

Development and Formation of Shipping Networks

Yui Yip LAU, Principal and Senior Programme Manager

Shipping is the physical link connecting seaports between which cargoes are transported. Compared with other modes of transport, sea transport is a low cost transportation option which facilitates the sale of products at reasonable prices. Shipping plays a significant role in international trade and is a core element of economic development throughout the world. Shipping is a service industry which carries about 90% of all international trade in the world. The growth rate of world trade has consistently exceeded that of the world output because (1) an increase in the global integration of national economies (2) an intensification of the international division of labor; and (3) an increase in globalized production patterns. In order to support economic and sea transportation activities, extensive shipping networks need to be developed and formulated. Generally, shipping networks consist of nodes and links. The nodes are related to physical locations in terms of fixed infrastructure, like terminals, rail tracks, ports, and depots where goods are transferred from one transport mode to another. The links are the connection between nodes which are served by road, rail, and water using the fixed infrastructure to move cargoes. Under the concept of nodes and links, shipping networks develop an end-to-end linkage between continents which provide an intermodal door to door delivery service from the point of origin to the point of destination. It comprises both ocean going and inland transportation like truck, rail, and barge during a single journey. In view of shippers' rising expectations for increased service options, shipping networks need to change from a segmented model to an integrated transport concept. Integrated transport needs an efficient transport system which brings the availability of sound fixed infrastructures such as ports and terminals together with inland connections such as highways, canals, rivers, railways, and barges to move cargoes. With efficient organizational management, it can ensure that the fixed infrastructure and vehicles are efficiently used. The comprehensive usage of modern transport-related technologies like Electronic Data Interchange (EDI) and web-based electronic commerce can improve shipping networks operations with efficient and effective information flow at one or more interface points in the nodes or links. INTTRA is a free and neutral e-commerce portal which facilitates the integration of ocean carriers, shippers, cargo agents, and freight forwarders to access service and exchange real time shipment information like sailing schedules and bookings. Shipping networks are a coordinated, flexible, continuous, and seamless connection with the integration of two or more transportation modes so as to facilitate the rapid and efficient movement of goods between several points of origin and destination in the whole transport process. Thus,

it reduces transit times and transport costs creating operational efficiencies and increasing overall customer satisfaction.

The shipping industry is confronted with a combination of internal and external environmental forces which create environmental dynamism in the 21st century shipping industry. The environmental dynamism is related to the rapid change and instability of the environment. The internal environmental forces include increase in the size and number of organizations which leads to modification of the industrial structure; as well as the external environmental forces which include government regulations, accelerated technological change, and changes in customer requirements. However, the external environmental elements are uncontrollable and are difficult to predict and adapt. Under this challenging environment, the firms which adopt the shipping networks strategies involving agility can gain a competitive edge over their competitors. The concept of “agility” consists of two main factors: (1) responding to anticipated or unexpected changes with the right product at the right time; (2) taking advantage of change as opportunities to develop new business. Agility is defined as “using market knowledge and a virtual corporation to exploit profitable opportunities in a volatile market place”. Based on that, network players develop integrated shipping networks either in collaboration with other firms or through organic growth or mergers and acquisitions. They can enlarge their resources and capabilities in terms of responsiveness, competency, flexibility, and quickness in order to gain a competitive advantage in the macro environment. It has the significant effect of enhancing firm performance like profitability, sales growth, and customer service so as to maintain competitiveness.

There have been few studies to review and discuss the development and operation of shipping networks. This study investigates the various factors that affect the development of shipping networks. We illustrate the concept of agility to fill the research gap by identifying the key ingredients that are critical to facilitate the development and formation of shipping networks. The concept of agility has gained considerable attention and widespread support from associated institutions and academicians. There have been numerous studies which have established the concept of agility in the supply chain management, but there is relatively limited research to devote the concept of agility on the formation and development of shipping networks. Following this concept, the firms can offer customers greater value and the competitive advantage of the shipping industry.

Shipping networks involve managing operations and the relationships. Shipping firms either collaborate or merge and acquire other firms to rationalize their resources

and offer differentiated services with door to door transportation. Shipping firms can attain a cost and service advantage in the final outcome.

We examine Hong Kong as our study to illustrate the development and formation of shipping networks. Hong Kong is located at the heart of South Asia where it serves as the major entrepot in the Pearl River Delta. Hong Kong has a sheltered natural harbor which provides good access and a safe haven for vessels calling at the port. Hong Kong's name means 'Fragrant Harbor' and it acts as an international centre for trade and finance as well as a global maritime centre for China and the rest of Asia. In 2006, Hong Kong has ranked the world's second busiest container port which handled 23.54 million TEU. Similar to other industries, the Hong Kong shipping industry encounters new challenges in the 21st century. This study prompts the Hong Kong shipping industry to increase its knowledge and explore the possibility of improvement through the development of shipping networks.