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

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INTRODUCTION

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.

OBJETIVE

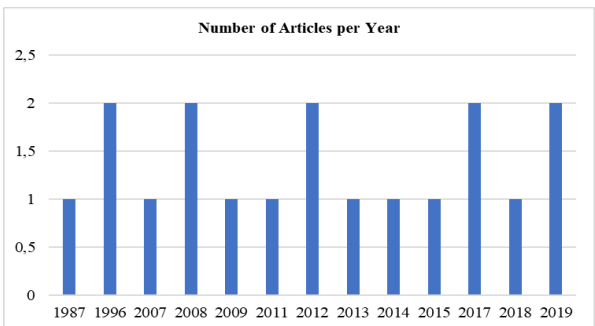
The objective of this research was to identify, describe and analyze scientific articles that used the AHP for forecasting.

METHODOLOGY

This is a bibliographic review to explore the applications of the AHP method in forecasting. The bibliographic search was carried out in December 2019, in the *Web of Science* and *Scopus* databases. The search was conducted with the following keywords: *demand forecasting* and *Analytic Hierarchy Process*. This paper used the technique of theoretical-conceptual research, which, according to Berto and Nakano (2014), is based on published literature and bibliographic review without the presence of field data. Twenty articles were found without limiting the period, but three articles were disregarded, two articles because they were unavailable for reading, and one article because the focus of the research was capacity management, rather than demand forecasting.

RESULTS

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.



CONCLUSIONS

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.

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