

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

DETERMINE THE BEST ONLINE SHOPPING
WEBSITE USING FUZZY TOPSIS APPROACH

NURHAIFA IZZATY AZIRA BT MOHD NOOR
2014233462 D1CS2496C
NUR AMIRA SHAHIDA BINTI MD FAISAL
2014461648 D1CS2496C
NUR SYAFIQA BINTI SHARIDI
2014699768 D1CS2496C

SUPERVISOR: PUAN NURUL SUHADA BINTI AZIZ
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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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ABSTRACT

One of the common problems faced by customers prior to shopping online is choosing the best shopping website to shop online. This is because there are many cases that the goods received do not reach the expectation. Therefore, this is important to choose the right shopping website that can be trusted. This study implements fuzzy TOPSIS in order to determine the best online shopping website. Number of factors that have influence on customers' selection such as technology acceptance factor, website service quality and specific holdup cost. Decision makers are asked to rank these factors by giving rank from very high(VH) to very low(VL) for QA weight, while for alternative assessment from very good(VG) to very poor(VP); very high and very good indicates the most influencing factor while very low and very poor indicates the least influencing factors. Each data ranking are transform into matrix form. Then, the matrix calculated to calculate a normalized decision matrix (NDM). After that, calculate the weighted normalized decision matrix and calculated the distance of each alternative from the worse condition (A_w) and the best condition (A_b). Lastly, calculate the closeness of coefficient of each alternative and rank them. The higher the value of the relative closeness, the higher is the ranking order. Thus have better the performance. This study reveals that the common factors influencing the best shopping website are technology acceptance factor, website service quality and specific holdup cost. Based on the result of this study, the best online shopping website is Lazada.

1 INTRODUCTION

1.1 Research Background

Nowadays, many business activities are done through the gadgets and internet. This is because of the advent of the internet over the last decade and it has meant drastic changes for retails trading for many good markets. Therefore, many people favor to shop online compared to shop offline. Hence, lots of shopping website was created, especially in Malaysia. So, shopping online became trending. From many of online shopping website in Malaysia, we interested to study which one is the best among the best online shopping website. In the nutshell, to find the best shopping website, we divide each criterion in three sections: technology acceptance factors, website service quality and specific holdup cost.

In this research we are interested to use the method of Fuzzy. There are many types of fuzzy, such as Fuzzy TOPSIS, Fuzzy Logic, Fuzzy Pay-off, Fuzzy Set, Fuzzy AHP etc. For this paper, we selected the Fuzzy TOPSIS to continue our research. In 1981, the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) which is a multi-criteria decision analysis method was originally developed by Hwang and Yoon in 1981. The further developments were done by Yoon in 1987 and Hwang, Lai and Liu in 1993 (Chamoli, 2015).

TOPSIS is derived from the concept that the selected alternative should have the shortest geometric distance from the positive ideal solution (PIS) and the longest geometric distance from the negative ideal solution (NIS) (Assari et al., 2012). It is a technique of compensatory aggregation that compares a set of alternatives by identifying weights for each criterion, normalizing scores for each criterion and evaluating the geometric distance between each alternative and the ideal alternative, which is the best score in each criterion.

Taking into consideration technology acceptance factors, website service quality and specific holdup cost as criteria for evaluate the performance of online shopping website. The research framework as in Figure 1.1 includes four alternatives of shopping websites that en-