio of resources	Lower ROI and utilization ratio of resources
Increase enterprises' flexibility, concentrate on the core business	Less emphasis on core business
Change management mode	Limit management mode

Source: collected by the author

2.2.2 Disadvantages of 3PL

It will benefit more with using of 3PL; however, there are still some negative effects, which are:

- (1) Inefficient logistics controlling
- (2) Risk of CRM
- (3) Risk of strategic secrecy leakage
- (4) Implicative management risk

Therefore, when selecting the 3PL service, it is necessary for ELECTRA to

consider the negative effect of 3PL completely, so Electra needs establish strategy alliance with 3PL supplier to not only share benefits but also risks.

2.3 Influencing Factors for using 3PL Decision Making

When implementing the decision making for 3PL demand, Electra Shenzhen Air Conditioning Company should firstly take the strategic significance of the materials circulation subsystem into full consideration. To judge whether a material circulation subsystem constitutes the core capability of a corporation, in a general way, the following factors can be applied to:

- (1) Whether or not they have heavy impact on the business process of a corporation?
- (2) Whether or not they require considerably advanced technology, and can a corporation adopting such technology take the leading position in its circle?
- (3) Whether or not other corporations cannot imitate them in a short period?

If all above questionnaires are positive, it can be figured out that the materials circulation subsystem is at a leading position strategically. For Electra, as we analysis before, cost reducing is a very important point to competes with rival and survive in competition and material & logistic cost is the major part of product cost, so the company should put this factor at a important position of strategy. Since a material system is a multifunctional integration, the importance and relative capability of each functional are imbalanced; therefore, analysis is required to be done on each functionality.

It is crucial to look into the substitution nature for judging whether certain functionality has the strategic significance. In case if the substitution nature is weak and hardly done by few other materials circulation corporations rather than its own

possessed capability, this corporation should well protect and develop this functionality for keeping its sustainable competitive power; otherwise, if it can be done by a materials circulation corporation or the materials circulation subsystem is not so important to the corporation, it is necessary for the corporation to make decision of self-support or contract out considering its own materials circulation capability. The materials circulation capability herein represents the client service standard. Client is an extensive conception, which indicates either a customer or a subsequent process. In case of the corporation's insufficient capability to satisfy certain client service standard, contract out is needed. When contract out mode is adopted, what kinds of services contained in contract out mode being chosen, leasehold public materials circulation or establishment of materials circulation union depends on the significance of the materials circulation subsystem over the success of the corporation. Under the circumstance that the materials circulation subsystem is part of the corporation's strategic subsystem, the consistency of materials circulation should be secured by signing a contract for a long term cooperation with a materials circulation corporation, which will provide with tailored service in accordance with the corporation process, i.e. implementing 3PL; on the contrary, under the circumstance that materials circulation doesn't constitute the corporation's strategic subsystem, which kinds of mode being adopted depends on looking for the point balancing the client service standard and the cost.

A corporation such as Electra Shenzhen Air Conditioning Company with materials circulation capability doesn't mean this corporation must be engaged in materials circulation business. This decision should be made upon comparison with materials circulation corporations to see in what way the cost is lower under the circumstance of satisfying certain client service standard. Only under the circumstance of lower relative cost can the corporation choose the self-support; otherwise, the corporation should have this functionality taken away for contract out

materials circulation. If the materials circulation subsystem is no longer the strategic system of the corporation, it should seek for cooperative partner selling its materials circulation service for avoiding waste of resource. Of course, revenue from such materials circulation service doesn't constitute the corporation's revenue from key operations.

2.4 Procedure of 3PL Usage Making and Implementation

3PL is a new tendency of logistic development, 3PL offer a new model for corporation's supply chain management. Electra can improve its logistic management through 3PL. It's a strategy option and service for general strategy of company.

There are many reasons for Electra Shenzhen Air Conditioning Company to use 3PL service as we've analysis before. Reduce cost is the major reason. There is no any company just focus on establish core competence and neglect reducing cost. Of cause, perhaps Electra has to face on some risks such as lost control high risk, long term constrained by contract and safety issues. As managers of Electra Shenzhen Air Conditioning Company have to take these elements into account during decision making and try to find out balance point. Actually Electra wants implement out-sourcing logistic and using 3PL service successfully, three steps are needed:

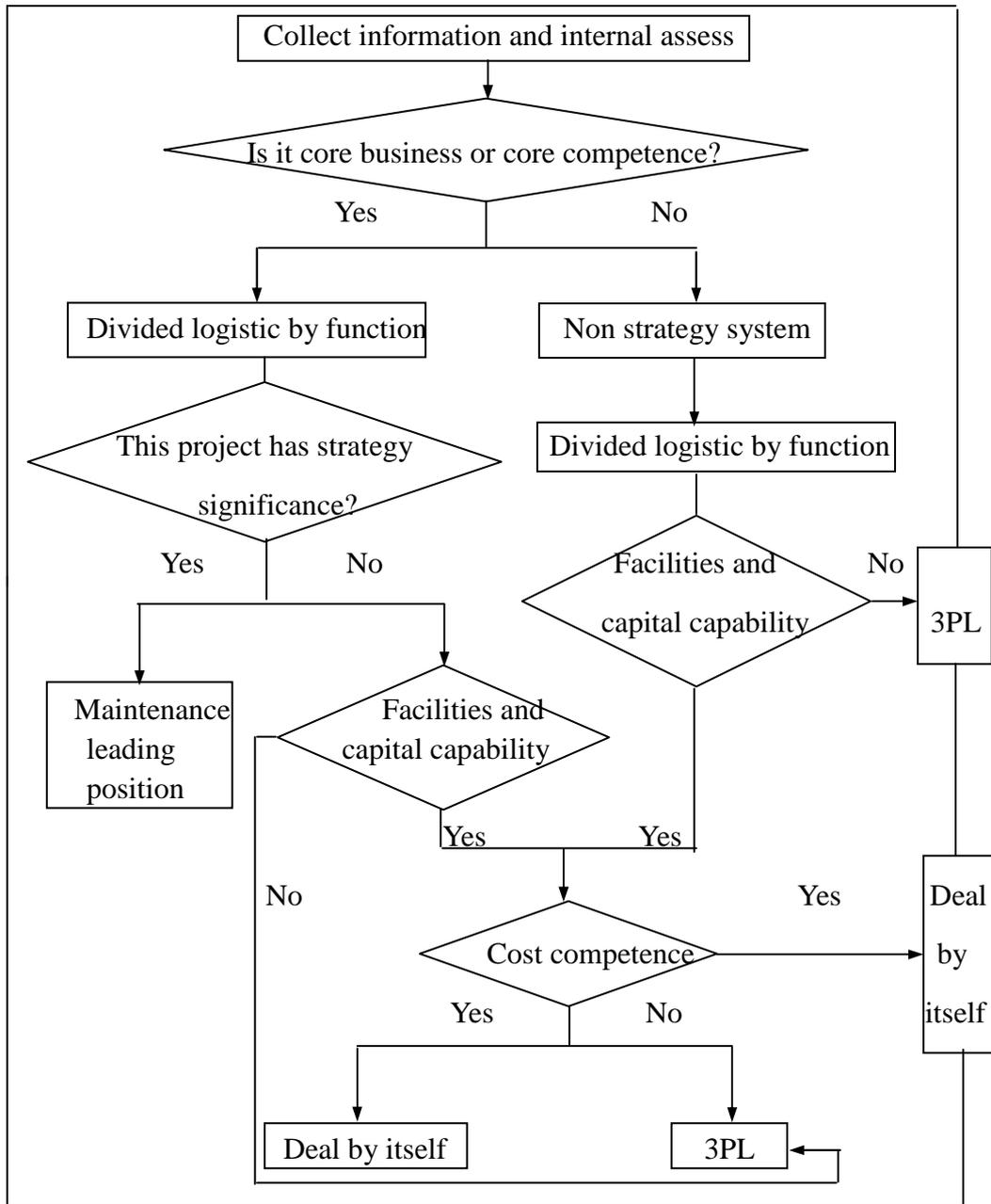
First, ELECTRA needs to do some internal assessment and survey. In this stage, one thing the author need to emphasis that the top managers of Electra must take passion attitude for this project because only top managers have power to push innovation.

Before decision making, Electra Air Conditioning need pay attention on following aspects:

-
1. Identify relationship between company's target and out-sourcing;
 2. Identify which aspect need out-sourcing, through this Electra Shenzhen Air Conditioning Company can concentrate on core business well;
 3. Electra need collect many information and material to confirm which business can get the best return of investment;
 4. Communicate with employees. Any innovation will affect some employees' benefit. Good communication can help out-sourcing implement smoothly. Without employee's support, out-sourcing can not implement successfully.

Second, Electra Shenzhen Air Conditioning Company needs to assess itself demand and select service supplier. The leader of Electra needs to take suggestion of expert from internal and external. After this, company need prepare a detail documents including requirement of service level, problems need to be solved and other demand. With these preparations, Electra Shenzhen Air Conditioning Company can start to find proper 3PL supplier. At this time, supplier survey is very important. This not only can help them chooses good supplier, also can help supplier understand company's requirement.

