



# The Challenge of E-Business in China: Exploring Competitive Advantage within the Electrical Appliance Industry

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## ABSTRACT

This paper explores the sources of competitive advantage gained from e-business applications within the context of the Chinese electrical appliance industry. Findings from two case studies are described. The case companies are leading players within this sector. Specific attention has been paid towards using the value chain framework to analyse the main sources of competitive advantage.

## INTRODUCTION

This paper provides empirical evidence, from two ongoing case studies, of how established organisations gain competitive advantage through their e-business applications in the electrical appliance industry. Furthermore, it offers insight into how value chain theory helps to explain this phenomenon within the Chinese economy. E-business is defined as 'the sharing of business information, maintaining of business relationships, and conducting of business transactions by means of telecommunications networks' (Zwass, 1996).

## LITERATURE

One of the key issues in e-business research is how established companies can gain competitive advantage. Despite the interest in e-business applications by traditional firms, few empirical studies have been carried out to look at how 'clicks-and-mortar' approaches offer competitive advantages, especially from a specific industry perspective (Steinfeld et al., 2002; Kauffman & Walden, 2001). Moreover, the Chinese government has identified e-business as a critical technology for closing the economic gap between China and the USA, Japan and European Union. China has 94 million Internet users, the world's second-largest online population. Although the Internet population has grown rapidly, e-business has not been accepted on a large scale due to the relative underdevelopment of the financial infrastructure and a lack of trust among potential customers with respect to electronic transactions (CINIC, 2005). However, progress has been made with respect to:

- 1) Growing acceptance of online payment;
- 2) Consumer acceptance of the Internet and e-commerce;
- 3) More categories of products and services exploiting e-commerce channels.

Consequently, it is critical to investigate how to gain competitive advantage from e-business applications in the context of Mainland China. This paper investigates the key sources of competitive advantages gained from e-business applications made by Chinese electrical appliance companies and whether the value chain theory and its related theories can explain this phenomenon. Research conducted by the authors over the last two years has shown that the value chain framework is useful to identify and categorize possible e-business application areas in Chinese real estate industry. Moreover, this categorization makes identification of key sources of competitive advantage explicit. How-

ever, this framework cannot fully explain the success of e-business applications nor the realization of intended motivations (Tao and Hinton, 2004).

## METHODOLOGY

The key aims of this research are to identify the main e-business applications and sources of competitive advantage, as well as any common patterns. Given the nature of the research this study adopts a qualitative case study approach as an appropriate choice of methodology for developing theory (Eisenhardt, 1989). As part of a set of cases, two companies were chosen in the Chinese electrical appliance industry. The interviews were conducted in two stages: 1) in the period from July to August 2004; 2) in the period from May to June 2005. In these two stages, similar case study protocol has been followed to facilitate both longitudinal and cross-case comparison.

## RESULTS

Alpha Inc is a multinational corporation manufacturing a wide range of household electrical appliances. The Company has a leadership position in the Chinese electrical appliance industry. Its adoption of e-business applications was promoted by its CEO in 2000 following a business process re-engineering program. It has a B2C website which sells its products directly to end consumers. However, 90% of payments are made via cash-on-delivery. It utilizes a range of B2B applications. Through e-procurement it purchases 95% of all raw materials online, creating new value by selling the raw materials purchased online to other manufacturers. In addition, both CRM and ERP applications are used to manage large dealers and high volume customers as well as inventory and production management.

Beta Inc is a subsidiary of China's leading maker of mobile phones and televisions and Beta Inc focuses on the electrical accessories industry. Its use of B2C is limited to the provision of online customer order forms and company promotion. Its B2B applications are used to manage its dealer network, and has trialled the adoption of a dealers' inventory management system. However, this has met resistance from dealers. Beta Inc has also moved into e-procurement. Table 1 summarises the development of the case companies' use of e-business:

The results have identified several common themes. These center on:

- i. Approaches to improving supply chain management: This includes sharing data, integration and collaboration with upstream and downstream companies.
- ii. A pragmatic approach to what is achievable through e-business within the Chinese context.
- iii. The importance of integrating business process through e-business applications. This is coupled with a focus on group perspective rather than from an individual company perspective with the aim of saving resources of the whole enterprise.

