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Virtual Supply Chain Management in Hong Kong and China

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Abstract

Intensifying global competitions and rapid advancement of technology have promoted the needs for companies to work collaboratively with their supply chain partners in the form of a virtual enterprise, giving rise to virtual supply chain. However, given the concept was originated from the West, how to promote the application of virtual supply management concept in Asia has become an important issue to be addressed. As Hong Kong and China are leading logistics centers in the world, it is critical to identify their current situations regarding virtual supply chain management and to identify the best ways to direct companies in this region to embrace the highly collaborative Virtual Enterprise. This paper describes the different forms of enterprise collaborations and presents the result of a preliminary study on the current status of supply chain management in Hong Kong and Mainland China.

1. Introduction

Today's business environment is becoming more competitive than ever before and the global competition occurs increasingly between networks of firms [Thoreli, 1986]. Many visionary companies have been increasingly concerned with managing the business processes and activities within and between companies [Hoffner, Field, Grefen & Ludwig 2001] in order to achieve superior supply chain performance. The advancement in information and communication technology further slashes the coordination costs and enables different organizations to build up partnerships where separate firms specialize, and activities are coordinated by decentralized information systems [Strader, Lin & Shaw, 1998]. The mainstream adoption of technologies has blurred the boundaries between business organizations and it gives rise to the virtual enterprise.

Virtual Enterprise (VE) is a single business entity of globally distributed independent enterprises that participate in the different phases of the life cycle of the product or service, and work to share resources, skills, and costs, supported by Information and Communication Technologies (ICT), in order to enhance its customer value proposition and timely create and exploit complex market opportunities [Bernus and Nemes, 1999][V-Chain Project D2.2.]. The term Virtual Enterprise was originated

from a US Congress Report in 1989 on the competitiveness of the US manufacturing sector in this Century [V-Chain Project D2.2]. Strader et al. (1998) claimed virtual organizations could enjoy the agility and speed of small companies and resources of large company, in addition to better adaptation to globalization and better focus of core competence.

Though many enterprises in US and Europe have taken the lead to transform themselves into an integrative enterprise, the success of creating a single enterprise still relies on the harmonious and synergistic integration of all its capitals [Hawa 2002]. Given Hong Kong and China have dominant positions in regional logistics and manufacturing activities and their management cultures are believed to be substantially different from those in the West, it is essential to investigate the current status of supply chain management and to explore how companies in this region can migrate from existing loosely organization to highly collaborative Virtual Enterprise.

2. Collaboration in a Virtual Supply Chain

Being a virtual enterprise, all participating members in the virtual supply chain environment seek to use technology and management collaboratively in order to enhance business operations in relative to speed, agility, real-time control, and customer response [Manthou, Vlachopoulou, & Folinas 2003].

Collaboration can be viewed as the cornerstone of the success in creating a virtual enterprise and it involves two key elements: information sharing and commitment. Moving from traditional supply chains to a collaborative virtual chain networks requires the seamless flow of information amongst supply chain partners, resulting in high degree of information symmetry. Because information is power, information sharing within the supply chain promotes the shift of the power structure to high degree of interdependence. Besides, all participating organizations in the virtual supply chain environment are required to share the capitals with each other, giving rise to higher state of commitment.

3. Different Forms of Enterprises

Organizations can be categorized into different forms in the migration journey toward virtual enterprise. Higher

forms of enterprise collaboration start from Extended Enterprises (EE). Extended enterprises span organizational boundaries and possess complicated relationships between a company, its partners, customers, suppliers and market [Browne et al., 1994] [Caskey, 1995]. It is a view of an organization that takes into account of partnership and can be depicted as a globalization of exchanges, subcontracting and partnership [Martinez, 2001]. Member in the extended enterprise is required to co-ordinate its internal systems (intra-organizational activities) with other systems in the supply chain and further needs to be flexible and ready for adapting to changes [Martinez, 2001].

Extended Enterprise (EE) is better characterized as one that embodies varying network of a “dominant” company and its supporting companies (or any type of actors). Meanwhile, a virtual enterprise (VE) is a higher form of extended enterprises that has embraced the notion of inter-enterprise flow in order to sustain the agile and dynamic relationships. Both EE and VE are usually defined as virtual organizations, in contrast to those traditional organizations (called “non-EE”).

4. From Extended to Virtual Enterprise

The obvious challenge to many existing extended enterprises is how to make the successful transition from extended (EE) to virtual enterprise (VE) provided that virtual enterprise is an emergent concept with varying characteristics. According to the Report: From Extended Enterprise to Virtual Enterprise Report [V-Chain Project D2.3], migrations from the extended enterprise to virtual

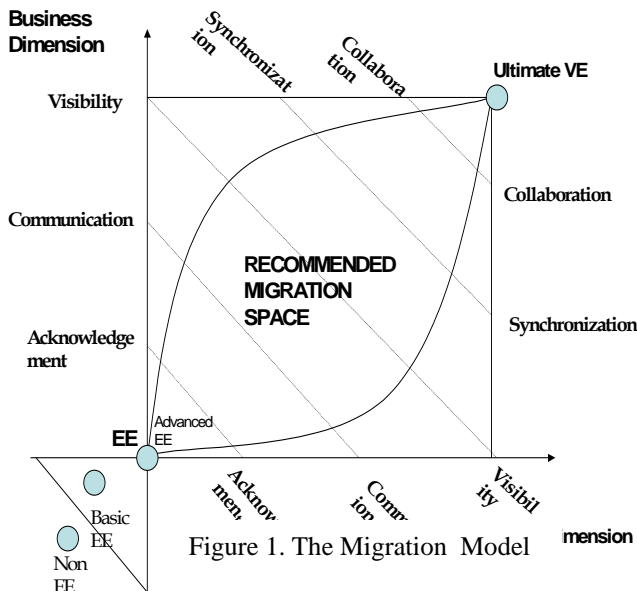


Figure 1. The Migration Model

enterprise will go through five stages: acknowledgement, communication, visibility, synchronization and collaboration. In migrating from EE to VE, companies need to make improve along two dimensions: Information and Communication Technology (ICT) dimension and Business Dimension. These ideas are brought together in

the migration model shown in Fig 1.

