

**EDITORIAL****Service Management and Application in Operations Research:  
Challenges in a Flat and Bumpy World****Cheng-Chi Chung<sup>1</sup>, Yi-Shih Chung<sup>2</sup>, and Su-Man Wang<sup>3</sup>  
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The need for service management studies is acute. Now, more than ever, the key factors to service management and their effect on customer satisfaction face rapid and profound changes. Some of these result from the everlasting trend of globalization and others from the volatile global economy and nature. These features challenge today's service industry.

In this special issue, we are pleased that numerous papers were submitted from various disciplines. Some of them tackle practical problems and provide insights to operators for better service strategies, and others pay particular attention on solving theoretical issues in modeling the real-world service industry operation. This special issue contains three papers on the topics related to supply chain management, which is crucial to countries that heavily rely on export such as Taiwan. We also have one interesting paper that focuses on how to select advertising agencies from the perspective of advertisers, and another that scrutinizes how to enhance customer satisfaction under service recovery condition. Our last paper provides a novel idea to relax the assumption of criteria independence affected by the subjective evaluation of decision makers.

Schedule instability has been a serious issue amongst many companies today [1]. While delivering goods on time has been one of the requirements across all the operations in global logistics supply chain management [2], it may be shocking that approximately 60-70 percent of global container shipping lines have an on-time rate of only 50 or even below 50 percent. Seeing its importance, Chung and Chiang evaluated the factors that influence the schedule reliability of container shipping lines. By utilizing the technique of fuzzy analytical hierarchy process (FAHP), the authors found that process management, particularly the time window arrangement, is the most crucial factor recognized by their selected experts. This result reflects the difficulty of estimating voyage time under current technology.

Hu and Huang focuses on another important element in global supply chain, air cargo terminal (ACT). Aiming at examining the factors that affect loyalty of ACT customers, the authors proposed a novel relationship model that incorporates service quality [3], innovation, and corporate image as the antecedents of customer satisfaction which, in turn, determines the customer loyalty. By employing structural equation modeling, the results indicated that service quality is the prime cause of customer satisfaction among others. Although slighter, the effect of innovation and corporate image on customer satisfaction is still significant and noteworthy.

Game theory has been used in analyzing many supply chain issues today [4]. Other than focusing on a single element, Chen, Kuo and Liour pay particular attention on the strategic alliance in supply chain management. Focusing on the non-cooperative advertising problems between manufacturers and retailers, the authors formulated the problem under a simultaneous Nash game framework. They also proposed a method to identify the equilibrium primarily based on the technique of particle swarm optimization. The paper mainly contributes the theoretical aspect of long-term strategic alliance on supply chain management.

In recent years, the analytic network process (ANP), which evolved from analytic hierarchy process (AHP), has been in popular use in multi-criteria decision making [5]. Hsu and Kuo proposed a different approach in selecting advertising agencies. By integrating the nominal group technique and the analytic network process (ANP) method, the authors provide a thoroughly objective framework that includes criteria identification, weight determination, and strategy selection. An empirical study of Taiwanese Food Company is also presented.

Service recovery has been a central issue for service industries today [6]. In the study by Hsieh and Lee, the authors discussed how technology can improve service recovery and thus enhance customer satisfaction. Through extensive review, the authors provided a thorough discussion on how and when technology can reduce the frequency of customer complaint, and also ease the service hostility from the frontline employee, thus improving customer satisfaction.

Analytical hierarchy process (AHP) has been one of the mostly widely adopted techniques in decision making since its introduction by Prof. Saaty in 1971. While various approaches have been proposed to improve this technique, Lin, Shiu and Tzeng focused on how to appropriately assess the subjective evaluation of decision makers on criteria. The authors combined fuzzy factor analysis and fuzzy integral to reduce the burden of decision makers on facing complex decision environment. The authors applied the proposed method to evaluate hybrid energy vehicles trial in Taiwan. The results showed the feasibility of the presented method.

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