Application of IPA and Back-Propagation Neural Network to Build a New Service Quality Decision Making Model

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Abstract

This study develops a two-phase Importance-Performance Strategy Matrix (IPSM) to identify critical service quality attributes for improving overall customer satisfaction. This IPSM also functions simply as a decision-making and graphical tool, like traditional Importance-Performance Analysis (IPA). However, IPSM is more suitable for practical management than traditional IPA because it integrates the conceptions of Kano's model, the gap model, and the IPA model. IPSM calculates both attribute importance and performance using a valuable service quality function constructed by the Back Propagation Neural Network (BPNN) method to reflect the two-dimensional conception between attribute performance and overall satisfaction. To verify the validity and implementation of this modified model, this research presents a Taiwanese HR service agency case and acquires the applicable strategy for each service attribute.

Keyword：Service quality, Importance-Performance Analysis, Back-propagation neural network, valuable performance function