Third stage is out-sourcing implement and management. In order to ensure cooperation, company need keep control and supervision for out-sourcing and keep in touch with 3PL supplier to exchange information day by day. The detailed process of decision making and implementation as following (see figure 2-1):



Source: collected by author

Figure2-1 Process of decision making and implementation

CHAPTER 3

Enterprise Situation Descript for Electra Shenzhen

3.1 Enterprise Presence, Mission and Objectives

3.1.1 Company's Profile

The Electra Shenzhen Air Conditioning Company, hereinafter referred to as ELECTRA, was found in 1998 and initiated its business with the air conditioner development, production and sales. Under the management of South East Asia Division of Electra Consumer Products Ltd., ELECTRA started operation in 1998, serving both as a stronghold for tapping into the Chinese market and one of the production and R&D centers for whole of ECP group.

ELECTRA Company produces and markets a variety of room air conditioners of diverse output levels and configurations with an annual production capacity of 1,000,000 units, and equipment for central air conditioning systems such as ducted units, mini chillers and air-cooled chillers. With the implementation of ERP, demand flow technology or DFT, the company can better meet customer demands. Today ELECTRA sets market in the local market under the brand name of Electra for both

room and commercial air conditioners.

ELECTRA complies with the international standards of ISO9001 for quality, ISO14000 for environmental protection, and OHSAS18000 for occupational health and safety. The products of ELECTRA have obtained certifications of various local and international quality standards such as TUV, UL, CE and CCC. The company also has an R&D team to develop products that can meet both customer needs and environmental requirements, as exemplified in the development of R410A fixed RPM products, R410A DC inverter (single and multi) and VRF systems, and R407C unitary products.

The major market of ELECTRA products is European. 98% of products export to Europe from China. ELECTRA got first marketing share of Israel and second marketing share of France. ELECTRA also start cultivate and develop China market using own brand name.

3.1.2 Mission and Long Term Objectives

1. Mission of the company

To create significant value to shareholders, customers and employees and make valuable contribution to the community in which we live.

2. Vision of company

To become one of the world's leaders in air conditioning technology and manufacturing.

3.2 Company Operating Analysis

3.2.1 Business Analysis

ELECTRA has 2 kinds of product, one is room air conditioner, and another one is center air conditioner. Room air conditioner shares 80% of sales, center air conditioner shares 20% of sales. Output and sales quantity of room air conditioner is bigger than center air conditioner, but profit of center air conditioner is bigger than room air conditioner. According to statistics, the profit of room air conditioner is already less than 5% but the profit of center air conditioner is more than 20%. Recently, a lot of air-conditioning factories have already transferred their product from room air conditioner to center air conditioner.

3.2.2 Analysis of Marketing and Customer

The major market of Electra is in Europe, Australia and America. Asia, especially China market is still not being developed yet.

The characters of China market as below:

- 1). customer consumer level is lower
- 2). level of product is low
- 3). The price of product is cheap
- 4). Market demand is huge and has big potential
- 5). Room air conditioner is the major product

3.2.3 Analysis of Supplier

ELECTRA has more than 2,000 suppliers for its product, mostly from local, some key components supplier such as compressor from Japan, Korea or Europe. They offer more than 8,000 kinds of components to ELECTRA. Each supplier delivers about 3-4 kinds of components or even more than averaged. Each part has about 2-3 suppliers. Supplier was selected through bidding; ELECTRA has a very

complicated procedure to audit the supplier. Because of high quality requirement, small quantity, big batch, low price and long process for payment, make relationship between company and supplier is not good, loyalty of supplier for company is not good enough. This also makes big trouble for ELECTRA supply chain management

3.2.4 Analysis of Production

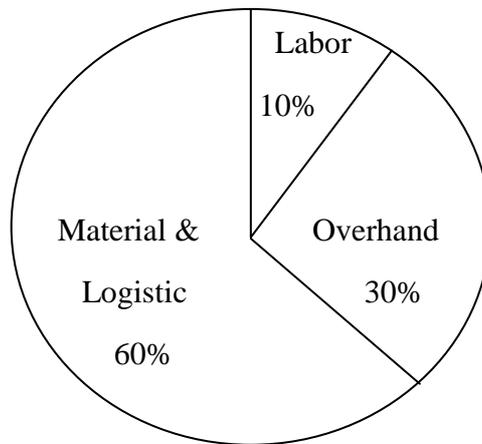
Company adopts produce by order, lean production, using KANBAN, DFT, and JIT to control production from order receive, production plan arrangement, purchasing and finished goods shipping.

3.2.5 Analysis of Logistic and Warehouse Control

ELECTRA deals logistic by itself. There are 4 warehouses belong to company, occupy about 5000m². Company also rents 3 warehouses from outside occupy about 15000m². There are about 140 employees to manage warehouse, 20 forklifts working in warehouse. Company sign contract with delivery company which in charge of components transportation.

3.2.6 Analysis of Cost

The product cost of ELECTRA as above figure. From this figure we can see material and logistic cost occupy large part of total cost of product.



Source: offered by ELECTRA financial Dept.

Figure3-1 Product Cost Breakdown

3.3 SWOT Analysis

3.3.1 Strengths

- (1) The concept of management and technology of production control is advanced, such as DFT, KANBAN and JIT;
- (2) Company use ERP, ORCHALE system to deal daily production management;
- (3) Brand image. ELECTRA is a famous brand in oversea market especially in Europe;
- (1) ELECTRA has advantage capital resource;
- (2) Experience of international business, ELECTRA has already built well enough frame of sales network in oversea market.

3.3.2 Weakness

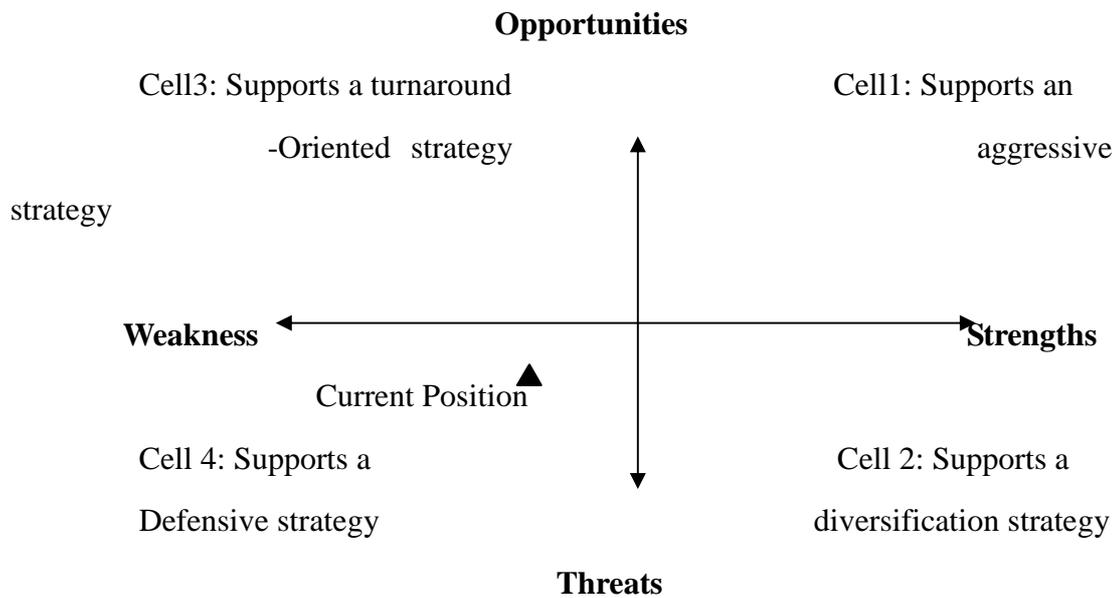
-
- (1) The capability of product research and development is poor;
 - (2) Cost especially logistic cost is high;
 - (3) Communication and coordination between different department is not good enough and lack team work;
 - (4) Relationship and coordination between company and supplier is not good.

3.3.3 Opportunities

The potential of China market is huge, company will invest more money to expand business in China market and will invest more money to prepare develop China market;

3.3.4 Threats

With China entered WTO, the barrier between international trade becomes smaller and smaller. This offered very good opportunity for the local air-conditioning factory to take part in globe competition. Many local companies have already delivered their products to oversea market by using advantage of low cost and good quality. This already threat market share of ELECTRA in its major market especially Europe.



Source: collected by the author

Figure 3-2 SWOT Analysis of ELECTRA

ELECTRA's position is weakness/threat in cell4 as shown in the figure above, which should take defensive strategy. It means ELECTRA need to plan a new strategic thinking, reduce cost, and improve management level from internal.

