Richard Ivey School of Business
The University of Western Ontario

IVEY

9B08E005

CONTAINER TRANSPORTATION COMPANY

BAI Xiaodong, Richard C.H. Lee and Michael Zhang wrote this case under the supervision of Professor Peter Bell solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

 Version: (A) 2009-11-10

In July 2007, Thomas Young, regional manager of the Container Transportation Company (CTC), and his colleagues were looking for a new strategy to allocate containers for transportation from Korea and China to the Middle East. Challenged by top management, which had urged all business departments to optimize their revenues and profit, Young wondered whether he could improve pricing or apply other revenue management (RM) techniques to enhance revenues.

CONTAINER TRANSPORTATION COMPANY

The Container Transportation Company (CTC), based in Taiwan and founded in the early 1980s, had grown to become one of the world's largest multi-modal marine transportation companies, commanding more than 100 ships, as of January 2007. The fleet included full container carriers, liquefied natural gas (LNG) carriers, oil tankers and bulk carriers, among others. CTC employed approximately 5,000 personnel: 1,000 domestically, 2,000 shipboard and the others overseas. The company had four headquarters, 20 overseas subsidiaries and approximately 100 offices and branches all over the world.

CTC overcame the hard times that had struck the shipping industry as a whole from the early to mid-1990s, by diversifying its businesses, investing in new ships and rationalizing its management processes. Most recently, the company had been proactive in meeting customer demands and was dedicated to ensuring customer satisfaction. The customer-oriented management team was committed to high ethical standards and was constantly pursuing innovation and service expansion for customer benefit. CTC embraced the vision of becoming one of the most competent shipping and logistics companies in the world by the year 2020.

CONTAINER TRANSPORTATION

Container transportation was initiated by the American shipping giant Sealand in the early 1950s, when it found that conventional bulk transportation no longer sufficed for the post-World War II increased trade

volume. Sealand invented the container: a steel box available in standard lengths of 20 feet or 40 feet, and in standard heights and widths of approximately 8 feet. The container could be stowed on board vessels and on trucks for land transportation, thereby making it highly efficient. Furthermore, the use of containers significantly reduced damage to cargo. When calculating the container vessel capacity, space was measured in terms of the 20-foot equivalency unit (TEU). A container 20 feet in length had a capacity of 1 TEU, and a container 40 feet in length would occupy the space of 2 TEU.

Container transportation was the core business of global shipping companies, and CTC was no exception. CTC shipped on trans-Pacific routes, to Europe and the Mediterranean, and around Asia. A major growth area for CTC was the container trade from Korea and China to the Middle East.

KOREA/CHINA-MIDDLE EAST SHIPMENTS

In the 1990s, CTC started shipping containers from Korea and China to the Middle East to take advantage of the booming trade between these countries. Dubai, in particular, was playing a very important role as the transshipment hub port for the region. CTC had gained a strong reputation for having the fastest transit time from Asia to the Middle East. Consequently, for many years, several big companies, such as Sony, Nike, Epson and LG, had used CTC for their shipping needs. Shipping on these routes was now the most profitable part of CTC's business.

CTC had dedicated a fleet of five container vessels to the Korea/China-Middle Eastern routes, each with a maximum container capacity of 2,000 TEU and a weight limit of 24,000 tons. When westbound, vessels called on ports in Asian countries where cargo was loaded, and the loaded vessels then sailed to Dubai. After unloading at the Dubai container hub, the containers were shipped to their final destinations by local carriers.

The peak season for CTC began in April and ended in the fall, when the Islamic holiday of Ramadan slowed trade. Ramadan was the most important festival in Islamic countries and lasted for one month, during which people slowed down. The slack season was observed from Ramadan through March and was characterized by huge drops in demand.

The main goods shipped from Asia to the Middle East were electronics, furniture, toys, tiles and clothing. Given that the maximum load weight was 24 tons for a 20-foot container and 30 tons for a 40-foot container, 40-foot containers were used for less dense cargo, such as toys and furniture. Exhibit 1 shows typical container cargo weights and volumes for each origin for a given vessel sailing.

