

Investigating priority service attribute for online travel agencies (OTA) mobile app development using AHP framework

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ABSTRACT

This study aims to identify service priority attributes for online travel agency (OTA) mobile application development. A quantitative- descriptive research design was used in this study. Data collection was done through literature review and questionnaire surveys. The respondents in this study were 273 customers of OTA. The results showed that the service attribute with the highest importance was the fulfilment dimension with an average weighting of 4.84 out of 5. In the fulfilment dimension, the service attribute with code F3, which refers to the need for mobile applications to be able to deliver orders as quickly as possible, has the highest weight. In second place is the privacy dimension, with an average importance score of 4.80. In this dimension, service attribute P3, which refers to the ability of mobile applications to protect customers' credit card data, ranks first. In third place is the responsiveness dimension with an average importance value of 4.69. Attributes relating to the customer being able to speak directly to customer service in the event of problems are the attributes with the highest weighting on the responsiveness dimension.

Keywords: *Prioritizing method; Hospitality; E-commerce; Importance value.*

ABSTRAK

Penelitian ini bertujuan untuk mengidentifikasi atribut prioritas layanan pada pengembangan aplikasi mobile online travel agent (OTA). Desain penelitian kuantitatif deskriptif digunakan dalam penelitian ini. Pengumpulan data dilakukan melalui tinjauan literatur dan survei kuesioner. Responden dalam penelitian ini adalah 273 pelanggan OTA. Hasil penelitian menunjukkan bahwa atribut layanan dengan kepentingan tertinggi adalah dimensi pemenuhan dengan bobot rata-rata 4,84 dari 5. Pada dimensi pemenuhan, atribut layanan dengan kode F3 yang mengacu pada kebutuhan aplikasi seluler untuk dapat menyampaikan pesan secepat mungkin, memiliki bobot tertinggi. Di urutan kedua adalah dimensi privasi, dengan skor kepentingan rata-rata 4,80. Pada dimensi ini, atribut layanan P3 yang mengacu pada kemampuan aplikasi seluler untuk melindungi data kartu kredit pelanggan menempati urutan pertama. Di urutan ketiga adalah dimensi responsiveness dengan rata-rata nilai kepentingan 4,69. Atribut yang berkaitan dengan kemampuan pelanggan untuk berbicara langsung dengan customer service jika terjadi masalah merupakan atribut dengan bobot tertinggi pada dimensi responsiveness.

Kata kunci : Memprioritaskan metode; Keramahan; Perdagangan elektronik; Nilai kepentingan.

INTRODUCTION

It cannot be denied that Online Travel Agency (OTA) is a business sector that is able to grow rapidly by taking advantage of the increasing internet literacy of customers worldwide. OTA is able to present a versatile platform that is transforming the tourism industry, especially in the travel agency space, and is a true example of the integration of the Internet of Things into business processes (Raad, Sharma, & Nicolau, [2023](#)). The top three OTAs in the global market include booking.com as the largest player with a relative market share of 70.6%, expedia in second place with 9.3% market share and HRS with 5.9% market share (Statista, [2022](#)). Since 2015, the global online travel agency market has continued to grow at a compound annual growth rate (CAGR) of 7.9%, reaching approximately \$745 billion in 2019, before declining sharply in 2020 due to the Covid 19 pandemic, reaching approximately \$ 596 billion in 2020 (GlobeNewswire.com, [2020](#)). Most of the growth in OTA market value can be attributed to rapid economic growth in emerging markets combined with rising incomes and a shift in the consumer paradigm regarding travel behaviour and acceptance of technological advances.

The current post-covid situation is the right time for OTA to rebound, as many countries have begun to slowly open up by starting to lift strict regulations on domestic and international travel. There are billions of dollars of OTA market share that was lost during the Covid pandemic, and it is not impossible to regain it. This missing market share gap shows the potential for market share that can be achieved and the great profitability for companies in the OTA industry. The capital damage caused by the Covid pandemic forces companies to effectively capitalise on this opportunity, but remain efficient due to the limited resources available (Pham, Coles, Ritchie, & Wang,

[2021](#)). OTA companies must be able to create a business concept by integrating appropriate strategies. Therefore, research to determine priority strategic characteristics for OTA is critical to restoring business performance. Companies must be able to determine what priorities need to be set in order to satisfy the current OTA customer market.

