

Enhancing Logistics Service Performance for Retired Tourists: A Fuzzy Topsis Approach to Prioritization and Customer Satisfaction in the Tourism Industry of Thailand

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Abstract — This research investigates the enhancement of logistics service performance for retired tourists in Thailand's tourism industry through the application of a Comparative Importance Ranking Decision-Making Method with Fuzzy TOPSIS. The study focuses on evaluating the factors that influence customer satisfaction among retired tourists and prioritizing these factors for effective service improvement. The methodology employs a fuzzy TOPSIS approach to assess the performance of logistics services in catering to the unique needs and preferences of retired travelers. The findings highlight the significance of various factors such as order quality, order efficiency, order accuracy, order flexibility, and order discrepancy in shaping the satisfaction levels of retired tourists. The research underscores the importance of logistics service providers in the tourism industry concentrating on enhancing these key factors to meet the specific requirements of this demographic.

This study contributes to the existing literature by providing valuable insights into the logistics service performance for retired tourists, a demographic often overlooked in traditional tourism studies. It also offers practical implications for logistics service providers and policymakers to improve service quality and standards, ultimately enhancing the overall tourism experience for retired tourists in Thailand and potentially elsewhere.

Keywords : *Fuzzy-Topsis, Tourism Supply Service Quality, Logistics Service Performance*

I. INTRODUCTION

The rapid expansion of the tourism industry has triggered a surge in the demand for highly efficient and customer-centric logistics services [1]. This is particularly pronounced in [2]. Among the diverse tourist groups, retirees emerge as an essential segment, owing to their unique demands and growing demographic presence[2].

Tourism logistics, which involve the management of tourists' movement and needs, play a significant role in shaping a tourist's overall experience[3]. Efficiency in these services, encompassing factors like service quality, order accuracy, flexibility, and error management, is critical in determining a tourist's satisfaction [4].

However, a comprehensive study focused on evaluating tourism logistics services, especially those that cater to the needs of retired tourists, is still lacking in the current literature [5]. This gap is particularly glaring when considering the application of advanced analytical methods such as Fuzzy Topsis in such evaluations. Fuzzy Topsis, an extension of the Technique for Order Preference by Similarity to Ideal Solution (Topsis)[6], offers a more nuanced analysis due to its ability to handle uncertainties and vagueness associated with human decision-making processes [7].

This research, therefore, aims to fill this gap by applying the Fuzzy Topsis method to evaluate the efficiency of tourism logistics services for retired tourists in Thailand. By doing so, it seeks to identify key performance indicators, assess their importance, and provide actionable insights for improving the delivery of logistics services within the tourism industry [8].

The study's contributions are twofold. Academically, it enriches the extant literature on tourism logistics services[3] Practically, it offers valuable implications for practitioners including logistics service providers and tourism planners [9]. Moreover, it contributes to the broader discourse on enhancing tourism experiences for retirees, an increasingly significant demographic group within the tourism market [10].

II. RESEARCH OBJECTIVE

Evaluation of Logistics Services: Applying the Fuzzy Topsis methodology, the research seeks to conduct an in-depth evaluation of these identified KPIs. The evaluation will assess the current state of

logistics services and pinpoint areas requiring improvement.

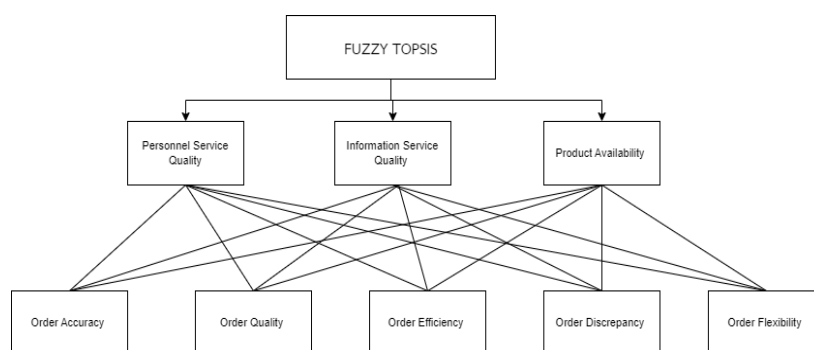
Prioritization of Factors: The study intends to understand and rank the importance of each identified KPI[11]. This will help in determining which aspects of the logistics services are most critical from the perspective of retired tourists.

