

RANKING THE KEY FACTORS INFLUENCING THE ACCEPTANCE OF DIGITAL PAYMENT AMONG LOCAL RETAILER USING FUZZY ANALYTICAL HIERARCHY PROCESS (FAHP)

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ABSTRACT - The pandemic has spurred a widespread adoption of digital payments, with an increasing number of people preferring this mode of financial transactions. Despite the growing popularity of digital payments, some retailers have yet to address this shift in consumer behavior. This study ranks key factors influencing acceptance among local retailers, providing valuable insights for adapting to the increasing demand for digital payment options. Using Fuzzy Analytical Hierarchy Process (FAHP), the study identifies knowledge, intention to use, compatibility, and accessibility as crucial factors. Knowledge emerges as the most important, followed by intention to use, compatibility, and accessibility. These findings enable the government to develop targeted strategies to enhance retailers' understanding, promote usage, ensure compatibility, and improve accessibility, fostering an efficient retail landscape.

Keywords: Digital payment acceptance, fuzzy analytical hierarchy process.

1. INTRODUCTION

In today's rapidly evolving digital landscape, digital payment methods have emerged as a convenient and efficient alternative to traditional cash transactions. Digital payment refers to the electronic transfer of funds or value between parties using various technological platforms and devices (Sahayaselvi, 2017). With the increasing popularity of smartphones, online shopping, and contactless payments, local retailers are recognizing the importance of embracing digital payment solutions to cater to the changing preferences of their customers.

Understanding the factors influencing digital payment acceptance is vital for local retailers' integration into their business operations. To address this, we employ FAHP, an innovative decision-making methodology that accounts for uncertainties and imprecisions in factor evaluation. By applying FAHP, we identify and rank the key factors impacting digital payment acceptance, providing valuable insights to optimize strategies and drive widespread adoption among retailers.

By utilizing the capabilities of FAHP, the outcomes will empower local retailers with valuable insights to make well-informed choices, effectively allocate resources, and gain a deeper understanding of the driving factors behind the adoption of digital payment methods, thereby fostering growth and long-term viability in today's digitally-driven marketplace (Chattopadhyay et al., 2013).

2. METHODOLOGY

Fuzzy theory is applied to address real-world phenomena that exhibit instability, allowing for the representation of sets, numbers, and real-world phenomena using fuzzy techniques. FAHP, a modern approach within the Analytical Hierarchy Process (AHP), utilizes fuzzy concepts to construct combined comparison matrices by employing triangular fuzzy numbers for pairwise comparisons. The degree investigation method is utilized to determine the synthetic degree value of the pairwise comparison in FAHP (Fam et al., 2022).

There are 6 steps in ranking the criteria using the FAHP method. The steps are:

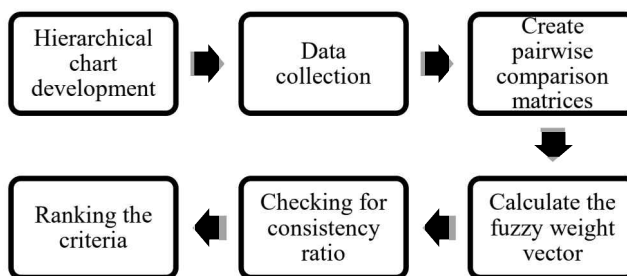


Figure 1. Fuzzy analytical hierarchy process steps

3. RESULTS AND DISCUSSION

The ranking of the criteria stated in Table 1 were ranked in descending order of importance.

Table 1. Ranking of criteria.

RANK	CRITERIA	FUZZY WEIGHT
1	CRITERIA 1	0.2501
2	CRITERIA 2	0.2500
3	CRITERIA 3	0.2500
4	CRITERIA 4	0.2500

With a fuzzy weight of 0.2501, Criteria 1 emerges as the most significant factor, highlighting the importance of knowledge of digital payment in driving its acceptance among local retailers. As the awareness and understanding of digital payment systems grow, there is a clear indication that acceptance and usage will continue to increase. The customers' technical competence and familiarity with cashless transactions can significantly influence the adoption of digital payment methods.

4. NOVELTY OF RESEARCH / PRODUCT

The utilization of Fuzzy Analytical Hierarchy Process (FAHP) to rank the key factors influencing the acceptance of digital payment among local retailers. This approach allows us to capture the inherent uncertainties and imprecisions associated with evaluating these factors, providing a more comprehensive and accurate assessment of their relative importance. By employing FAHP, our research contributes to the existing body of knowledge by offering a unique and innovative methodology for understanding and prioritizing the factors that drive digital payment acceptance in the context of local retailers.

5. CONCLUSION

In conclusion, Fuzzy Analytical Hierarchy Process (FAHP) successfully ranked the key factors influencing the acceptance of digital payment among local retailers. Among these factors, knowledge about digital payment emerged as the highest-ranking factor, emphasizing its crucial role in driving acceptance. This finding highlights the importance of enhancing retailers' understanding and awareness of digital payment systems to promote their successful adoption and integration into business operations.

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