Related Research Identifying or establishing priority strategies for OTA is still rarely done. This study fills this gap by analysing business problems using an analytic hierarchy process (AHP) to examine objectives, characteristic factors, and alternatives or sub-features as detailed elements that are weighted with a certain scale to be able to determine priority attributes that can be used as research answers and practical solutions or follow-ups to research problems. Specifically, this study aims to determine priority attributes related to mobile OTA app development. Based on the research objectives, the research questions are (1) What are the priority attributes in OTA mobile app development? It is expected that this research will increase the understanding of how the AHP framework can be used to improve the quality of OTA mobile apps and trigger further research related to the application of AHP in the tourism industry.

LITERATURE REVIEW

Online Travel Agency (OTA) role

The digital business model has changed the face of many industries around the world, including the tourism industry with the advent of online travel agencies (OTAs) (Sharma, Sehrawat, Daim, & Shaygan, [2021](#)). OTAs allow customers to obtain information, place orders, and make payments for travel products through the Internet and customers' personal devices (Rashideh, [2020](#)). This also enables the companies to achieve massive market

penetration. This is supported by the high level of interest in using the Internet in many developed and developing countries (Badran, 2021). Consistent with the findings of previous researchers, online ordering is a popular method for customers of hospitality products.

In particular, research related to OTA has attracted the interest of researchers, as evidenced by the discovery of several relevant studies, such as the research conducted by Abdullah & Prihastuti (2022), which shows that the collaboration of OTA platforms with tourism service providers is one of the strategies for the business establishment used to outperform the competition. Raad, Sharma & Nicolau (2023) found that innovations between producers and consumers have a greater impact on the market value of OTAs than innovations between producers and consumers. In a mixed-methods study, it was found that there are four major gamification facilitators that are considered as promising tools to improve tourists' online shopping experience, namely performance facilitation, identification facilitation, competition facilitation, and self-expression facilitation (Shi, Leung, & Munelli, 2022). Ye, Fu, & Law (2016) found that ease of access to the OTA platform significantly affects customer satisfaction, which in turn affects customer loyalty. Another study found that the OTA platform has features that can help service providers improve quality by evaluating customer complaints in the customer review column (Kisti & Mayasari, 2019). Wachyuni, Wiweka & Liman (2018) found that the OTA platform was effective in increasing sales of hospitality products, although technical issues related to system reliability of the platform were identified.

AHP Framework and its application in Tourism Industry

Lee & Lee (2015) apply the AHP method to identify policy priorities for the creative tourism industry in Korea. Cranmer, Urquhart, Claudia tom Dieck, & Jung (2021) use a multi-method approach that integrates AHP, stakeholder analysis, and in-depth interviews to develop augmented reality business models (ARBMs) in SMEs. Zabihi et al. (2020) combined fuzzy AHP with geographic information systems (GIS) to evaluate the importance of physical, natural, environmental, and socioeconomic factors in determining the suitability of ecotourism areas. Ma, Li, & Chan (2018) applied AHP to identify the key factors important for the construction and reuse of Fujian Tulou in China. Tsai (2017) applied AHP to identify the key professional skill characteristics that professional graduates must possess to work in the tourism industry.

METHODOLOGY

This study was conducted with OTA clients. The design of this study is descriptive and quantitative, collecting primary data by completing a questionnaire. The first phase of this research is to determine the service attributes of the OTA mobile app. In this study, Huang, Lin & Fan (2015) M-S-Qual measurement is used as the service attribute parameter that companies need when developing mobile OTA apps, as this parameter is specifically designed to measure customer satisfaction in the context of mobile e-commerce apps.

This M-S-Qual measurement consists of 5 aspects, namely:

1. Efficiency: Whether the site responds quickly and is easy to use
2. Fulfilment: The extent to which the site's promises regarding delivery of orders and availability of items are fulfilled

3. Contact: Adequacy and accuracy of information on the mobile site
4. Responsiveness: Effectiveness of the site's problem-solving process and return policy
5. Privacy: To what extent customers perceive the site to be safe and to what extent their personal information is protected

The next step after identifying the service attributes is then the phase of determining the weights to evaluate each attribute with a Likert scale of 1-5 to determine the degree of importance of each attribute in the form of a questionnaire that was presented to 273 OTA customers as respondents. Based on the results of the completed questionnaire, Pearson correlation validity and Cronbach's alpha tests were conducted to determine the reliability of the questionnaire data. In this study, a questionnaire was used to collect customer perceptions regarding

the importance of each attribute of the mobile OTA app service. The perceived value of the obtained importance level is then determined by the average value. In the next step, an evaluation of each service attribute is made based on its weighting and the three attributes with the highest weighting are determined as priority attributes.