3.4 Problems Faced By Enterprise

Since ELECTRA was established in 1998, the air conditioning sales and market just was startup in China. ELECTRA closed its air condition factory in Europe and moved to China. The purpose of building factory in China is not only to use low cost material to get more profit, but also to open and occupy Chinese market. In ELECTRA, 98% percent products sales to Europe, Australia and America, it has No. 2 market share in France and over 20% of market share in Europe, but in China market, it is still a virgin place. As estimation, China air conditioning market is bigger than Europe market over seven times, China has huge potential opportunities

for air conditioning industry, everybody in the world wants to enter this market and share one piece of cake, and everyone knows who will win in China, who will win in the world.

At the beginning, ELECTRA developed rapidly by using advantage of cheap labor cost and low price of material of China, company got very big benefit and profit from this advantage. But start from 2003, the performance of company turns up decline tendency. One aspect, market share of Europe decreased. Europe is the major market to ELECTRA, but recently, especially after China entry WTO, many China company sales their products, this brought large impact to ELECTRA, compared with them, ELECTRA doesn't have marked quality and technology advantage, and most of these factory's scale is much bigger than ELECTRA, their products price is much more cheap, ELECTRA lost its advantage of competition gradually. Another aspect, fierce price war made ELECTRA hard to open and develop China market. In nowadays, because the specialization and differentiation of air conditioning products become small and small, the competition in this industry already concentrates on cost, this is also a customer concerned while they choosing products. ELECTRA is disadvantage on small scale, this makes ELECTRA lack economic of scale and high cost compare with its key competitors. In the constitute of cost in ELECTRA, proportion of logistic cost is higher, company deal logistic by itself, this not only make company has to spent a lot of money and time to manage this issue, but also let company can't concentrate on its major business. As managers of ELECTRA, have to rethink company's strategy to adapt to quickly changed environment, take action to reduce its cost especially logistic cost, maintain and enlarge its market share and improve its competence.

The following chapters try first to analysis the external environment of ELECTRA, and then choose from several alternatives to find the best solution.

CHAPTER 4

Enterprise Strategy Analysis for Electra Air Conditioning

This chapter aims at scanning the macro-environment and the industry environment in order to identify status of air-conditioning and factors relating to formulating competitive strategy.

4.1 Environmental Analysis

4.1.1 Political and Legal environment Analysis

The Year 2007 saw complicated operation of Chinese macro-economy. Apart from influencing credit, investment, industry and consumption, the macro policy control has also various effects on the air-conditioning industry. For example, the strict policy on credit and policy on tightening up monetary have caused impact on the established transaction system in the air-conditioning system, and their role of inhibiting civil consumption has become a problem to be considered by the industry. However, while bringing about multiple uncertainties to the industry, the macro control has, to some extent, purified the environment for industrial development and stimulated the industrial integration.

For the past several years, the abundant profits brought by the quick development in multiple industries such as air-conditioning has concealed many issues related to the industry, and then the air-conditioning market has plunged into the lair of excessive competition.

In recent two years, the calls for industry policy control in respect of these issues have become much stronger. In fact, in 2007, more policy control regarding energy efficiency ratio standard, coolant substitution and recovery of home appliances have been put into practice or formulated. These have become a hurdle hard to surmount by those factories that are weak in technical strength, short in resources and small in scale of production and sale.

As regards drawback, the tax refund rate has averagely dropped by 3%, and the drop has generated significant influence on the average profit of export-oriented industries and export enterprises; as far as the domestic air-conditioning industry is concerned, the international market is one of the ways for the air-conditioning industry to evade the risk of domestic excessive competition and to seek for new sources of profit. The drop in tax return rate did not impede the quickly expanding momentum of export, so the export amount in 2003 has again obtained a historical breakthrough.

Furthermore, policies on related industries and national control measures may influence the air-conditioning industry; policy-related influences will deeply affect enterprises, and even determine the survival of an enterprise. Therefore, when adapting to the constant market development, the air-conditioning industry must implement and accommodate to the industrial polices, and this is the necessary path for it to stand for a long time in the market competition.

4.1.2 Economic Environment Analysis

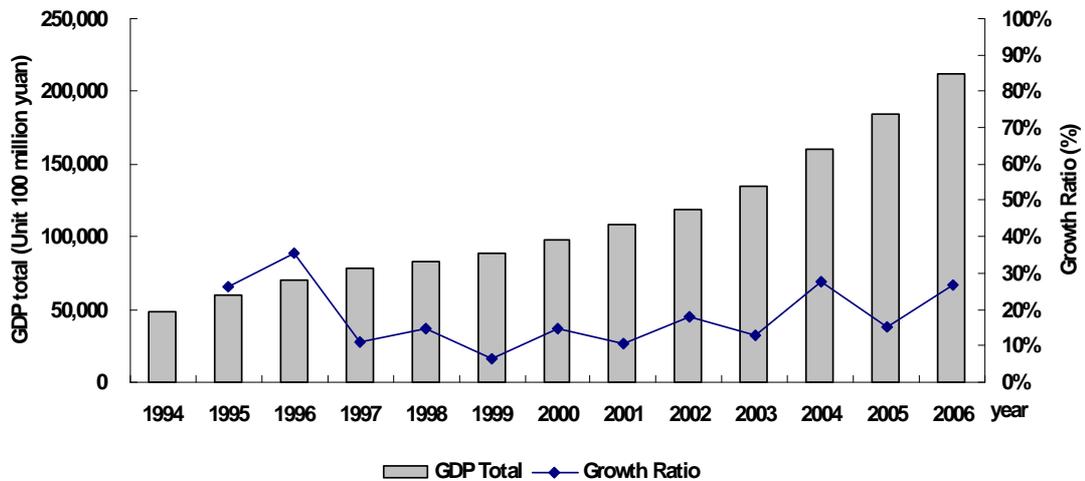
Since the reform and opening-up in last century, the development in China's national economy has maintained a higher growth speed. Especially with the constant enlargement of investment size in recent two years, the national economy has again demonstrated the momentum of sustainable quick development. (see Figure 4-1)

Table 4-1 1994-2006 Year China GDP and Growth Ratio

Year	Gross National Income	Gross National Product	Per Capita GDP	GDP growing rate
1994	48108.5	48197.9	4044	
1995	59810.5	60793.7	5046	26.13%
1996	70142.5	71176.6	5846	35.71%
1997	78060.8	78973.0	6420	10.95%
1998	83024.3	84402.3	6796	14.80%
1999	88479.2	89677.1	7159	6.25%
2000	98000.5	99214.6	7858	14.83%
2001	108068.2	109655.2	8622	10.52%
2002	119095.7	120332.7	9398	17.87%
2003	135174.0	135822.8	10542	12.87%
2004	159586.7	159878.3	12336	27.87%
2005	184739.1	183867.9	14103	15.00%
2006	211808.0	210871.0	16084	26.58%

(100 million yuan)

Source: China Statistics Yearbook (2003)



Source: China Statistics Yearbook (2006)

Figure 4-1 1994-2006 Year China GDP And Growth Ratio

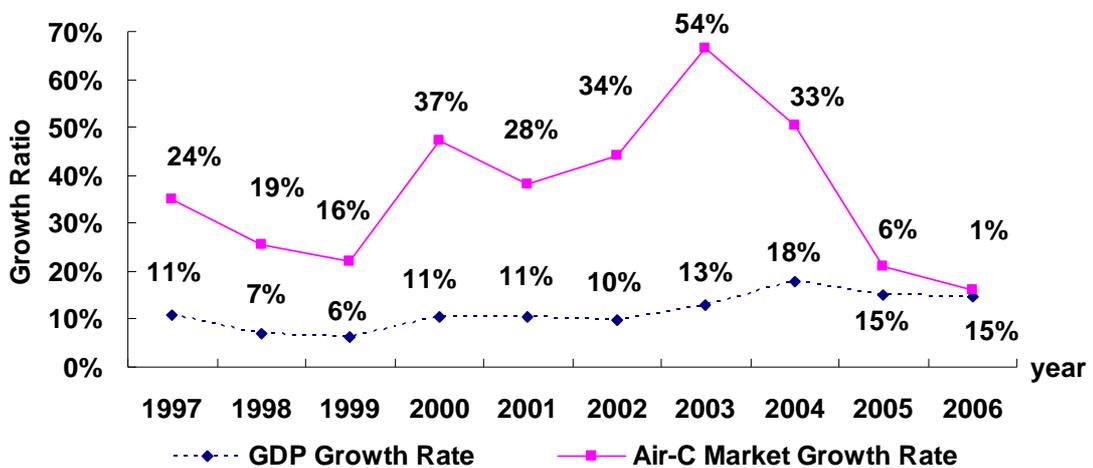
The quick, healthy and stable development of the national economy provides a good external macro environment for the air-conditioning industry. On the one hand, it facilitates the air-conditioning industry to have a good environment for industrial investment, and on the other hand, renders a stable basis for the development of consumption market.

As shown by combining the growth rates from 1994 to 2006 in respect of total sales in the domestic air-conditioning market, there exists a proportional relation between the growths of GDP and domestic air-conditioning market. Through further contrast analysis of the curve of GDP growth vs. air-conditioning market volume, we can see that, when GDP maintains stable growth, the consumption in the air-conditioning market keeps a momentum of quicker increase all the time, and the expansion has speeded up obviously since 2003 (see Figure 4-2).

