

APPLICATIONS OF THE ANALYTIC HIERARCHY PROCESS METHOD IN FORECASTING: A REVIEW OF THE LITERATURE

ABSTRACT

The Analytic Hierarchy Process – AHP – is a support method to multicriteria decision created by Thomas Saaty in 1980. Since then, it has been used worldwide for complex decisions in several areas of knowledge, since it allows incorporating qualitative and quantitative criteria. Demand forecasting is the process of anticipating future levels of demand for a company's products and/or services, and it is a challenge to forecast them accurately, due to the variety of information involved. Given the scenario of uncertainty inherent to the forecasting process, some studies adopt the AHP for such a situation. The objective of this research was to identify, describe and analyze scientific articles that used the AHP for forecasting. For this, a research was carried out on the Web of Science and Scopus databases and seventeen articles were found. It was found that 82.35% of the forecasting studies applied the AHP to support decision making in: pondering and prioritizing information, classifying products, and selecting best mathematical forecasting model. The applications of AHP in demand forecasting were: shipping costs, development of new products, hospitality, water consumption, environmental pollution indexes, electricity consumption, urban traffic, development of the underground space of railway stations and for the management of spare parts. On the other hand, 17.65% of the studies effectively used the AHP to calculate/adjust the demand forecast in which the application in hospitality and electricity consumption stands out. It was found that from 1987 to 2019 only one article per year was found related to forecasting with AHP, so it is noted that there is still a gap to explore AHP as an appropriate tool to support forecasting in many other areas, such as fashion products of the textile industry.

Keywords: demand forecasting, analytic hierarchy process.