

# Chapter 11

## Entropy-Based VIKOR Method and a Case Study: An Evaluation of Websites' Technical and Popularity Performances

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### ABSTRACT

*Due to the rapid advances in Internet technology, the number of websites and the amount of information obtained from websites are increasing day by day. Internet users want to access the website and the information they need more easily and quickly. This is also the case getting news so effectiveness of newspapers' websites in terms of content and the speed at which pages are opened is also an important indicator for users. The purpose of this chapter is to investigate the technical and popularity performance of the newspapers' websites in Turkey. The study will show the applicability of an objective weight-determining method, Entropy technique, for finding the weights of criteria and VIKOR for evaluating websites' technical and popularity performance. As a result of the evaluation, the best websites were determined in terms of technique and popularity, and ranked in terms of overall performance.*

### INTRODUCTION

With the rapid increase in internet usage, the use of websites in activities of the obtainment of information has become inevitable. With the improvement of World Wide Web (www) in the recent decade, the websites have played a central role not only in business communities but also in our daily lives. Web users look for more comfortable browsing experiences that require the www environment to be both effective and efficient. With effective browsing, the users can easily search the most interesting websites and reach the target website with just a few clicks in seconds (Yin & Guo, 2013). For this reason, the importance of the use of the websites of newspapers and their speed and performance is increasing day by day. Websites need to be constantly renewed and updated according to the wishes and needs of their users.

DOI: 10.4018/978-1-7998-2216-5.ch011

Many features such as the speed, content, design of newspaper websites, and the fact that the published news is interesting and reflects the truth increase the number of visitors. Therefore, the performance evaluation of websites from the technical and popularity point of view becomes a necessary issue.

There are numerous websites and web documents on the Internet prepared for various purposes such as commercial, corporate, official or personal purposes. Evaluating websites according to certain criteria, is especially important for web sites that serve corporate and social purposes. When looking at the publishing purposes of websites, they can be classified as follows: Information sharing, education, and training, commerce and advertising, entertainment, communication, news publishing, etc. The content and designs of the websites differ according to these basic publishing purposes, and the point of view of the internet users varies according to the content. Reading news online is among the most preferred types of Internet usage (Gürçan, 2003).

The websites of newspapers have developed rapidly on the internet and are continuously developing, and that communicate instant and daily developments to Internet users straightaway. Due to the news constantly changing and the contents getting old very quickly, the internet users look for websites where they can quickly follow instantaneous developments (Gürçan, 2003).

The measurement of website performance, which can be evaluated in various aspects, can be referred to as a multi-criteria decision making (MCDM) problem. When analyzing the content, design and technical competence of newspaper websites, using concrete criteria in the evaluation will increase the objectivity of the analysis. In this study, website performances are evaluated by using criteria that are objective and can be expressed in numbers. And the importance weights of these criteria are calculated with Entropy, an objective weighting method. Therefore, the subjective judgments of decision-makers or users are not included. It is more appropriate to use fuzzy numbers and fuzzy MCDM methods in studies where subjective judgments of decision-makers will be used.

The aim of the study is to investigate the technical and popularity performance of the newspapers' websites in Turkey by an integrated Entropy-based VIKOR method with its step by step analysis. In the first section, a general introduction to the subject is presented, and information about the course of the study is given. The second section includes a literature review of studies evaluating website performance using MCDM methods and those using Entropy-based VIKOR method. In the third section, the methodology to be used in the analysis is explained. In this section, the algorithms of Entropy and VIKOR methods and the equations to be used in the calculations are given. In the fourth section of the study, technical and popularity performances and total performance of newspaper websites are evaluated using the Entropy-based VIKOR method, and related calculations are included. And in the results section, results and comments regarding the technical and popularity performances and the total performance rankings are given.

## **BACKGROUND**

When the literature on website performance measurement is reviewed, it is seen that the majority of the studies are composed of availability evaluation and content analysis. In terms of the implementation of multi-criteria decision making (MCDM) methods, it can be said that most of the studies focus on issues such as testing consumer perceptions, e-commerce, evaluating shopping sites in terms of consumer satisfaction, or measuring the effects of websites on consumers' buying behaviors. Most of the studies using MCDM methods have been carried out using data obtained from the preferences of the decision-

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