Table 4-2 GDP Growth Ratio with Air-conditioning Market Growth Ratio

Year	Gross National Product	GDP Growing Rate	Air-conditioners Product (10 000 sets)	Air-C Growing Rate
1994	48197.9		393	
1995	60793.7	26.13%	683	73.49%
1996	71176.6	17.08%	786	15.19%
1997	78973.0	10.95%	974	23.89%
1998	84402.3	6.87%	1157	18.77%
1999	89677.1	6.25%	1338	15.63%
2000	99214.6	10.64%	1827	36.56%
2001	109655.2	10.52%	2334	27.75%
2002	120332.7	9.74%	3135	34.34%
2003	135822.8	12.87%	4821	53.77%
2004	159878.3	17.71%	6390	32.56%
2005	183867.9	15.00%	6765	5.86%
2006	210871.0	14.69%	6849	1.25%

Source: China Statistics Yearbook (2003)



Source: China Statistics Yearbook (2006)

Figure 4-2 Relationship between GDP Growth Ratio With Air-conditioning Market Growth Ratio

As compared with the annual decrease in prices of air-conditioning products, the income levels of China's rural and urban residents have enhanced continuously. (See Table 4-3).

Table 4-3 The Average of Chinese Family Income And Change Tendency (1994-2006)

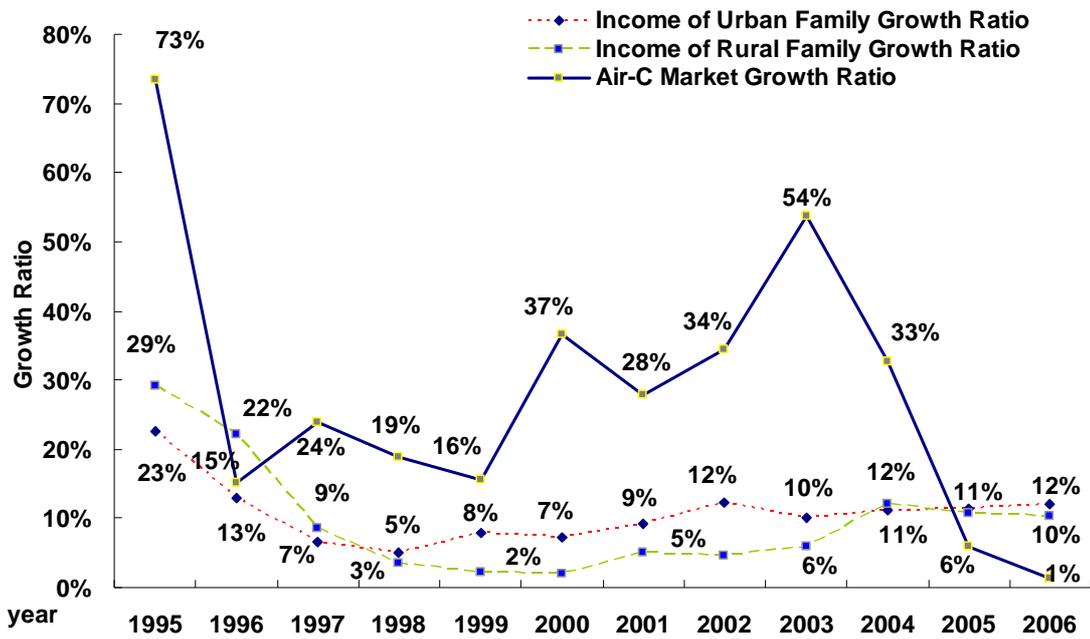
year	Income of Urban Family		Income of Rural Family		GDP Growth Ratio
	Value (yuan)	Growth Ratio	Value (yuan)	Growth Ratio	
1994	3496.2		1221.0		
1995	4283.0	22.50%	1577.7	29.21%	26.13%
1996	4838.9	12.98%	1926.1	22.08%	35.71%
1997	5160.3	6.64%	2090.1	8.51%	10.95%
1998	5425.1	5.13%	2162.0	3.44%	14.80%
1999	5854.0	7.91%	2210.3	2.23%	6.25%
2000	6280.0	7.28%	2253.4	1.95%	14.83%
2001	6859.6	9.23%	2366.4	5.01%	10.52%
2002	7702.8	12.29%	2475.6	4.61%	17.87%
2003	8472.2	9.99%	2622.2	5.92%	12.87%
2004	9421.6	11.21%	2936.4	11.98%	27.87%
2005	10493.0	11.37%	3254.9	10.85%	15.00%

Source: China Statistics Yearbook (2006)

The income level of residents is closely associated with their consuming ability, and in this aspect, we can illustrate the change in resident consumption structure using Engel's coefficient (indicating the ratio of food expenditure in per capita annual disposable income). In the figure, the annual drop in Engel coefficient shows the ratio of newly added income used in food is decreasing, but expenditure in other consumptions is on the rise. Obviously, household durable consumer products will constitute one major aspect of resident consumption. In fact, fast development has been obtained in terms of home appliance products including air-conditioners

Through contrasting the changes in growth speed of resident income level

and growth rate of the air-conditioning market, it is not difficult to find that, there exists a close relation between the two aspects. In addition, the trends in their fluctuations are more similar, but the air-conditioning industry is more susceptible to occasional external factors, so its fluctuation range is greater in a short term (see Figure 4-3).



Source: China Statistics Yearbook (2006)

Figure 4-3 Relationship between Income Growth Ratio with Air-conditioning Market Growth Ratio In China

The development of basic raw material industry and parts industry has empowered and supported the growth of the industries including household appliance and real estate. However, in recent years, prices of energies and raw materials have suffered from frequent fluctuations, and from January to December

2005, the purchasing price of raw materials and energies decreased by 4.8% averagely, an decrease of 27.1% over the previous years. The frequent fluctuations in raw material prices cause heavy cost burden to the air-conditioning industry.

Table 4-3 Real Estate Sales Growth Ratio Comparison with Air-conditioning Market Growth Ratio In China (1994-2006)

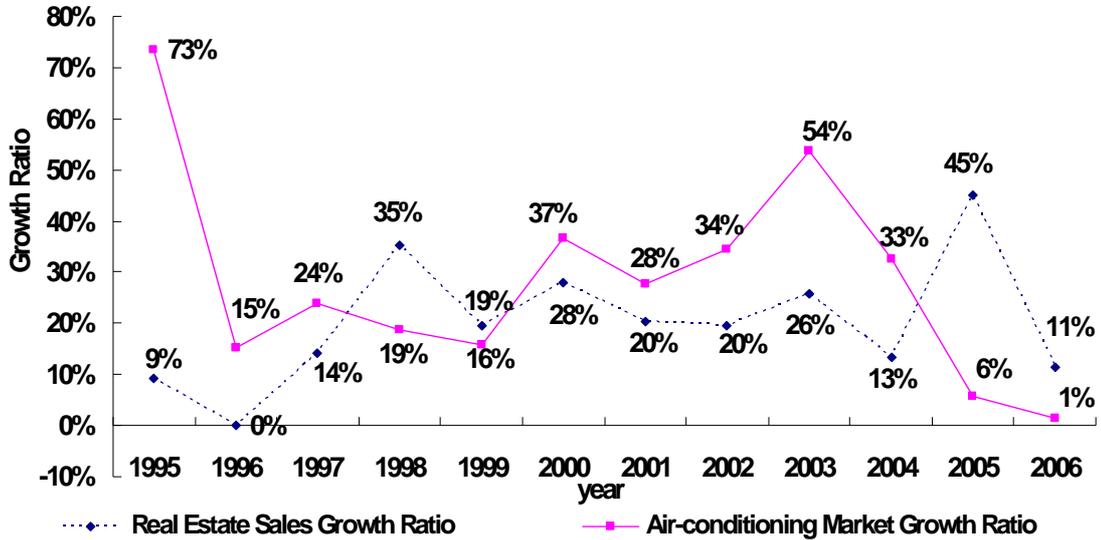
Year	Real Estate Sales (10,000 square)	Real Estate Sales Growth Ratio	Air-C Growth Ratio
1994	7230.35		
1995	7905.94	9.34%	73.49%
1996	7900.41	-0.07%	15.19%
1997	9010.17	14.05%	23.89%
1998	12185.30	35.24%	18.77%
1999	14556.53	19.46%	15.63%
2000	18637.13	28.03%	36.56%
2001	22411.90	20.25%	27.75%
2002	26808.29	19.62%	34.34%
2003	33717.63	25.77%	53.77%
2004	38231.64	13.39%	32.56%
2005	55486.22	45.13%	5.86%
2006	61857.07	11.48%	1.25%

Source: China Statistics Yearbook (2006)

