

Chapter 15

Data Mining–Based Evaluating the Customer Satisfaction for the Mobile Applications: An Analysis on Turkish Banking Sector by Using IT2 Fuzzy DEMATEL

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ABSTRACT

The aim of this study is to evaluate the customer satisfaction for mobile applications in the Turkish banking industry. For this purpose, the last 500 customer comments of 24 different Turkish deposit banks' mobile applications are analyzed with data mining approach. In this process, the most frequent one keyword, two keywords and three keywords are identified, and the most important dimensions are classified into four different categories. Secondly, IT2 fuzzy DEMATEL methodology is considered to weight these dimensions. The findings show that operational and usability are the most important dimensions regarding the customer satisfaction in mobile applications. This situation explains that customers give importance to the quality and variability of the services given by the mobile applications. Hence, it is recommended that different services, such as credit card payment and money transferring should be provided in these applications by the banks. Another important point is that these applications should

DOI: 10.4018/978-1-7998-0035-4.ch015

be designed effectively so that the customer can easily make their operations.

INTRODUCTION

Customer satisfaction is a significant concept for all industries. The main reason is that if companies can satisfy their customers, they can be preferred more. This situation has a positive influence on the competitive power of these companies. The concept of customer satisfaction also plays a very crucial role for banking industry because of the high competition. Therefore, banks try to generate new products to attract the attention of the customers to survive in such a difficult environment (Gera et al., 2017; Iglesias et al., 2019).

Generating mobile applications is one example for these strategies. With these applications, banks provide chances to their customers to make some banking operations very easily (Brunette, 2017). For instance, customers can transfer their money to the others by using mobile applications. In addition to this issue, it is also possible to pay the bills through the mobile applications. In summary, these mobile applications can increase customer satisfaction since they can make their operations without going to the branches (Tunay et al., 2019).

On the other side, customers can have some problems while using mobile applications. For example, there may be problems related to the connection to these applications. Additionally, it takes too much time to make operations in the applications. Moreover, the design of these applications may not be user friendly. In other words, customers may not find the necessary menus in the applications easily. Hence, if these problems cannot be solved, they negative affect customer satisfaction (Francis et al., 2018).

Therefore, customer satisfaction regarding mobile application usage should be measured periodically by the banks. This condition provides an opportunity to stop the problem at an early stage. There are some different methods to evaluate the customer satisfaction. As an example, a survey can be conducted with some users of these applications. However, it has some difficulties, such as reaching high number of customers or obtaining the evaluations accurately. It is obvious that applied method for this condition should be selected appropriately (Dinçer et al., 2018; Koçak et al., 2018).

The important point in mobile application is that customers can share their comments about these applications. That is to say, the customers can write their positive or negative opinions to the system. It means that there is high number of information about customer satisfaction for mobile applications (Shilton & Greene, 2017). However, it is very difficult to evaluate this big data. If all comments are examined in a detailed manner, it will not be an efficient way because it takes too much time. For this purpose, data mining approach provides many opportunities to evaluate this big data because it analyzes most frequent keywords in this data (Storey & Song, 2017).

The aim of this study is to evaluate the customer satisfaction for the mobile applications. For this purpose, an analysis is performed for Turkish banking sector by using data mining and interval type-2 DEMATEL approaches. In the first process of the analysis, data mining method is used to evaluate the customer comments about mobile applications so that different dimension can be identified. After that, interval type-2 fuzzy DEMATEL approach is considered to rank these dimensions.

This study has some important novelties. The main novelty is to introduce an integrated model by using DEMATEL and data mining approaches firstly in this study to evaluate customer satisfaction for mobile applications. The DEMATEL method was preferred in comparison with AHP or ANP methodologies. The main reason is that it is possible to make impact and relationship analysis in DEMATEL. In addition to this issue, some strategies can be presented for the banks to increase customer satisfaction in this process. The satisfied customers become willing to work with these banks. Therefore, by attracting the customers, banks can get a chance to increase financial profitability. In other words, it can be

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