

EVALUATING CUSTOMER VALUE FOR LINER SHIPPING COMPANIES IN TAIWAN: AN EMPIRICAL STUDY

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ABSTRACT. *The main purpose of this paper is to develop a fuzzy MCDM model to evaluate customer value for three Taiwanese container shipping companies based on the freight forwarders' perspective. The main contribution of this paper is to develop a practical model for business application. At first, the employment of Zadeh's fuzzy set theory and linguistic values, and Chen and Hsieh's graded mean integration representation method are applied to develop a fuzzy MCDM algorithm. For matching this evaluation process, a hierarchical structure is constructed with four criteria, twenty-three sub-criteria and three alternatives. Then, the linguistic values using Likert's 5-point scales are employed to obtain the importance of all criteria and sub-criteria, as well as to appraise the superiorities of alternatives versus all sub-criteria. Subsequently, using the graded mean integration representation method, the highest customer value for the alternatives can be evaluated by this proposed fuzzy MCDM model. Furthermore, an empirical survey about three famous container shipping companies in Taiwanese shipping market is performed to appraise the systematic approach, i.e. the fuzzy MCDM model. The results of this study show that: (1) quality is the highest attribute for customer value from the freight forwarders' perspective in Taiwan, and the time is the lowest one; (2) the top three key sub-criteria are customer satisfaction, safety and accuracy in shipments, and freight and price; (3) the company A is determined as the highest customer value company based on the results of the proposed fuzzy MCDM algorithm.*

Keywords: Customer value, Liner shipping, Fuzzy MCDM

1. Introduction. The liner shipping of ocean transport industry plays an important role in global logistics service. Liner companies (the liners), the most key market players in the maritime network, encounter with enormously increasing risks and uncertainties. The appearance of great competition and many changes are evident not only among port chains but also maritime chains focused on landside and seaside competitions [2,3,9]. These competitions are interrelated with the other market players in the maritime network. The liners intensely emphasize upon providing integrated logistics service to meet customers' requirements. Also, some incentives and strategies oriented ocean carriers are making great efforts to become global players in order to meet the various customer needs. Hence, the liners should consider how to create significantly added value for their customers.

Three liner companies in Taiwan, i.e. Evergreen Line, Yang Ming Line, Wan Hai Line, are ranked in the top twenty liners in the world in 2007. These liners have been playing up their own brand names to strive for an effort to get customer satisfaction and customer value in the shipping market, while the shippers have been considering the brand name as an important criterion to consign for shipment [12]. Experience showed that it would be beneficial to keep competitive advantage of promoting high customer value for liners. On the other hand, selecting those with high customer value would advance the shipments