4.1.3 Social-Cultural Environment Analysis

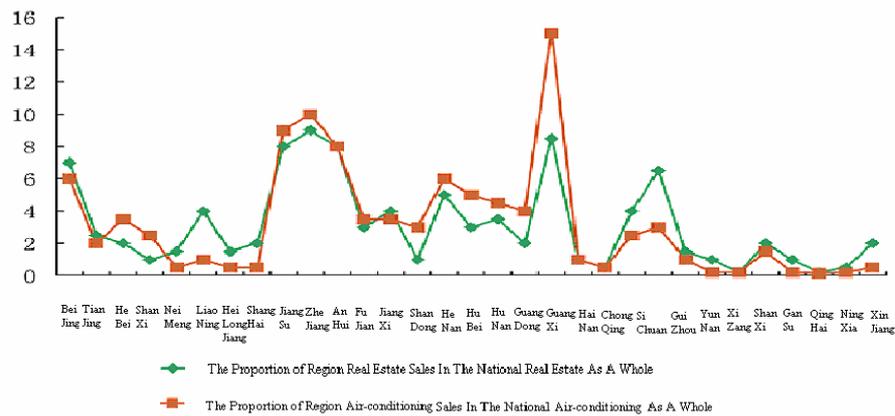
For recent several years, macro economy maintains sustainable development, disposable income of residents obtains a steady increase, social security system tends to be perfect, and important changes in consuming structure have taken place, all of these creating conditions for housing consumption. It is easy to find from Figure 4-4

and Figure 4-5 that, the air-conditioning market is closely related to the real estate industry, and the two curves demonstrate almost the same trend.



Source: China Statistics Yearbook (2006)

Figure 4-4 1995-2006 Year Real Estate Sales Growth Ratio Comparison With Air-conditioning Market Growth Ratio



Source: China Statistics Yearbook (2006)

Figure 4-5 2006-Year Relationship between Real Estate Sales with Air-conditioning Sales All over the Country

Currently, China is undergoing a high tide of urbanization. According to statistics, from 1998 to 2006, the urbanization rate in China has increased to 39.1% from 31.4%, an increase of 1.7% averagely, and there is an increase of 72.86 million in urban population.

As a carrier of industrial economy, the quick urban expansion is correlated with the increase in the entire regional economic strength and change in economic structure, and the development of urban economy is playing a demonstrative role in bringing the development of regional economy.

Pushing up by the fast growing economy, China is now on the rapid development process of urbanization. In Pearl River Delta, the embryonic form of city-belt has emerged. About 90 million people live in Pearl River Delta region now. The residents demand large amount of commodity.

4.1.4 Technical Analysis

21st century is the era with knowledge economy. In the past few year, lot of new technology, new management method and the unprecedented development of information technology have been used in air conditioning company, changes the fundamental pattern of management, and take more function and benefit to customers. Specially, information technology will be comprehensively used in air-conditioning industry. With the help of improved efficiency, quality service will be supplied at lower cost to our customers. It can say who grasp new technology, which will win in competition.

In the past ten years, the theory of 3PL has been well understand and applied among the enterprises. 3PL will be totally involved in the whole logistics system, integrated with production, marketing, sales and circulation of client. In the future,

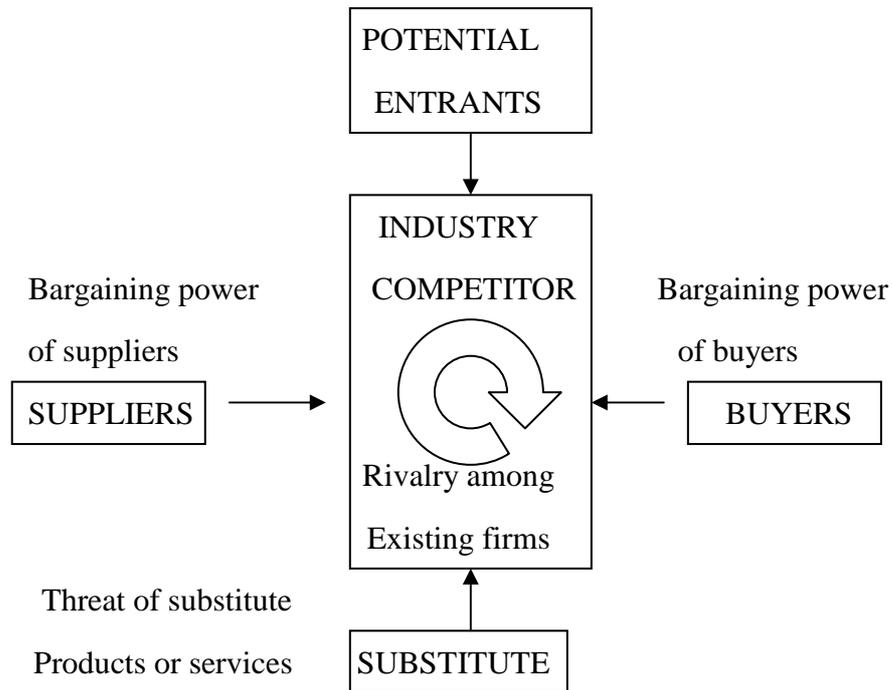
high level of service quality and efficiency will be the main focal point of competition.

4.1.5 Conclusion

Through the above PEST analysis, it could be sure that the air-conditioning industry is operating in an instable and high dynamic environment. First, the local economy is running upward. Second, there is so big population that large amount of products are consumed. Third, government policy always is changed. Forth, there are a lot of competitors in air-conditioning industry. ELECTRA has to adjust its strength to adopt this environment to survive in competition.

4.2 Industry Analysis

According to Porter's 5 forces theory, the nature and degree of competition in an industry hinge on five forces: the threat of new entrants, the bargaining power of customers, the bargaining power of suppliers, the threat of substitute products or services (where applicable), and the jockeying among current competitors. The state of competition could be identified by their interrelation shown in the Figure 4-6.



Source: M. Porter 1980

Figure 4-6 Forces Driving Industrial Competition

Applied in analysis of air-conditioning industry, the following characteristics could be clarified.

(1) Threat of entry

Capital requirements are in all industries a threat of entry, since, in order to be competitive, the new player needs to invest large amount of financial resources.

Economies of scale can act as hurdles in air-conditioning industry, especially for cost advantage and marketing share. Only large size company could keep low price to meet economies of scale. Small company has to fight against the cost disadvantage.

Switching Cost Air-conditioning production is a high specially industry, every new entrant need think about switching cost, otherwise, this will take them high risk.

Access to distribution channels the new competitors need to secure the

appropriate means for distribution of their services. In the air-conditioning industry, the new competitors have to assure a reliable system of goods distribution to final destination such as by dealer, vender and so on, so sales net establish is very important for each company.

Cost Disadvantage This entry barrier could be reflected in several factors independent of scale. The different level of equipment decides the different level of handling cost, the big company could afford to install with modern equipment, which helps to lower its cost.

Government policy is the last barrier and probably the most important barrier of entry into the marker. This particular barrier in the Pearl River Delta region is not applicable, because the government main task is to promote fair competition and give incentives to new players to enter the marker. Due to the poor planning by government, new players are emerging and competition becomes fierce.

(2) Threat of Substitution

Air conditioner is maturity product, there is some threat of substitution such as fans, but cause of different function, and the threat of substitution is not quite heavy.

(3) Bargaining Power of Suppliers

In general, there are many kinds of suppliers in air-conditioning industry, important material supplier has big bargaining power, inversely, and corporation has big bargaining power. If company has big scale and large quantity of output, the company also will have big bargaining power. ELECTRA scale is small and capacity of output is limited, so its bargaining power is not strong and feels heavy pressure of cost from suppliers.

(4) Bargaining Power of Buyers

The customers of air-conditioning industry have very big bargaining power because of they have a lot of choices in the market. Air conditioner supplied by different factory almost has same quality and same technology, but price of same

level products sometimes has big gap, so bargaining power of buyers becomes stronger and stronger.

(5) Rivalry between Competitors

As a traditional industry, the growth rate is slowly, the competitors fight for market share fiercely. The competitors are roughly equal in size and price. The company reduces cost in many ways and invested in research in order to increase the internal competition, creating a result, an increase in the quality of services. The company is trying to develop, expand and attract more investment to their company through strategic development plan.

From the above industrial analysis, we find that competition among air conditioning companies in China is extremely high because of the limited entry barriers, the high bargaining power of customers, the increasing power of suppliers and the high rivalry. The key forces that influence ELECTRA to achieve success is the existing players and potential entrants. So, the next section goes details to analyze ELECTRA's major competitors and the potential entrants.