Most container shipments were not particularly time-sensitive and could be delayed until the next vessel sailed without great consequences. However, a small amount of premium traffic was always accommodated on the first available vessel. Sometimes this premium freight arrived unexpectedly at the last minute; consequently, during the peak season, CTC planned to load its vessels (excluding premium freight) to a maximum of 95 per cent of weight or TEU capacity (22,800 tons or 1,900 TEU). During the slack season the planned load factor fell to 90 per cent (21,600 tons or 1,800 TEU.)

The average weight of a 40-foot container was much less than the average weight of two 20-foot containers and 40-foot containers were faster to load and unload, consequently 40-foot containers were preferable to 20-foot containers. However, heavier goods often had to be put in 20-foot containers to meet weight limits. In the past, CTC had insisted that the ratio of 40-foot containers to 20-foot containers should be between 1.2 and 2.0.

DEVELOPING A VARIABLE PRICING STRATEGY

CTC's traditional pricing system was coordinated by the marketing department at the Taiwan head office, which set all container rates. The pricing formula was based on the market shipping rate, the importance of the customers, the weight of cargo and the volume of the port. The prices charged for shipping from each Asian port to Dubai are shown in Exhibit 1. These market-based prices, however did not take into account the "loadability" of the container. For example, a vessel that was loaded to near its weight limit but still had TEU capacity could ship low-weight 40-foot containers much more profitability than higher weight 20-foot containers. The marketing department had not yet found a good solution for adjusting prices to maximize revenue.

Young was aware that he needed to investigate the possibility of improving revenues since costs were essentially sunk. As a regional manager, Young felt pressure from Jun Kim, CTC's president, to optimize revenue and profit. According to Kim:

> We need to prepare for the inevitable cyclical downturn in order to continue our stable growth without being blown off course. To keep in step with this, CTC will make every effort to develop its technology with a view to further improve service quality, competitiveness and profitability.

The company had two options: the first was to relate container shipping rates more closely to "loadability" and profitability; the second was to introduce techniques from revenue management, including variable pricing and possibly dynamic pricing.

Young had substantial experience in international shipping and he recognized that, although freight was largely commoditized on many popular routes, CTC faced limited competition on the Korea/China to Dubai routes and had earned a strong reputation with shippers on these routes. This led Young to believe that CTC had some control of price. He estimated that during the high season, a price reduction of 3 per cent would result in a 5 per cent increase in the volume of containers, and during the low season, a price reduction of 5 per cent would increase container traffic by 10 per cent. Young realized these estimates were highly speculative but thought they might serve as a starting point to investigate CTC's pricing strategy.

Young's final concern was customer service. It was imperative that any changes in pricing or operations did not have a negative impact on CTC's customer base.

Incorporating RM tools would require some effort: what revenue gains could CTC expect? Could current levels of customer service be maintained? If CTC's marketing department was to be persuaded to apply RM concepts to the Korea/China to Dubai routes, Young would need to show that significant revenues could be gained while maintaining a high level of customer service.

Exhibit 1

ESTIMATED CONTAINER VOLUMES AND WEIGHTS

Port of Origin	Price	High Season	Low Season	Sizes	Weight of 20-foot Container	Weight of 40-foot Container
	($/TEU)	Demand (TEU)	Demand (TEU)	Ratio 20':40'	(in tons)	(in tons)
Japan	$940	320	286	30:70	20	24
China	$878	68	61	40:60	18	23
Hong Kong	$766	737	660	42:58	19	22
Indonesia	$840	68	61	40:60	21	25
India	$790	340	304	40:60	22	22
Korea	$710	35	31	46:54	21	25
Malaysia	$643	138	123	54:46	20	22
Singapore	$649	43	38	39:61	19	25
Taiwan	$702	41	37	41:59	19	19
Thailand	$663	9	8	20:80	23	26