Providing Actionable Insights: The ultimate goal of the research is to provide actionable recommendations for improving logistics services within the tourism industry. Based on the evaluation and ranking of the KPIs, the study aims to suggest strategies for enhancing the tourism experience for retirees.

The population for this research study would be retired tourists who have used tourism

logistics services in Thailand. The selection of this group will ensure that the data collected is relevant to the research objectives. Determining an appropriate sample size depends on a variety of factors, such as the size of the population, the margin of error you are willing to accept, and the confidence level desired. However, in social science research, a common guideline is that a sample size of 30 is usually sufficient for most statistical analyses [12] In the context of this study, if the population of retired tourists is significantly large, a sample size larger than 30 might be more appropriate to better represent the population. You may consider using a sample size calculator to help you determine a statistically valid sample size.[13]

III. RESEARCH FRAMEWORK



I. FIGURE 1. APPLIED FROM [14] AND [15]

IV. LITERATURE REVIEW

A. *The Phenomenon of Retired Tourists and Its Impact on Tourism in Thailand*

The initial step involves an examination of the prevailing global and regional tourism patterns, with particular attention to the notable impact of tourism on Thailand's economy, encompassing several aspects such as employment opportunities and revenue generation. [16] This paper aims to present an overview of the emerging demographic of retirees who are progressively participating in tourist endeavors. This sector holds significant importance for the Thai tourism industry because of several variables, including disposable income, flexible schedules, and a propensity for longer stays. The literature has extensively examined the behavior, interests, and distinctive requirements of elderly tourists. For instance, [17] conducted studies that shed light on several aspects of this demographic's travel patterns. These investigations specifically focused on retired tourists' preferences for accessible facilities, health, and safety issues, as well as their need for meaningful experiences. This study aims to provide an academic commentary on the current state of research pertaining to retired tourists in Thailand. It will specifically highlight any existing gaps in the literature that this study hopes to address.[3]

B. *The provision of logistics services for the tourism industry*

This analysis aims to explore the intricate nature of logistics within the tourism sector, elucidating its involvement in the effective organization, supervision, and implementation of diverse operations. These operations encompass a wide range of activities, including but not limited to transportation and accommodation arrangements [18], as well as the management of tourists' requirements and the facilitation of their engagements [5] This paper aims to examine the impact of high-quality and efficient logistical services on tourists' entire experience, with a particular focus on the possibility for enhanced satisfaction and return visits [19] Additionally, please provide an analysis of any existing studies that have explicitly investigated the delivery and consequences of logistical services for those who have retired within the tourism industry.

C. *The topic of interest is to the examination of Key Performance Indicators (KPIs) within the domain of tourism logistic*

This paper aims to present an overview of the idea of key performance indicators (KPIs) and elucidate their role in providing quantifiable metrics to assess the efficacy of an organization's operational

activities. The study conducted by [11] examines the identification and evaluation of KPIs that are tailored specifically to the domain of tourism logistics services. This may involve a range of elements, including the speed of service, the quality of service, the reliability of service, the accuracy of orders, the flexibility of service, and the management of errors. This passage emphasizes the utility of these indicators as benchmarks for evaluating the present condition of logistics services, pinpointing areas that require enhancement, and tracking advancements over a period of time.

