Selecting E-Hailing Food Delivery Services among UiTM Perlis Student's using Fuzzy Topsis

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1. Introduction

Before the rise of e-hailing services, food services relied on direct interactions with customers through dine-in, take-out, or drive-thru options. Now, customers can order food anytime and anywhere through delivery applications Mohd Yusof et al. (2021).

This research mainly focuses on understanding and investigates the preferences of students at Universiti Teknologi Mara (UiTM) Perlis regarding e-hailing food delivery services. By using The Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method, the research aims to rank the criterion selection for e-hailing delivery services among UiTM Perlis students and to identify the main alternative that influence student's decision. The study is important because it will improve their operational effectiveness and support the continuing development of food e-hailing services.

2. Methodology

The Fuzzy Technique for Order Preferences to Ideal Solution (TOPSIS) technique was used to evaluate the preferred e-hailing food delivery services among UiTM Perlis students after data was gathered from 83 decision-makers using questionnaires and analysis using Microsoft Excel. Here is the step for ranking:

Step 1: Fuzzy ratings to the criteria and alternatives.
Step 2: Compute aggregated fuzzy ratings for the criteria and the alternatives.
Step 3: Compute the fuzzy decision matrix.
Step 4: Normalize the fuzzy decision matrix.
Step 5: Compute the weighted normalized matrix.
Step 6: Compute the FPIS and FNIS.
Step 7: Compute the distance of each alternative from FPIS and FNIS.
Step 8: Compute the closeness coefficient CC_i for each alternative.
Step 9: Rank the alternatives.

3. Results & Discussion

The most preferred alternative in e-hailing food delivery services among UiTM Perlis students was Grab Food, which is 4.6477 ranked at number 1. Followed by Food Panda ranked at number 2, restaurant delivery ranked at number 3, and Shopee ranked at number 4 with value 4.1388,2.3354 and 1.8509. Lastly, delivery time is the best criterion the student ranked at 1, which is at value of CC 4.3599. Followed by the customer experience, food delivery services, price, and rider professionalism. Table 1 and Table 2 shows the ranking for the alternatives and criteria with weight value.

Table 1 Ranking for the Alternatives

Alternative	Weight	Rank
Grab Food	4.6477	1
Food Panda	4.1388	2
Restaurant Delivery	2.3354	3
Shopee	1.8509	4

Table 2 Ranking for the Criteria

Criteria	Weight	Rank
Price	2.8429	4
Delivery Time	4.3599	1
Food Delivery Services	3.4000	2
Customer Experience	3.1613	3
Rider Professionalism	1.9229	5

4. Conclusion

In conclusion, this study successfully reached its goals of utilizing fuzzy TOPSIS to rank the main alternative and criterion selection for e-hailing food delivery services among UiTM Perlis students which Grab Food is the most preferred e-hailing food delivery services.

References

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