RESULT AND DISCUSSION

Identify the service attributes of online travel agencies for mobile applications.

A literature review is conducted and then the M-S-Qual measurement is determined, which is used as a service attribute for mobile OTA apps. 18 relevant quality of service attributes were identified to be implemented in the development of OTA mobile applications. The list of service quality attributes was compiled and presented in Table 1.

Tabel 1. OTA mobile apps service attributes

Dimension	Service attributes	Attributes Code
Efficiency	Easy to find the product that needs	E1
	Easy to get anywhere on the mobile site	E2
	Allows for quick completion of a transaction	E3
	Well organized information	E4
	The mobile app loads quickly	E5
	The mobile app is easy to use	E6
	The mobile app is enables to access quickly	E7
	Mobile app is well organized	E8
Fulfilment	The mobile app delivers the orders as promised	F1
	The mobile app provides the items within a reasonable time frame.	F2
	The mobile app delivers what I ordered quickly	F3
	The mobile app sends out the ordered items correctly.	F4
	The website stocks the items that the company claims to have	F5
	The app makes truthful claims about what it offers	F6
	The app makes accurate promises about delivery of products.	F7
	When the order is completed, the order information is provided in a timely manner.	F8
	When the order is completed, the service provider can provide customized information	F9
Contact	The service agents are friendly when receiving complaints.	C1
	Service representatives provide consistent advice	C2

Responsiveness	The customer service representatives are courteous.	C3
	Call center staff are able to assist with problems	C4
	This mobile app provides me with convenient options for returning items.	R1
	This mobile app handles product returns well.	R2
	This mobile app offers a reasonable warranty	R3
	The app tells me what to do if my transaction is not processed.	R4
	This mobile app has a phone number where I can reach the company	R5
Privacy	Customer service representatives are available online on this mobile website	R6
	The app provides the ability to speak with a representative in the event of a problem.	R7
	This app protects information about my mobile-shopping behaviour.	P1
	The app does not share my personal information with other mobile apps.	P2
	This mobile app protects information about my credit card.	P3

Source: Author analysis (2022)

The Cronbach's alpha test shows a value of 0.78 for the item questionnaire, which means that the data can be trusted. Then, the Pearson correlation test was also performed and the data showed that each item was valid with a significance value of 0.01.

Prioritizing service quality for mobile app development for OTA

Data were collected using a questionnaire with 273 customers, 63% of the sample was male and 37% female. The sample is dominated by the age group between 20 and 30 years, which reaches

65.9%. The majority of the customers in the sample are of Asian origin (77.3%), 13.9% are white, 6.2% are African and 2.6% belong to other ethnic groups. 84.2% of the respondents have a higher education. This questionnaire using a Likert scale of 1-5 regarding the degree of importance of service attributes of the OTA mobile app, and then the average value used as the final value of the importance ratings of each service attribute was sought. The results of the evaluation of the priority level of service attributes of OTA mobile apps are shown in Table 2.

Table 2. Assessment of the priority level of OTA mobile apps service attributes based on their Value

Dimension	Attributes Code	Attribute Importance Value	Dimension Importance value	Priority Rank
Efficiency	E1	4.36	4.49	4
	E2	4.27		
	E3	4.46		
	E4	4.21		
	E5	4.78		
	E6	4.67		
	E7	4.74		
	E8	4.42		
Fulfilment	F1	4.82	4.84	1
	F2	4.79		
	F3	4.93		
	F4	4.91		

	F5	4.85		
	F6	4.82		
	F7	4.86		
	F8	4.85		
	F9	4.71		
Contact	C1	3.82		
	C2	4.23		
	C3	4.39	4.29	5
	C4	4.73		
Responsiveness	R1	4.68		
	R2	4.74		
	R3	4.57		
	R4	4.64		
	R5	4.75	4.69	3
	R6	4.73		
	R7	4.77		
Privacy	P1	4.73		
	P2	4.82	4.80	2
	P3	4.87		

Source: Author analysis (2022)

Table 2 shows that the service attribute with the highest importance is an attribute within the fulfilment dimension with an average weighting of 4.84 out of 5. Within the fulfilment dimension, the service attribute with code F3, which refers to the need for mobile apps to be able to deliver orders as quickly as possible, has the highest weight. The data protection dimension takes second place with an average importance value of 4.80. In this dimension, the P3 attribute Service, which refers to the mobile app's ability to protect customers' credit card data,

ranks first. This is in line with the research of Potoglou, Palacios & Feijóo (2015), which states that privacy protection regarding personal customer data, especially credit card information, is one of the main concerns for product providers with online platforms. In third place is the responsiveness dimension, with an average importance score of 4.69. Attributes related to the ability for customers to speak live with customer service when problems arise are the attributes with the highest weight in the responsiveness dimension.