D. Fuzzy Topsis and its Application in Tourism

This paper aims to present a comprehensive analysis of the Fuzzy Topsis approach, elucidating its theoretical underpinnings and practical implementations as outlined by [20]. The decision-making model under discussion facilitates the conduct of more sophisticated and precise studies by incorporating uncertainties and the inherent imprecision in human judgments [21]. This discussion focuses on notable instances of research that have effectively employed Fuzzy Topsis methodology within the domain of tourism or its associated subjects.[22] It highlights the acquired insights and the consequential value contributed by this approach. By conducting a comprehensive evaluation of the current scholarly literature, the literature review will establish the foundation for your research by situating it within the wider academic discourse. Emphasizing the manner in which one's research solves the recognized deficiencies within the existing body of literature and enhances comprehension of effective logistical services for elderly visitors in Thailand is of utmost significance.

TABLE I. MEASUREMENT ITEMS OF TOURISM LOGISTICS SERVICE QUALITY

Factors	Meaning	Authors
Personnel Service Quality	This paper examines the significance of personnel, encompassing employees, customer service agents, and frontline workers, in the provision of superior service to customers. Scholars have conducted studies examining several aspects that impact the quality of people service, including as training, motivation, communication skills, and customer satisfaction. Numerous empirical investigations have demonstrated that staff who possess enough training and exhibit high levels of motivation are inclined to deliver superior service, hence resulting in heightened levels of customer satisfaction and loyalty. Furthermore, the	[23] [24] [25]

Factors	Meaning	Authors
	acquisition of strong communication skills is of paramount importance in facilitating favorable interactions between workers and clients. In summary, the existing body of literature pertaining to Personnel Service Quality underscores the crucial role played by personnel in the provision of service of high quality. Additionally, it underscores the significance of several aspects such as training and communication skills in attaining elevated levels of customer satisfaction.	
Information Service Quality	The field of Information Service comprises a broad spectrum of operations that pertain to the gathering, structuring, distribution, and availability of information for individuals seeking it. This discipline holds significant importance within libraries, information centers, online platforms, and various other environments. The research conducted in this field encompasses a wide range of topics related to information service, such as information retrieval, user satisfaction, technical improvements, and the role played by information professionals. Numerous studies have constantly emphasized the significance of information services that prioritize the needs and preferences of users. Ensuring the prompt delivery of pertinent information to consumers is crucial for both user pleasure and the overall performance of information service providers. The field of information services has been greatly influenced by technological breakthroughs, particularly in AI and machine learning, as seen by research investigating the incorporation of these technologies in information retrieval. These technological advancements possess the capacity to augment the efficiency and efficacy of information services.	[26] [27] [28]
Product Availability	The availability of products is a crucial element within the tourism sector, as it guarantees that tourists are provided with a diverse array of services and attractions. The research conducted in	[29] [30]

Factors	Meaning	Authors
	<p>this field investigates different aspects related to the availability of products. These aspects encompass the influence of product availability on the satisfaction of tourists, the competitiveness of destinations, and the utilization of technology to enhance availability. Numerous research studies have repeatedly demonstrated that the availability of products holds considerable effect over the level of satisfaction experienced by tourists. The availability of diverse products and services enhances the likelihood of favorable experiences for passengers during their journeys.</p> <p>The competitiveness of a destination is intricately connected to the availability of its products. Destinations that possess a wide array of tourism offerings, encompassing many aspects such as lodging options and recreational pursuits, tend to garner greater tourist interest and exhibit enhanced competitiveness within the market.</p> <p>The advent of technology, namely online booking platforms and smartphone applications, has significantly altered the manner in which tourists obtain and engage with various products and services. The advent of these technological innovations</p>	

Factors	Meaning	Authors
	<p>has facilitated the process of locating and reserving lodging, excursions, and supplementary amenities, hence augmenting the accessibility of products in the travel industry.</p> <p>In summary, the existing body of literature pertaining to Product Availability in the field of Tourism highlights its profound importance in influencing the overall quality of tourist experiences, enhancing the competitiveness of destinations, and elucidating the role of technology in facilitating accessibility to various tourism offerings.</p>	

V. RESEARCH METHODOLOGY

Fuzzy -Topsis Evaluation: Applying Park and Jeong's methodology [31], you'd use the Fuzzy-Topsis approach to assess the efficiency of the tourism logistics services based on the identified KPIs. This approach allows for a nuanced and more accurate evaluation considering the uncertainties and vagueness in human decision-making.[11]

Outcomes/Implications: Finally, the results of the evaluation would provide insights into the efficiency of the current tourism logistics services for retired tourists in Thailand. These results could inform recommendations for improving these services to enhance the overall tourist experience for this demographic.