4.3 Competitor Analysis

4.3.1 Influencing Factors to the Air-conditioning Competitiveness

A customer is thinking about many factors before choosing an air-conditioner such as the quality, new technology, cost and expense, service quality and even the brand image of the company. Hence, it is necessary to analysis the key factors that influence the Porter's competitiveness directly. In following, using Porter's competitiveness evaluation system for reference, the author chooses the five factors.

a). Quality depends on material, skill workers, equipment and management. In the market, the quality of material almost at same level, so the quality competition focuses on good skill workers and good management. ELECTRA cause of lacking motivation system, workers are not so stable that quality control has some problems. At this aspect, ELECTRA doesn't have competition strengths.

b). Technology For air-conditioning industry, specialization and differentiation of technology is one of very important aspect of core competency. Many companies invest a lot of money in R&D in order to get competition strengths. ELECTRA didn't pay enough attention on this aspect. One reason is the leader of ELECTRA doesn't recognize this point; another reason is company doesn't have enough talents for new product research.

c). Cost becomes major factor to win competition in air-conditioning market. Because quality of products is almost same, specialization and differentiation of technology is not big, cost is a very important aspect to be concerned by buyers. The cost of ELECTRA is quite high, one reason is scale of ELECTRA is small; another one is ELECTRA deal logistic by itself. Logistic cost of ELECTRA occupies high proportion of total cost.

d). Service quality is another important aspect of core competency in air-conditioning industry. Good service quality can help company get more market share and contribute to build loyalty of customer. ELECTRA has very good service net in oversea market but in local market service net is not good enough.

f) Brand image also is an important factor to lead customer to choose product. Good brand name means good reputation for customers. Brand image depends on quality, technology and service. In order to build good brand image, a lot of companies spend a lot of money in marketing area. A good company which has

providence knows brand is a very important intangible assets and recognizes to build good brand name can take them a lot of benefit. ELECTRA has a very good brand image in oversea market but almost nobody knows its brand name in local market.

4.3.2 Competitors Analysis

4.3.2.1 MEDIA Air-conditioning Company

Refrigerating Business Division of GD Midea Group is a large enterprise integrating the development, production, marketing and service of home and commerce air-conditioners and refrigerators. At present, it holds various air-conditioner production lines having the most complete supporting equipment and the largest scale and one national-level technology research center, with marketing networks around the world and products sold to more than 100 countries and regions. It has one of the famous air-conditioner manufacturers, which are largest in scale, abundant in technology strength and complete in product series.

Dedicated to the cultivation of comprehensive advantages concerning brand, technology, service and quality, Midea establishes a global customer-oriented integrated operation system and “flexible” production and sale model, expanding from home air-conditioners to commercial air conditioners. In addition, Midea actively exchanges with the outside technically, and upgrades its R&D capability through importing, assimilating and absorbing kinds of key technologies; sets up a scientific, systematic human resources system and employs the first-class information technology in the world and promotes the enterprise management towards the direction of internationalization.

After forming the strategic layout of air-conditioner production capacity in the country, Midea has two great manufacturing bases in Shunde, Guangdong and Wuhu, Anhui, reaching the annual capacity of 4 million sets; possesses the professional split air-conditioner production line, which is the most complete in supporting equipment and largest in scale, and the most advanced sealed cabinet air-conditioner production line, which is the most advanced domestically. In the Group, the enterprise has the unique air-conditioner industry chain, grasping the integration capacity of manufacturing core air-conditioning parts for compressors, electric controls and motors.

Established in 1999, Commerce Air-conditioning Company possesses the first-class quality assurance ability, assembly workshops of nearly 30 thousand square meters, multiple internationally leading production lines and annual capacity of over 300 thousand sets, developing into one of the manufacturers of commerce air-conditioners domestically. Pursuing the development strategy of high starting point, much investment and top quality, the company has developed nine great series, more than 500 models of product within just three years.

4.3.2.2 GREE Air-conditioning Company

Gree Electric Appliance, Inc, Of Zhuhai, founded in 1991, is the corporation with the biggest manufacture scope and the most powerful technique strength among the big size specialized air-conditioner corporation in present China. Nowadays Gree have nearly 15000 staffs and the yearly manufacturing capacity of household air conditioner reached 10 million units, while the yearly production value of commercial air conditioner had reached 400 million US dollars.

Gree manufactures many competitive new products every year. The most of specification of air conditioner and the complete of series is the No.1 among the

industry in China. Though years development, Gree air conditioner had established the leader position in home air conditioner market. The brand of Gree is known by everybody and enjoying a high reputation in many customers. Gree Electric Appliance has very good behaving at home and overseas market. When leading in the home market, the corporation also applies itself to the development of overseas market. Gree air conditioners are sold to international market more than 180 countries and districts like Europe, Asia and Pacific, North America, South America and Africa etc. According to the statistics from customs, the amount of export and amplitude of export of Gree are in the prior position among the industry at home for many years since 1995. The complete and put into production of the 4th Phase Project make Gree become the No.1 professional air conditioner R&D and manufacture base in the world and greatly consolidated the competitive ability of Gree Electric Appliance both in home and overseas market.

4.3.2.3 HAIER Air-conditioning Company

Haier was incorporated in 1984 only producing household refrigerators. Over the past 20 years, the company has witnessed significant prosperity and is now a transnational organization widely recognized in the world community. Haier's international promotion framework encompasses global networks for design, procurement, production, distribution and after-sales services. In the world market, from Euro monitor Statistics, Haier is ranked fourth in the revenue from the global sales of whitewoods. Haier is determined to gain the top position in this sector. Facing the challenges brought by E-commerce and China's accession to the WTO, Haier began a management-restructuring program in 1998 backed by the efficient Haier Market-chain System practice. During first 5 years, Haier focused on the organization restructuring, management decentralizing with application of advanced

information and network systems in order fulfillment, Market-chain performance, logistics, capital operation, after-sales service, product inventory and operational cost reduction. During second 5-year period from 2003, Haier carried out the SBU (strategic business unit) management to stimulate the enthusiasm of every employee and to enhance Haier's competitiveness in global marketplace. Haier's goal is to become a global recognizable brand.

4.3.3 Competitors' Assessment and Evaluation

As analyzed in above section, the three air-conditioning companies have made great contribution to the development of China air conditioning industry. But now the change in industrial structure has forced the companies to acquire the market share. In China, the three air-conditioning companies, MEDIA, GREE, and HAIER, play the key role. The comparative advantages and disadvantages of the competitors has been studied in the Table 4-3, according to the factors listed in above section, which are critical to customers at the time of choosing.

In Table 4-3, each company is ranked according to its position among all the four companies from 4 to 1, from outstanding to poor. The author made the rating of each company subjectively; however, the author has used as more materials as possible for reference.

Total ranks of three companies are very close to each other but ELECTRA. Except for ELECTRA, it seems that other three companies have almost the same competitiveness. In order to compete with them, ELECTRA has a lot of things need to do such as build core competency, increase scale and reduce its cost.

Table 4-3 Assessments and Evaluation of Competitors

	GREE	MEDIA	HAIER	ELECTRA
Output Capacity	10Million units/Year (4)	4 Million units/Year (3)	2-3 Million units/Year (3)	1 Million units/Year (1)
R&D	3000 Kinds of products (4)	300 Kinds of products (3)	300 Kinds of products (3)	100 Kinds of products (1)
Market	180 countries (4)	100 countries (3)	100 countries (3)	20 countries (1)
Price	Cheapest (4)	Cheaper (3)	Same as Media (3)	Higher (1)
Total Ranks	(16)	(12)	(12)	(4)

Note: Rating-Outstanding to Poor (4 to 1)

Source: collected by the author

4.3.4 Summary

Table 4-4 Summaries of Competitors

Items	Size and scale	Total output	Core competence	Current generic strategy
GREE	Largest	17 billion	Differentiation	3PL
MEDIA	Second	13 billion	Low cost and differentiation	3PL
HAIER	Third	8 billion	After-sale service	Integrate logistic internal
ELECTRA	Fourth	2 billion	High quality and differentiation	Deal logistic by itself

Source: collected by the author

4.4 Markets and Customer Analysis

4.4.1 Market Structure

Competitive strategies must be built according to the type of market competition. Strategy tends to differ if there is monopoly, oligopoly, monopolistic competition or perfect competition in the sense that mission, objectives, tasks and market approach will be completely different.

Industry under monopolistic competition should have follows characteristics:

- (3) A relatively big number of firms offer a product or service, but major market was occupied by some big company;
- (4) The products or service may be differentiated or relatively undifferentiated;
- (5) Actions by any individual company in the industry on price, output or quality, introduction of new models have a perceptible impact on the sales of other firms.

Indeed, the air-conditioning industry could be identified as this concept because it reasonably satisfies these conditions. There are about 200 air-conditioning factory in China, but 90% of market share was occupied by some big factory, small factories hard competitor with these big factories, most of them just stay in the market very short time and then quit. Competition between big factories is quite heavy, anyone take any action will impact others and reaction must will happen. Therefore, the market is working in imperfect competition that can fit into the definition of monopolistic competition.

4.4.2 Niche Market and Relevant Customer Analysis

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market is working in imperfect competition that can fit into the definition of monopolistic competition.