Acknowledgment can be considered the fundamental of all transformation. In order for the company to make the migration, the company must believe that VE is the future direction and acknowledge the need for moving towards the VE. This is the first stage of the transformation. This first stage needs the changes in the thinking of management and thus the improvement is mainly along the business dimension. The second stage of the transformation is labeled as **communication**. To reach this stage, the company needs to build the capability to share information and communicate with other trading partners within the supply chain. Therefore, companies mainly need to make improvement along the ICT dimension. Through this stage, companies in the supply chain are transformed from “**the knowledge islands**” to the “**the knowledge highways**”. The third stage of the transformation is called **visibility**, companies need to build trust and decide to share important information with their trading partners. The improvement needed to reach this stage is mainly along the business dimension. Through this stage, companies are transformed from “**the opaque company**” to “**the transparent company**”. The next stage of the transformation is referred to **synchronization**. Through this stage, companies within the supply chain will use the shared information to synchronize different activities through coordination and thus be able to achieve additional cost savings while enhancing service level and improving speed. A good analogy for this transformation is the change from “**the track of a discotheque**” to “**the choreography of a ballet**”. The last stage of the transformation is labelled as **collaboration**. Through this stage of transformation, the relationships between the companies within the supply chain are changed from “**the Win - Lose relationship**” to “**the Win - Win relationship**”. At this stage, companies are collaborating closely to utilize their combined capitals to explore market opportunities and provide better values to the customers. They formulate strategies jointly and share the risks and rewards with the objectives of maximizing the returns for all partners. The combined entity work like a single enterprise and finally the migration to virtual enterprise is completed.

5. Current Status of Supply Chain Management in HK & Mainland China

A field research in manufacturing companies in Pearl River Region (HK and Southern China) was conducted in Spring and Summer, 2003 to investigate the supply chain collaboration and virtual migration in this region. Manufacturing sector is appropriate for this study because based on literature reviews, manufacturing industries are keen to use SCM technology to enhance its business operations. Pearl River Region is a conducive environment where it has over 480,000 factories and 50,000 workers. Most Hong Kong manufacturing firms have moved to Southern China since 1980s. The region

contributes 40% of export values annually to China.

The field research began in Spring 2003. Data were collected through face-to-face interview and a total of 10 Hong Kong companies and 3 Chinese companies were successfully interviewed. Based on the analysis, three categories were identified – they are advanced EE (highly integrated), basic EE (partially integrated) and non-EE (non-integrated). These categories was shown in Fig 2.

Supply Chain Structure – Sharing information & Integrating Process				
	With Customer		With Supplier	
	Information Sharing	Processes Integrated	Information Sharing	Processes integrated
Category 1	<ul style="list-style-type: none"> Supply Plan, Resultant Inventory, 18 - 24 mth sales plan, cross enterprise mater planning, EDI documents, demand forecast. 	<ul style="list-style-type: none"> VMI program, allow assessment on master sales order status inventory, integrated ordering system 	<ul style="list-style-type: none"> Future ordering plan Plan, Forecast, Production Schedule, purchase order information 	<ul style="list-style-type: none"> VMI program, out standing order status on-hand inventory status, invoice settlement, intranet shared with supplier
Category 2	<ul style="list-style-type: none"> Inventory Demand forecast 	<ul style="list-style-type: none"> Receive Purchase order through system, 	<ul style="list-style-type: none"> Demand forecast 	Upload information for material planning
Category 3	<ul style="list-style-type: none"> Shipment information Monthly Outstanding order 	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Demand forecast 	<ul style="list-style-type: none"> Nil

Figure 2. Key Result of the Survey

Our findings showed that most responding companies in category 1 are Multinational Corporations (MNCs). Hong Kong and Chinese owned manufacturers tend to belong to category 2 while companies at category 3 are mainly Chinese-based. Since MNCs have more resources and are more receptive to the ideas of information sharing and coordination due to the influence of their parents, these companies have higher level of information sharing and coordination with their suppliers and customers and they are closer to the VE. Meanwhile, Chinese companies are less receptive to information sharing and coordination and this they have lower degree of information sharing and coordination in the supply chain. Because the central theme of virtual supply chain is collaboration, it is therefore recommended the Hong Kong and Chinese managers to focus on developing trust and building relationships with their partners so that they can share more information with each other. With the shared information, they can also coordinate many activities with each other. These types of information sharing and coordination activities are fundamental requirements for moving towards the VE. Furthermore, companies also need to enhance their information systems so that they can link up with their suppliers and customers. The IT

infrastructure is also an essential for moving to the VE state.

6. Conclusions

The results of our preliminary study has shown that most companies in Hong Kong and Mainland China have not adopted the concept of virtual enterprise management. Migration from the current status to the Virtual Enterprise is a long journey for these companies. Companies need to carefully plan out the steps that they will have to take to migrate to the VE state. Though this subject has drawn enough attention from both academicians and industry players, virtual enterprise should not be considered as cure-for-all. Managers with the vision to embrace the adoption of virtual enterprises may follow the suggested path to migrate from the current state to the VE state. However, some companies may choose not to go through this path and decide to enhance the performance of their supply chain through other means.

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