TABLE II. VARIABLE AND ALTERNATIVE CORRELATION METRICS.

Tourism Supply Service Quality	Personnel Service Quality (PSQ)		Information Service Quality (ISQ)	Product Availability (PA)
Logistics Service Performance	Personnel Service Quality		Data Service Quality	Availability of travel products
	C1		C2	C3
Order Accuracy (OA)	A1	In your view. The itinerary accuracy is of significant concern as it plays a crucial role in ensuring a seamless tourism experience.	From your viewpoint that the provision of accurate, concise, easily understandable, and complete information, particularly in the context of accommodation and air ticket booking, is fundamental to creating a seamless tourism experience.	You believe the Accuracy of booking air ticket booking Itinerary details and availability of travel products such as tourist attractions, accommodations, and transportation is essential. How does it affect your level of satisfaction?
Order Quality (OQ)	A2	In your view, the personnel's professional conduct and efficiency in arranging accommodations and air tickets, along with accurate travel details, play a role in shaping your satisfaction. How does the simplicity of this process influence your satisfaction level?	From your viewpoint, delivering precise, concise, and comprehensible information during the processes of booking accommodations and air tickets greatly contributes to the timeliness and minimal error in service delivery. How significantly does such quality of service influence your satisfaction?	Your perspective suggests that the quality of air ticket booking, inclusive of detailed itineraries, tourist sites, accommodation, and the accessibility of tourism offerings, influences your satisfaction level. How significantly does this aspect impact your satisfaction?
Order Efficiency (OE)	A3	You maintain that the staff's professionalism in resolving specific issues, combined with their use of clear language and procedures in managing accommodation and air ticket bookings, leads to error-free planning. To what degree does this impact your satisfaction?	You hold the viewpoint that providing precise, succinct, and comprehensible information during the booking of accommodation and air tickets has substantial influence. How significantly does this affect your level of satisfaction?	You posit that the level of error tolerance in the process of booking air tickets, encompassing detailed itineraries and the availability of tourism services like tourist attractions and accommodations, affects your satisfaction. How profoundly does this aspect affect your satisfaction level?
Order Discrepancy (OD)	A4	From your perspective, the professionalism of personnel and their ability to resolve specific issues using understandable language and processes contribute to a seamless and error-free booking of accommodations, air tickets, and itineraries. How much does such an effective process impact your level of satisfaction?	You posit that providing clear, concise, and accurate information during the process of booking accommodation and air tickets, specifically with fewer discrepancies in the itinerary details, affects your satisfaction. How profoundly does this affect your satisfaction level?	You believe that the flexibility involved in booking accommodation and air tickets, incorporating detailed itineraries and the availability of tourism products such as tourist attractions and accommodation, impacts your satisfaction. To what extent does this factor influence your satisfaction level?
Order Flexibility (OF)	A5	From your perspective, the staff's professional approach in making prompt adjustments to bookings for accommodations, air tickets, and itineraries significantly influences your satisfaction. How much does their willingness to rectify any issues affect your satisfaction level?	Your perspective suggests that providing accurate, brief, and understandable information during the booking of accommodation and air tickets, particularly concerning a flexible and consistent itinerary, influences your satisfaction. To what degree does this impact your satisfaction level?	Your perspective implies that the adaptability in the process of booking accommodations, air tickets, creating itineraries, and the availability of tourism products such as tourist attractions and accommodations, impacts your satisfaction. How significantly does this influence your satisfaction level?

Applies from Christopher, M. (2016), Hui-Chung Liang (2008) and Park, J., & Jeong, E. (2019).

