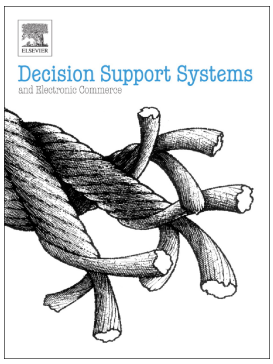

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PII: S0167-9236(17)30238-5
DOI: https://doi.org/10.1016/j.dss.2017.12.009
Reference: DECSUP 12910

To appear in: *Decision Support Systems*

Received date: 26 January 2017
Revised date: 14 September 2017
Accepted date: 21 December 2017

Please cite this article as: Shen-Tsu Wang , Integrating KPSO and C5.0 to analyze the omnichannel solutions for optimizing telecommunication retail. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Decsup(2017), https://doi.org/10.1016/j.dss.2017.12.009

Integrating KPSO and C5.0 to Analyze the Omnichannel Solutions for Optimizing Telecommunication Retail

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ABSTRACT

Telecommunication system providers offer many special number commodities, and all marketing staff sell the commodities and special number combinations according to their marketing experience; consequently, telecommunication retailers find it difficult to consider both user demands and profits in their marketing strategies. This study proposes a classification model integrating K-means Particle Swarm Optimization (KPSO) and C5.0. The particles' PSO only followed *pbest* and *gbest* when moving, resulting in the disadvantage that PSO may easily fall into a local optimal solution. First, clustering analysis is carried out using the KPSO clustering method. Second, classification rules for clustering results are formulated by the C5.0 classification method, and a classification model is established in order to achieve effective descriptions of the clustering rules. The methods proposed herein can help retailers find and utilize complementary tariff products for mobile numbers as the basis for future sales and procurement. This study also analyzes the best media for customers' mobile phone purchase methods and utilizes different groups of buyers of the omnichannel. The proposed model is also able to categorize new future tariffs and can further conceptualize the clustering results in the analysis of telecom tariffs and product mix. Finally, the results effectively assist the telecommunications retail industry when considering