



# Analysis of User Satisfaction in Online Ticket Booking Using the Pieces Method

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## Abstract

The digitalization of various services, such as online ticket booking, has been driven by advances in information technology. The purpose of this study was to evaluate user satisfaction with the Agoda online ticket booking application, which covers six elements: performance, information, economy, control, efficiency, and service. Data collected through an online survey sent to application users was then analyzed using validity and reliability tests to ensure the instrument was accurate. The analysis results showed that the service aspect (3.76) and efficiency (3.75) achieved the highest scores, indicating how satisfied users were with the service and easy transaction procedures. The information aspect (3.68) and economy (3.67) were also rated as good, but information clarity and cost-effectiveness still need improvement. The performance aspect (3.55) indicates that the system is good in terms of speed, but still needs improvement in terms of stability. Meanwhile, the control aspect received the lowest score (3.6), indicating that users still have little ability to control the process in an orderly manner. This study is expected to improve Agoda user satisfaction by providing a comprehensive overview of user perceptions of the company's service quality.

**Keywords:** User Satisfaction, Online Ticket Booking, PIECES, Agoda.

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## 1. Introduction

Technological developments are increasingly advanced, and society is beginning to embrace them. The development of Information Technology (IT) is a global technological development and advancement. In the current era of globalization, where our daily activities, such as work and education, are integrated with technology, the rapid advancement of technology is inevitable. To obtain information more quickly, robust information media is crucial in human life. New innovations provide opportunities to benefit from technological developments and information technology, particularly in the internet [1].

Traveling has become easier thanks to rapid advances in information technology. The tourism industry is entering a digital era, where the web is used for promotions, sales, and transactions. Economic actors in the tourism sector use the web to promote their businesses and services to customers. Travelers and tourism companies both use the web [5]. As technology advances for mobile device users, applications can offer various purchasing features. For example, you will be able to efficiently locate agents for airline ticket reservations, train ticket reservations, transportation ticket reservations, boat ticket reservations, etc., as well as destinations you wish to reach [6].

Online reservation systems simplify the reservation process and enable your travel or hospitality business to operate more efficiently. AGODA.COM is the 605th most popular website in the world according to [www.alexacom.com](http://www.alexacom.com). Several domains claiming to be agoda.com's main competitors, such as [Happyholiday.co.id](http://Happyholiday.co.id), [eTravel.co.id](http://eTravel.co.id), [ticket.com](http://ticket.com), and even [traveloka.com](http://traveloka.com), have recently been actively advertising themselves through online media.

## 2. Main Body

### A. Agoda Profile

Agoda is an internet company primarily focused on the Asia-Pacific region, providing online hotel and accommodation booking services for both smartphones and computers. The company operates in several countries in Southeast Asia, including Thailand, Singapore, and the Philippines. Agoda has two access platforms: one online, accessible from a PC, and the other through an app for Android or iOS devices. These are available for download on the Play Store and App Store. Several websites reviewing Agoda mention that Agoda offers a number of special deals on displayed room rates. In fact, Agoda's promotions offer massive discounts of up to 80% off the original price, even for the cheapest rooms in 5-star hotels.



Fig. 1: Agoda Profile

Agoda was founded in the late 1990s by Michael Kenny under the name Planetholiday.com. Users can access the Agoda app in 21 languages, including Indonesian, Chinese, English, French, Spanish, Japanese, and Thai. Agoda's headquarters are located in Bangkok, Singapore, and the Philippines.

## B. PIECES Framework

The Pieces Framework is a methodology designed to classify challenges, opportunities, and policies by considering aspects of scoping, analysis, and system design. With this approach, you can create new innovations worthy of consideration in efforts to improve existing systems. The Pieces method includes six important variables essential to information systems analysis[13]:

### 1. Performance

This variable serves to assess the effectiveness of a system's performance and its ability to operate properly. This measure of effectiveness can be analyzed through the amount of data collected and the extent to which that data can be accessed.

### 2. Information and Data

This information variable is used to analyze data or information in terms of the quality and quantity produced by the system, and whether the information produced is relevant and timely in a single information search.

### 3. Economics

This variable analyzes the cost of a system by assessing the benefits the system can provide that are commensurate with the costs incurred.

### 4. Control and Security

This variable in the system requires protection and management of processed data for the system to operate properly. Studying this system to determine how secure the processed data or information is.

