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A comparative analysis of operational performance of Cellular Mobile Telephone Service Providers in the Delhi working area using an approach of fuzzy ELECTRE

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Highlights

- This paper is focused on operational performance evaluation and ranking of cellular mobile telephone service providers..
- Many operational parameters affecting the customer service quality are incorporated in performance evaluation.
- The Fuzzy Extended ELECTRE approach has been applied.
- The uniqueness of this method is outranking of poor performers.
- It will help managers to improve the services of telephone service providers.

Abstract

The purpose of this research paper is to develop a framework to analyze the operational performance of cellular mobile telephone service providers (CMTSP) in the Delhi working area, India. Delhi area has the highest teledensity in India. The present study uses a fuzzy ELECTRE (Elimination and Choice Expressing Reality) approach to compare the performance of cellular mobile telephone service providers. The data for the analysis have been taken from the Telecom Regulatory Authority of India (TRAI), April–June 2015. Most of the data vary from one month to another. Therefore, these small ranges of variation in the data are incorporated in this study using the fuzzy number. Total six major telecom service providers are considered in this analysis. The findings of the study suggest that the performances of Airtel and Reliance communications are in the first rank; Vodafone and Idea are in the second rank; Aircel is in the third rank, and Mahanagar Telephone Nigam Limited (MTNL) is outranked by all the other service providers. The performance is analyzed on the basis of three major parameters consisting six criteria, i.e. network availability (Base Transceiver Station accumulated downtime), connection accessibility (call setup success rate, channel congestion, and traffic channel

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