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The calculation steps are as follows:

1. Calculating Normalize the SVNSs Decision Matrix

$$\begin{matrix} A_1 \\ \vdots \\ A_i \\ \vdots \\ A_m \end{matrix} \begin{pmatrix} x_{11t} & \cdots & x_{1gt} & x_{1(g+1)} & \cdots & x_{1h} & x_{1(h+1)} & \cdots & x_{1n} \\ \vdots & & \vdots & \vdots & & \vdots & \vdots & & \vdots \\ x_{i1t} & \vdots & x_{igt} & x_{i(g+1)} & \cdots & x_{ih} & x_{i(h+1)} & \cdots & x_{in} \\ \vdots & & \vdots & \vdots & & \vdots & \vdots & & \vdots \\ x_{m1t} & \cdots & x_{mgt} & x_{m(g+1)} & \cdots & x_{mh} & x_{m(h+1)} & \cdots & x_{mn} \end{pmatrix} \quad (1)$$

2. Calculate Weight Normalize the SVNSs Decision Matrix

$$v_{ij}^\alpha = \frac{1}{k} \sum_{t=1}^k (w_{jt} \otimes x_{ijs})^\alpha \quad (2)$$

3. Calculate the positive idealistic (NsPIS) and negative idealistic (NsNIS) values

$$x_{ij} = \left(\frac{e_{ij}}{\max g_{ij}}, \frac{f_{ij}}{\max g_{ij}}, \frac{g_{ij}}{\max g_{ij}} \right), j \in NsPIS, j = (g + 1) \sim h \quad (3)$$

$$x_{ij} = \left(\frac{\min e_{ij}}{e_{ij}}, \frac{\min e_{ij}}{f_{ij}}, \frac{\min e_{ij}}{g_{ij}} \right), j \in NsNIS, j = (h + 1) \sim n \quad (4)$$

4. Calculate the discrete ideal value of each option using the n -Euclidean Distance

$$\frac{1}{k} \sum_{j=1}^n (b_{ijs} - a_{ijs}) (p_{jt} - o_{jt}) \alpha^2 + \frac{1}{k} \sum_{j=1}^n [a_{ijs} (p_{jt} - o_{jt}) + o_{jt} (b_{ijs} - a_{ijs})] \alpha + \frac{1}{k} \sum_{j=1}^n a_{ijs} o_{jt} - x = 0 \quad (5)$$

$$\frac{1}{k} \sum_{j=1}^n (b_{ijs} - c_{ijs}) (p_{jt} - q_{jt}) \alpha^2 + \frac{1}{k} \sum_{j=1}^n [c_{ijs} (p_{jt} - q_{jt}) + q_{jt} (b_{ijs} - c_{ijs})] \alpha + \frac{1}{k} \sum_{j=1}^n c_{ijs} q_{jt} - x = 0 \quad (6)$$

5. Calculate the proximal relationship. (Relation Closeness Coefficient: RCC)

$$RCC_i = \frac{d_i^-}{d_i^- + d_i^+} \quad (7)$$

6. Rank alternatives (Rank the Alternative) considering the value RCC i of each option if the value RCC i the higher the value, the better the rank.

TABLE III. CONVERTS THE SCORE TO TRINGULAR FUZZY NUMBER (TFN)

score value	Rating	Linguistic Weighting	Triangular Fuzzy Numbers (TFN)
1	Very Poor (VP)	very little	(1, 1, 3)
2	Poor (P)	little	(1, 3, 5)
3	Fair (F)	moderate	(3, 5, 7)
4	Good (G)	good	(7, 9, 10)
5	Very Good (VG)	very good	(9, 10, 10)

When receiving the information of the complete number of survey responses taken to find the mean by Analyze the mean using the geometric mean (Geometric mean), which is useful when finding the mean applied to data that are very different or that the distribution of the data is not

normal. There is a formula. as follows $G = \sqrt[n]{X_1 \times X_2 \times \dots \times X_n}$ When G = geometric mean, n = total number of data $x_1, X_2, \dots, x_n =$ collected data (Xia et al., 1999) and then fill in the Excel table for calculation as shown in the table