4.5 Industrial Life Cycle

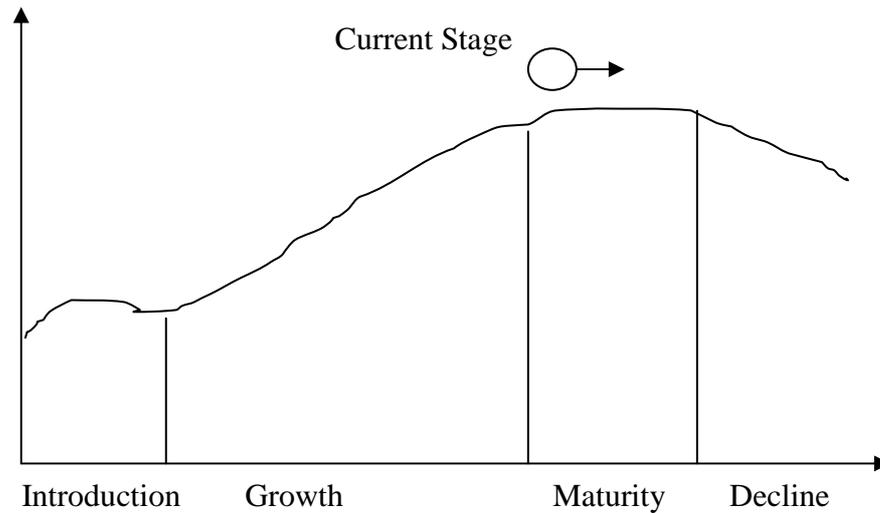


Figure 4-7 Current Life Stage of Air Conditioning Industry

Source: China Statistics Yearbook (2003)

Each industry has its life cycle, which can be divided in introduction, growth, maturity and decline. Through analysis above, we can found air-conditioning industry already step in maturity stage. In this stage, market become saturation and growing become slowly down, fierce competition among corporations, profit is maximum and become decline. In order to elongate life cycle and keep marketing share, competitors increase their investment in research and technology, using many ways to reduce cost and expenses.

CHAPTER 5 3PL Analysis in Enterprise

From above we can see competition in air conditioning industry is connected on each aspect. Cost reducing has become a significant factor to support ELECTRA survive and keep developing. In nowadays competition, ELECTRA should fundamentally change its strategy to adapt to fierce competition.

5.1 Recommendation Solution for Enterprise

5.1.1 Establish Strategy Alliance with 3PL Company

3PL Company is neither Freight Company nor pure press company, and it acts as the strategic alliance of customer in the logistic field. In terms of service content, it provides a kind of general logistic service featured by long-term contract other than one-off transportation or distribution service, and its ultimate function is to guarantee the effective operation of customer logistic system and perpetual optimization of supply chain management. From this viewpoint, 3PL Company is regarded as a full-time logistic department of customer rather than a professional logistic company, while this “logistic department” possesses more professional advantages and management experience. Relative to traditional transportation

company, the service scope of 3PL is not restricted within transportation and storage business. It pays more attention on the whole operation efficiency and profit of customer logistic system, and the management and constant optimization of supply chain is its core service. Its business has been involved in the entire produce and management process of customer such as sales plan, stock management, purchase plan and produce plan, which has exceeded the common trade relationship with customer, but integrated closely with the customer and formed a kind of strategic fellowship. The service scope of 3PL will continue to extend and even be a part of customer's sales system in long-term. Its survival and development must be connected closely with the fate of the customers. The logistic theory in the west emphasizes on "depend on each other", i.e. it is far from sufficient for a company to develop rapidly just depending on its own resource and power, it must find a strategic partner and get the competitive advantage with the force of alliance. What 3PL acts as is this kind of alliance, and an interdependent market symbiotic relationship is shaped between it and its customer.

5.1.2 Integrate Supply Chain Management with 3PL Company

The 3PL Company is joining in various businesses on the supply chain while its status increasing steadily. Meantime it indicates there will appear a new supply chain mode—led by TPL company.

As a linkage of supply chain, the 3PL companies take other enterprises in the whole supply chain as their service object sand customer, while in the practical customer-oriented environment, it will drive the logistics enterprise to strengthen the communication with other members in the supply chain so as to understand them further. Because if expect to become an effective organizer and supervisor of supply

chain, firstly, please be familiar with the actual status of each member, which will be useful for utilizing the utmost advantages and avoiding various disadvantages in the course of integration. However, this is the key point that other members in supply chain don't possess, in addition, the 3PL companies themselves are more professional with the logistics than other members, and so they are the experts for supply chain integration naturally. Just for this reason, today more and more enterprises are eager to cooperate with the 3PL companies for supply chain integration.

5.1.3 Upgrading IT System

Through ELECTRA has its own IT system, insufficiencies are still existed no matter in terms of hardware or software.

In terms of hardware, computers equipped within the company are aged after long year use rather than being promptly upgraded, which results in small capacity, slow communications and poor performance in sharing materials circulation information and exchange.

In terms of software, the company has its own management software such as EPR, but still, poor performance and insufficiencies are still existed. For instance, it has no interface for connecting information from outside such as from suppliers, which results in that suppliers and clients have no way to be aware of prompt production status, production plan and materials background of the company.

Information transmission and share are the core phrase in managing materials circulation. Information transmission must be used to coordinate and control every day production operation anytime. It is hard to imagine how we realize a high efficient management over materials circulation without the support from a sound IT

system; and also cooperation with a 3PL corporation is difficult to be achieved, which will waste resources of the company. E-Business and Internet have great impacts on managing the company's materials circulation and supply chains. In brief, ELECTRA has to upgrade the IT system of the company aiming at accelerating its information stream and transmission efficiency, improving its information processing capability and response speed as well as facilitating foundation for its cooperation with a 3PL corporation.

5.2 Strategic Options for Enterprise

5.2.1 Building Core Competency

Want to win competition, ELECTRA must build its core competence as soon as possible based on its strengths. On the one hand, ELECTRA need increase investment on R&D to lead company to the leading position of technology, on the other hand, ELECTRA need reduce its cost as much as possible, using 3PL to improve its logistic and supply chain management.

5.2.2 Integrate Supply Chain

In order to reduce company's cost, improve efficiency and level of logistic management, ELECTRA must integrate company's supply chain management to let production system can control process better from material to products and to customer, reduce total cost and raise satisfy of customers. During this process, as one part of supply chain, supplier, company and customer need coordinate closely, share

information, reaction flexible and building supply chain logistic system, to get optima status of supply chain management:

- (1) Base on demand of market, focusing on customers requirement,.
- (2) ELECTRA need concentrate on core competency building and stay at a right position on supply chain, out sourcing logistic.
- (3) Enhance mutual coordination, burden risk and share benefit together.
- (4) Improve working process continually, update and redesign logistic process, information flow, and cash flow.
- (5) Using information system to improve supply chain management.
- (6) Cut produce time, make it more closer to actual requirement.
- (7) Reduce cost of purchasing, warehouse and delivery.

5.2.3 Using 3PL for Logistic

In order to reduce total cost of product, first and most important, ELECTRA need reduce material and logistic cost as much as possible. Because ELECTRA's scale and capacity is smaller compare with major rival, supplier's bargaining Power is stronger than ELECTRA, transfer logistic cost to supplier is hard, but self-support logistic will occupy more resource of company and, for ELECTRA, logistic is not company's core competence, so out-sourcing logistic is a solution, 3PL is a good choice.

Traditional supply chain management is identical with the material flow in the meaning of logistics, but today it encompasses more extensive meanings, including material information and the management of capital movement from raw material suppliers to final consumers. In the supply chain management, the coordination of three factors, material, information and capital, greatly facilitates the flows and enhances efficiency through increasing customer satisfaction. With the extension of responsibilities, the supply chain management today must control each of it actively,

including the effective and rational regulation of logistics from a supplier's supplier to a customer's customer, in order to meet the changing market demand. Attention to 3PL has become a strategic problem highlighted by many enterprises. As 3PL can provide enterprises with consummate and professional logistics services, enterprises are able to focus their strength onto core operations. ELECTRA can make full use of 3PL to perfect its corporate management and raise its own core competency.

5.3 Experience of 3PL in Competitors

There are two kinds of typical logistic and supply chain management pattern: one is leading by Haier which integrate supply chain and improve logistic efficiency through setting up logistic division. Another one is represented by Media, which is, reduce it logistic cost through 3PL.

5.3.1 HAIER Company

The reprehensive, which integrates supply chain and improves logistic efficiency through setting up logistic division, is Haier. They set up logistic division including warehouse, purchasing and delivery to integrate internal logistic. The implement detail as following:

Condition: All relatively department such as new product development, purchasing, production, logistic, planning, marketing and customer service work normally, management of each department is good and hard to improve by individual. These department related with supply chain can be managed by one division which can wield authorities and take responsibility.

Integrating contents: Expanding process of new product developing; Take into account of requirement by production, sales and customers whose location at down

end of supply chain; Purchasing must take production and product developing requirement into account, and will be evaluated period; Order will be updated automatically and can be used for forecast; Production plan, sales plan, warehouse plan and delivery plan will be integrated; The improvement of material delivery focus on take material to right place at right time at lowest cost; In order to improve accuracy of forecast, sales forecast need consider about customer stock, promotion activity and situation of market.

Integrating result: Division working at high efficiency; lower cost; better customer service; teamwork and coordinating well.