Table 1. The key features of the case companies' use of e-business

Company	E-business (EB) strategy	Main EB applications	Benefits of EB adoption	Impacts on OS & culture, industry	Obstructions of EB adoption
<b>Alpha Inc (2004)</b>	1) Adopt B2B & B2C on the whole corporation scale; 2) Use EB to create value; 3) Become an e-shopping mall (Aim 3).	1) B2C; 2) B2B: e-procurement; customer relationship management (CRM) to dealers and key customers; ERP; 3) Internal mngt: HRM, KM.	1) Optimize supplier's network leading to improved collaboration; 2) Better supply chain management and shorten product life cycle; 3) Save cost on raw materials; 4) Increase customer base; 5) Provide timely and accurate information.	1) Redefine organizational structure. 2) Innovation culture contributes to EB adoption. 3) A national role model. 4) B2C has little influence on the industry.	1) The low volume of B2C sales turnover; 2) Conflicts between online and offline channels; 3) Information transparency leads to changes on leaders' power.
<b>Changes In 2005</b>	1) Improve information flow; 2) Improve enterprise IS; 3) Improve the growth rate of online sale; 4) Cancel Aim 3.	1) Cancel the provision of personalized made-on-order in B2C; 2) Build online customer centre.	1) EB causes polarization of companies in the industry through shortening product life cycle, improving company's brand name and customer services.	1) Organizational structure was often readjusted to accommodate the rapid growth of the enterprise.	1) B2C sales turnover improved by methods of charging delivery fee, marketing promotion and setting assessing benchmark.
<b>Beta Inc (2004)</b>	1) Apply enterprise information portal (EIP); 2) Apply IT in the whole corporation; 3) EB strategy integrated into business strategy.	1) B2C website only for marketing function; 2) B2B: channel mngt to dealers; manage dealer's inventory (Application 2); 3) Internal mngt: channel mngt to subsidiaries; HRM; financial mngt.	1) Improve working efficiency; 2) Change employees' concept on IT; 3) Contribute to company's brand name.	1) Established an independent IT department and a commercial department; 2) Competitors feel the pressure of adopting EB.	1) Cooperation from dealers: channel conflicts; 2) The employees' concepts and working habits.
<b>Changes In 2005</b>	1) Standardize IS and integrate systems to fit rapid company growth; 2) Enforce the implementation of the systems; 3) Add new systems such as product development management.	1) Adopted EIP and e-procurement; 2) Realized integration of functional systems through EIP. 3) Improved in B2C; 4) Adjust Application 2.	1) Further improve on efficiency and order handling time; 2) Cost saving on procurement and IS updating; 3) Optimize supplier's network; 4) Realize information integration and real time information sharing.	1) Have minor impacts on organizational structure although organizational structure is subtly adjusted continuously.	1) To maintain the security of EIP; 2) To contribute to implementing of mngt concepts.

- iv. The importance of implementing information systems or e-business from a whole enterprise perspective rather than from an individual subsidiary company perspective with the aim of saving resources of the whole enterprise.
- v. Both companies cite brand as one of their main sources of competitive advantage and see their e-business applications as key contributors to building and maintaining their brand name.
- vi. Both companies lack formal evaluation systems although they have evaluation indices for each small project.

Differences of e-business application exist between these two companies. Beta Inc has adopted enterprise information portal, e-procurement, CRM, and online channel management to manage its value chain. These applications have improved the efficiency of the value chain. Accompanying the adoption of enterprise information portal, the information within different systems has been integrated. Alpha Inc has taken this a stage further by concentrating on e-business applications facing end consumers along its value chain.

Whilst the adoption of e-business applications has influenced organizational structure within both companies, the extent of this varies. In

Alpha Inc, the whole business process and organizational structure have been re-defined, whereas in Beta Inc organizational structure has not been redefined thoroughly. Only some adjustments have been made to establish two new departments. Equally, the two companies are at different stages of e-business strategy. For Beta Inc the main aim of e-business application is to support business operation. Hence, the key is to let its supply chain run smoothly. So, they have no strong interest in B2C. By contrast Alpha Inc aims to support its entire business operation through e-business approaches and explores every opportunity of using e-business to create business value

## CONCLUSIONS

Thus far, the research has begun to investigate the main e-business applications within the Chinese electrical appliance industry and their impact on competitive advantages. In general, the value chain framework is useful to identify and categorize possible e-business applications in the industry. In this industry, e-business adoption is necessary for leading companies to improve operational efficiency. They firmly believe that e-business applications are contributing to their gaining competitive advantage. Furthermore, they realize that the key to understanding the e-business concept is the realization that e-business is only a method to solve problems arising within the company. Hence,

they need to take a pragmatic approach and focus on the fundamentals of the business. Further work is planned to explore the disparity between anticipated and realized competitive advantages derived from e-business adoption.

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