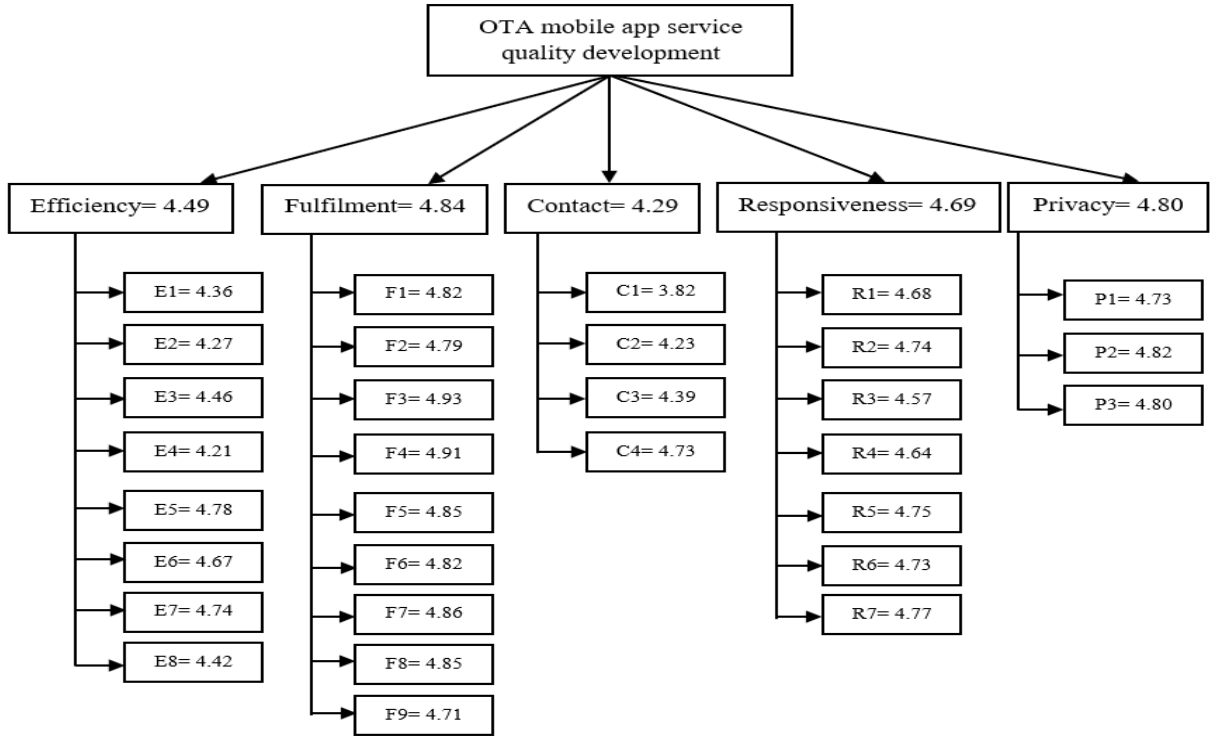


Figure 1. AHP Framework of OTA mobile app service development
Source: Author analysis (2022)

CONCLUSION

Prioritization of service attributes for mobile OTA app development is performed using AHP. Data were obtained through a questionnaire survey developed based on the M-S-Qual measurement and distributed to OTA customers. This study proposes three priority dimensions of OTA mobile app service attributes, with results showing that of the four scope dimensions, fulfilment is the most prioritized dimension, privacy is the second most prioritized dimension and responsiveness is the third most prioritized dimension. This research encourages industry players to pay more attention to the service attributes that fall into these three priority dimensions to ensure that mobile OTA app development meets customer needs. It is expected that this research can also fill the research gap related to AHP applications in mobile app development in the tourism industry.

LIMITATION AND FUTURE RESEARCH

The limitation of this study lies in the method used to identify the items, which M-S-Qual employs using literature review. During the process, the availability of relevant literature can greatly influence the results. We are confident that the results will be more innovative if the items are identified directly through open-ended in-depth interviews with experts and our clients. In terms of future research, this study did not present a specific strategy for the company. Further research is needed to determine what actions the company can take to satisfy customers using mobile OTA apps.

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