TABLE IV. AGGREGATE FUZZY DECISION MATRIX: GEOMETRIC MEAN FOR SCORES IN THE FORM OF TFN

Decision Matrix									
	C1			C2			C3		
A1	7.13	8.73	9.50	7.13	8.80	9.60	7.33	8.90	9.60
A2	7.47	8.97	9.60	6.87	8.47	9.27	7.33	8.90	9.60
A3	7.27	8.87	9.60	7.33	8.90	9.60	7.27	8.87	9.60
A4	7.53	9.07	9.70	6.53	8.20	9.10	5.27	7.07	8.30
A5	6.73	8.40	9.27	6.67	8.30	9.17	5.87	7.63	8.77
Cj +	9.70			9.60			9.60		
Cj -	6.73			6.53			5.27		

TABLE V. NORMALIZE THE DECISION MATRIX

Decision Matrix									
	C1			C2			C3		
A1	0.7354	0.9003	0.9794	0.7431	0.9167	1.0000	0.7639	0.9271	1.0000
A2	0.7698	0.9244	0.9897	0.7153	0.8819	0.9653	0.7639	0.9271	1.0000
A3	0.7491	0.9141	0.9897	0.7639	0.9271	1.0000	0.7569	0.9236	1.0000
A4	0.7766	0.9347	1.0000	0.6806	0.8542	0.9479	0.5486	0.7361	0.8646
A5	0.6942	0.8660	0.9553	0.6944	0.8646	0.9549	0.6111	0.7951	0.9132

TABLE VI. CALCULATES THE POSITIVE IDEALISTIC (NSPIS) AND NEGATIVE IDEALISTIC (NSNIS) VALUES

d+										
A1	0.0078	0.0011	0.0000	0.0073	0.0008	0.0000	0.0062	0.0006	0.0000	
	0.0030			0.0027			0.0023			0.0894
A2	0.0059	0.0006	0.0000	0.0090	0.0015	0.0001	0.0062	0.0006	0.0000	
	0.0022			0.0035			0.0023			0.0894
A3	0.0070	0.0008	0.0000	0.0062	0.0006	0.0000	0.0066	0.0006	0.0000	
	0.0026			0.0023			0.0024			0.0854
A4	0.0055	0.0005	0.0000	0.0113	0.0024	0.0003	0.0226	0.0077	0.0020	
	0.0020			0.0047			0.0108			0.1320
A5	0.0104	0.0020	0.0002	0.0104	0.0020	0.0002	0.0168	0.0047	0.0008	
	0.0042			0.0042			0.0074			0.1258
d-										
A1	0.0002	0.0047	0.0090	0.0004	0.0062	0.0113	0.0051	0.0159	0.0226	
	0.0046			0.0060			0.0145			0.1584
A2	0.0006	0.0059	0.0097	0.0001	0.0045	0.0090	0.0051	0.0159	0.0226	
	0.0054			0.0045			0.0145			0.1562
A3	0.0003	0.0054	0.0097	0.0008	0.0068	0.0113	0.0048	0.0156	0.0226	
	0.0051			0.0063			0.0143			0.1603
A4	0.0008	0.0064	0.0104	0.0000	0.0033	0.0079	0.0000	0.0039	0.0111	
	0.0059			0.0037			0.0050			0.1208
A5	0.0000	0.0033	0.0076	0.0000	0.0038	0.0084	0.0004	0.0068	0.0148	
	0.0036			0.0041			0.0073			0.1225

TABLE VII . CALCULATES THE PROXIMAL RELATIONSHIP (RELATION CLOSENESS COEFFICIENT: RCC)

Variables	d+	d-	RC	Normal	Rank
Order Accuracy	0.0894	0.1584	0.6392	21.09%	3
Order Quality	0.0894	0.1562	0.6360	21.47%	1
Order Performance	0.0854	0.1603	0.6524	21.44%	2
Order Discrepancy	0.1320	0.1208	0.4778	17.86%	5
Order Flexibility	0.1258	0.1225	0.4934	18.14%	4

VI. CONCLUSION

The importance of 'Order Quality' and 'Order Efficiency' in logistics service performance is paramount when assessing the quality of tourism supply services. The correlation between logistics service performance and customer satisfaction, loyalty, and service quality in the tourism industry has been the focus of several studies [3, 19, 32].

