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Facilities and Service Models for Electric Scooter Recharge Stations

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ABSTRACT: *Increasing the prevalence of electric scooters (e-scooters) is difficult because recharge stations are inconvenient and charging is time consuming; therefore, establishing convenient and user-friendly e-scooter recharge stations is essential. Between 2009 and 2012, the Taiwanese Ministry of Economic Affairs (MOEA) offered subsidies to individual users who bought e-scooters equipped with portable lithium-ion cells and to the manufacturers who established qualified charging devices. Consequently, sound planning for managerial models is imperative. This study explores innovative service models of e-scooter recharge stations, and proposes new prospects as well. An expert interview questionnaire was designed based on a literature review and interview analyses. Expert questionnaires are collected and analyzed, consisting of three dimensions: (a) facilities and service models, (b) establishment and promotion of e-scooter recharge stations, and (c) innovative e-scooter recharge stations e-service models. According to the professors' and professional managers' academic and practical opinions, we identify the model of establishing recharge stations at convenience stores and large supermarkets and department stores as the most feasible options. Moreover, most experts identified that cell-exchange stations also help in developing the e-scooter industry as well. Regarding innovative service models, the automatic model is the future trend.*

KEYWORDS: *E-scooter Recharge Station, E-service Model, Expert Questionnaire.*

1. Motivation

The air quality in Taiwan is low. The considerable number of motorcycles, which is the result of urban overpopulation, causes severe air pollution. Therefore, promoting eco-friendly e-scooters is crucial. According to the statistics compiled by the Ministry of Transportation and Communications, motorcycles, which are prevalent, totaling 14 million in 2008, produce not only a considerable amount of noise and pollution but also cause severe damage to people's quality of life in cities. Consequently, reducing air pollution by promoting e-scooters is vital. However, riders who are accustomed to riding motorcycles are reluctant to buy e-scooters, despite the promotion of e-scooters in the past few years, because buying and maintaining e-scooters is inconvenient and cell charging is time consuming. In addition, e-scooters have low durability, and potential e-scooter buyers