

The Novel Implementation of the Hidden Markov Model into Forecasting Brand Loyalty in Automobile Industry

S. Varol and A. Marquez

Department of Industrial Engineering
Lamar University, Texas, USA

Corresponding author's Email: serkanvarol23@gmail.com

Abstract: With rising acquisition cost and enhanced competition, brand loyalty in automobile industry has become one of the priorities on the minds of organizations across the world, as it costs 7-8 times higher to recruit a customer rather than to it does to retain one. The conventional definition of brand loyalty is usually expressed as simple as a repeat purchase behavior and statistically measured based on such activity. The approach is acknowledged to be conventional and useful to the limited extent, but lacks multidimensional array fundamentals because brand loyalty is hard to measure and there is no such an impeccable method to come to a certain conclusion unless parameters are clearly identified. This research introduces Brand Loyalty as a multi-dimensional construct, namely “FEH”, and the tendency of consumer to buy products from the same manufacturer despite of alternatives in a random sequence, and the level of loyalty is contrasted and evaluated based on the defined purchase sequences. The whole process is formulated and calculated by the Hidden Markov Model in which dummy variables are used to test the stability of the proposed model. The results of the study are presented, and recommendations are provided to help organizations to achieve the best practice in terms of the forecasting potential sales and overall market behavior.

Keywords: Automobile, Brand Loyalty, Customer Retention, Hidden Markov Model, Attitudinal Loyalty, Behavioral Loyalty