'Order Quality' encapsulates the speed and effectiveness of order processing within a logistics system, which is vital for accurate and timely delivery of goods and services. 'Order Accuracy,' another significant factor, concerns the correctness of order fulfillment in logistics services. While the literature does not directly link 'Order Accuracy' to tourism supply service quality, one could infer from broader themes that improved accuracy in logistics service quality positively affects customer satisfaction [25].

The 'Order Discrepancy' factor pertains to the accuracy and correctness of products or services delivered, aligning with customers' specifications and expectations. Although there is no direct mention in existing literature, it is plausible to suggest that precise and error-free order processing enhances customer satisfaction in the tourism supply chain [18].

'Order Flexibility' refers to the ability to adjust actions and adapt to changes between order receipt and shipment. This flexibility, while not explicitly linked with tourism supply service quality in available literature, is suggested to be beneficial for meeting customer demands in the dynamic tourism industry [33].

Our study successfully applied the Fuzzy Topsis methodology to evaluate and rank the importance of various factors impacting the efficiency of logistics services in tourism for retired tourists in Thailand. The top-ranking factors were found to be Order Quality, Order Efficiency, Order Accuracy, Order Flexibility, and Order Discrepancy. These factors significantly affect the satisfaction levels of retired tourists, implying that improvements in these areas could potentially enhance the overall experience for this demographic.

VII. IMPLICATION

The results of this research offer several practical and theoretical implications: For practitioners: The

findings provide logistics service providers in the tourism industry with valuable insights into the key aspects that can increase retired tourists' satisfaction levels. Service providers should focus on enhancing Order Quality, Efficiency, Accuracy, Flexibility, and minimizing Discrepancy. This could include investing in advanced logistics management systems or providing additional training for staff to improve service performance.

For policymakers: The study's outcomes emphasize the need for policy interventions to improve tourism logistics services for the elderly population. Policymakers could develop regulations or guidelines aimed at ensuring high standards of service performance in these areas.

For researchers: The research contributes to the existing literature on tourism logistics services, particularly for retired tourists. It validates the utility of Fuzzy Topsis methodology in assessing service performance in this context. Future research could explore these variables in other demographic groups or tourism settings to generalize or contrast the findings. For tourists: The results may empower retired tourists in Thailand and potentially elsewhere to demand better service standards from logistics providers within the tourism sector, leading to enhanced overall tourism experiences.

The findings from our study align with and build upon the outcomes of previous research. The importance of Order Quality, Order Efficiency, and Order Accuracy in logistics service performance, found in our study, corroborates with the findings of [3, 5]. These authors also recognized these factors as critical in shaping customers' satisfaction and loyalty in the tourism industry.

However, our research further extends the understanding by identifying and ranking two more factors, namely Order Flexibility and Order Discrepancy, as essential elements in improving logistics services in tourism. These factors were not explicitly explored in [3] this study, indicating a new contribution of our research to the existing literature. Furthermore, our study differs from previous works in the context and methodology. We focused specifically on retired tourists in Thailand, a group often overlooked in traditional tourism studies. We also applied Fuzzy Topsis methodology, which provided a more precise and nuanced understanding of the various factors' importance. This signifies an innovative approach to evaluating logistics service performance in tourism, thus enriching the body of knowledge in this field.

In conclusion, while our study echoes some of the findings from previous research, it also provides fresh insights and a novel methodological approach, underscoring its unique contribution to the field of tourism logistics services. This study has laid the foundation for further exploration and underscores the need for continuous improvement in the quality

and efficiency of logistics services in the tourism sector, particularly for retired tourists.

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