5.3.2 Media Air-conditioning Company

The comprehensive, which integrates supply chain on company level, is Media. The process is to take logistic function out from each divisions and make it socialization, and then integrate them by 3PL. Integrating logistic at company level focus on logistic improvement, get low cost through scale strengths and improve customer service.

Conditions: The requirement of logistic improvement from each part of supply chain is emergency; warehouse and delivery can be implemented by scheme as logistic service, and can help improve customer service directly.

(1) Integrating contents:

Integrate warehouse control from each division; integrate delivery arrangement; Select 3PL through bidding.

(2) Integrating result:

Get lower logistic cost through scale advantage; Improve customer service by reasonable warehouse arrangement; Pay more attention on scheme of logistic, employees training, logistic evaluation standards making out, concentrate on marketing development.

5.3.3 Comparison of logistics improvement schemes

Advantage and disadvantage of Haier model:

Advantage: Offer a new concept for supply chain management integration; Improve division structure, make it working more efficiency and more flexible; integrate from up to down, give forecast, the weakness point of supply chain, biggest support.

Disadvantage: Supply chain integration need to be done at three divisions repeat, design, training, implementation and investment is too big; base is weak, each part of supply chain in division still has opportunity to improve; Whole process need huge quality of management and need very good coordination across different department.

Advantage and disadvantage of Media model:

Advantages: Concentrate on solving logistic problem, instead of jumping to supply chain integration too earlier; using scale advantage reasonable; enhance logistic function; Besides daily transportation, focus on logistic development tendency, improve operating continually, improve information system supporting and offer logistic training.

Disadvantages: the supply chain integration shall be performed in the three business divisions, requiring more design, training, implementation and investment; each link in Business Division's supply chain needs many opportunities for single enhancement and improvement in terms of management, indicating weak basis; the integration of the entire supply chain necessitates higher management implementation level and better cross-department cooperation.

Supply chain integration in Group:

Advantages: Focusing on solving logistics problems rather than jumping to the

integration of the entire supply chain prematurely; reasonable exercise of scale advantages; remarkable enhancement of logistics functions. Apart from routine storage and transport, responsible personnel will pay attention to the logistics development trend, increase operation level on a continuous basis, perfect the information system support, and offer logistics training.

Disadvantages: Business Division may misunderstand that its power is weakened, so time is required to accept this integration in respect of feelings and ideas; the overall integration of the entire supply chain, such as the integration of production, supply and sale, can still be carried out within Business Division; higher requirement for cooperation between Business Division and Logistics Center is needed.

5.4 Experience of the enterprise with similar situation

China has been becoming the world-manufacturing center of electric appliance. Relative to the top international enterprise, logistics is the last and most hopeful link of manufacturer to decrease cost and enhance efficiency. KELON has established the platform of electric appliance logistics and inaugurated the route for the domestic electric appliance manufacturer to turn to the third-party logistics (3PL) with the capital affiliation between electric appliance manufacturer and logistics service provider by holding the shares of professional logistics company.

5.4.1 KELONG Background

Ever since 2002, KELON has consolidated the refrigerator industry of China. It has bought out Jilin JINUER, Far East ARISTON, Hangzhou Serene Refrigerator in

succession and invested in Hangzhou and Zhuhai to establish refrigerator produce base, which then form the refrigerator produce base and air-conditioner produce base in Shunde and Zhuhai. KELON has assembled a produce capacity of 13 million refrigerators in 2 years, which is the 1st in Asia and 2nd in the world. At the same time, KELON has achieved great development in the internationalization process. It has cooperated with some world famous brands such as Whirlpool and Electrolux and its international marketing network has covered over 90 countries and areas in the world in the past 2 years. In 2001, the export of KELON was US\$67 million, while this figure has arrived at US\$500 million till now. KELON brings forward even higher requirement to the scope and depth of logistics management by industry consolidation and domestic & overseas expansion, but the former logistics system can't catch up with the development, therefore optimizing value chain and importing 3PL have been the Strategic Choice of KELON.

5.4.2 Practice of 3PL

Establish Domestic 3PL Platform with Capital

In 2002, KELON invested to establish Guangzhou Attend-logistics Company together with Casco Guangdong Company and Wuxi Little Swan Company, in which KELON controlled the logistics price management of the company, while the logistics business was processed by Attend-logistics Company. At the same time, KELON and Wuxi Little Swan have formed a complementary strategic relationship, which can make full use of 3PL.

3PL Brings 4 Optimizations and 2 Extensions

The first optimization lies in the consolidation of logistics organization and optimization of process. It changes the independent operating system of 4 species of

products composed of refrigerator, air-conditioner, freezer and little electric appliance and subsidiaries, and consolidates all professional logistics departments into one logistics department. The employees have decreased from over 100 to over 50. The simplified operating process imports “5156 information system for logistics business operation” so that the full-flow database can be administrated by transportation plan and storage plan, which realizes the on-the-way storage and effective track. The second optimization is the consolidation of logistics transportation and optimization of system. There was a motorcade in the company, while it was pushed into the market after the innovation. It consolidates the main transportation of 4 species of products composed of refrigerator, air-conditioner, freezer and little electric appliance of KELON by united tender, and makes a binding tender for the converse logistics of strategic partner synchronously, which plans the purchase logistics, produce logistics and distribution logistics as a whole and thus enhance the general efficiency and profit of logistics. The third is the consolidation of logistics storage and optimization of resource. The company has adjusted the former operating semi-diameter in time based on the produce plan and shaped the storage and delivery districts of 4 species of products by warehouse adjustment, warehouse change and keeping the big while dismantling the small, which is convenient for the centralized administration and the united tender together with strategic partner. The forth is the consolidation of entire information resource and optimization of efficiency.

Two extensions: the first is the extension of logistic to second distribution. The competition of electric appliance in big cities is very drastic; therefore KELON should extend the country market of refrigerator and little electric appliance. According to the marketing strategy of complete covering top grade, middle grade and low grade, Attend-logistics Company has attempted to develop the second distribution service to realized the favorable circulation of sales directing distribution

while distribution promoting sales in some key cities. The second is the extension to external logistics. Attend-logistics Company has developed the business with Whirlpool and Electrolux based on the platform of logistics of KELON and Little Swan.

Importance of International 3PL Cooperation

The role of international 3PL is very important in the process that KELON develops into the international top electric appliance manufacturer. On one hand, the company need recur to the worldwide logistic network and advanced service experience of international 3PL; on the other hand, the rapid development of KELON has attracted the attention of international 3PL companies, and many world-class ship-owners have become the important partners of KELON logistics till now.

The strategic cooperation between KELON and international electric appliance companies in design and manufacturing field has extended into logistics. For example, the joint venture of KELON and Maytag, the refrigerator purchase from KELON and sales to the overseas of the company are all finished by 3PL and 4PL, and the operation of the entire supply chain is served by these 2 professional logistic companies completely.

Now, KELON has contacted with some world famous logistic companies such as Maersk Logistics and KLINE and made extensive global logistic cooperation with them, which makes 3PL the important force for the internationalization strategy of KELON. As a manufacturer, KELON is taking full advantage of logistics to make more profit, and logistic companies have also benefited a lot from the process of providing service for manufacturers.

5.4.3 Summarize

Since KELONG is quite similar with ELECTRA no matter from scale or other situation, so this case for ELECTRA is worth to use for reference, ELECTRA can learn some experiences from this case:

- (1) The success of the company relies on the successful overcoming its weakness and exemplifying its strengths;
- (2) Alliance with 3PL is key point of success in this case;
- (3) Information sharing and transporting becomes more and more important for coordination with 3PL.

CHAPTER 6 CONCLUSION

6.1 Conclusion

Sustainable growth has been a topic attracting the attention of companies all over the world. Therefore, all companies are trying hard to strengthen the core competitions and search for the sustainable growth point. This paper shows how ELECTRA starts from the logistics and supply chain management and makes use of 3PL to decrease the cost so as to keep the sustainable growth and enhance the competition of the company.

In this paper, the study and analysis on advantage & disadvantage of company to use 3PL indicates that the company making use of 3PL to control cost and promote its competition has a focus concerned by air-conditioner industry. In a drastic market competition environment, it has been a developing tendency for the company to peel off the other business and focus on the main business.

The analysis of ELECTRA using 3PL and company internal environment indicates that the company must catch hold of the opportunity and adjust its management policy with the change of internal and external environment. The disadvantage of ELECTRA lies in that the small scale and high logistic cost waste the resource of the company greatly and make the company incapable to focus on

promoting its main business to cope with the drastic market competition. The transfer of logistic business to 3PL company will be helpful to solve the current problems, develop the main business and realize the sustainable development of the company.

It is feasible and essential for ELECTRA to transfer its logistic business. To implement this strategy effectively, this paper analyzes the practice and experience of the competitor of ELECTRA in market to use 3PL and brings forward the logistic features and supply chain management mode of ELECTRA's logistic transfer, i.e. enhancing the core competition and decreasing the logistic and administration cost by allying with 3PL company.

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