### 5. Efficiency

In assessing system efficiency, it is necessary to examine the system's performance and the rationale behind its creation. This efficiency analysis aims to determine how useful the system is in addressing and resolving automation-related issues, such as inputting data that produces satisfactory output.

### 6. Service

This analysis aims to evaluate the quality of service provided by the system. It is important to consider how easy the implemented system is to use. User satisfaction is crucial in determining how good service can ensure users receive assistance with their problems.

## C. Research Method

This research was conducted systematically to assess user satisfaction with online ticket booking. The process began with problem identification, specifically the lack of in-depth studies on the topic. Next, the PIECES method was used as an analytical framework, encompassing six aspects: Performance, Information, Economics, Control and Security, Efficiency, and Service. To obtain data, a questionnaire was developed for respondents to elicit their opinions and experiences. Before further analysis, the research instrument was tested for validity and reliability using SPSS software to ensure data accuracy and consistency. The final stage was an assessment of each PIECES variable, which served as the basis for drawing conclusions regarding user satisfaction levels.

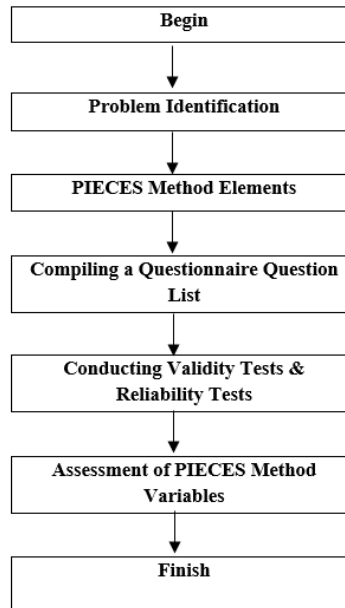


Fig. 2: Research steps

**D. Data Processing Method**

**1. Validity Test**

Validity testing is conducted to ensure that the research instrument actually measures the intended variables. Validity is tested by correlating scores for each element using the Pearson correlation equation. If the numerical value is greater than the R value in the R table, the instrument is considered valid. The following formula is used to test validity:

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{(n \sum x^2 - (\sum x)^2)(n \sum y^2 - (\sum y)^2)}}$$

**2. Reliability Test**

Reliability testing aims to measure the consistency of instrument measurements based on the Cronbach's alpha equation. If the alpha value exceeds the specified minimum limit, the instrument is declared reliable. If the alpha value exceeds the specified minimum limit, the instrument is declared reliable. The following is the formula used for reliability testing:

$$r_i = \left( \frac{k}{k-1} \right) \left( 1 - \frac{\sum \sigma b^2}{\sigma^2} \right)$$

**3. PIECES Measurement Method**

This method was used to analyze six aspects of the Agoda app's information system: performance, information, economy, security, efficiency, and service. Each aspect was evaluated based on user responses via a Likert-based survey. To obtain the average satisfaction level, we used the following formula:

$$RK = \frac{JSK}{JK}$$

Table 1 : Kaplan And Norton's Opinion

Information	Points
Strongly Agree (ST)	4,20 - 5,00
Agree (S)	3,40 - 4,19
Hesitation (R)	2,60 - 3,39
Disagree (TS)	1,80 - 2,59
Strongly Disagree (STS)	1,00 - 1,79

**E. Results and discussion**

**1. Result**

This study resulted in the construction of a system to analyze the satisfaction of online ticket booking users using the pieces method. Below is a general representation of the proposed system:

- a) Loginpage

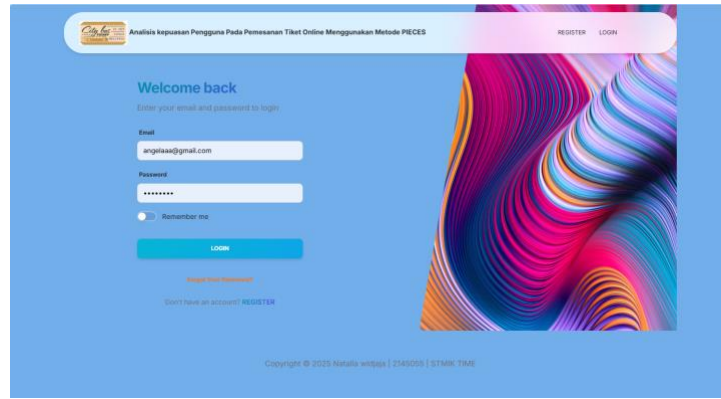


Fig. 3: Loginpage

b) Register Page

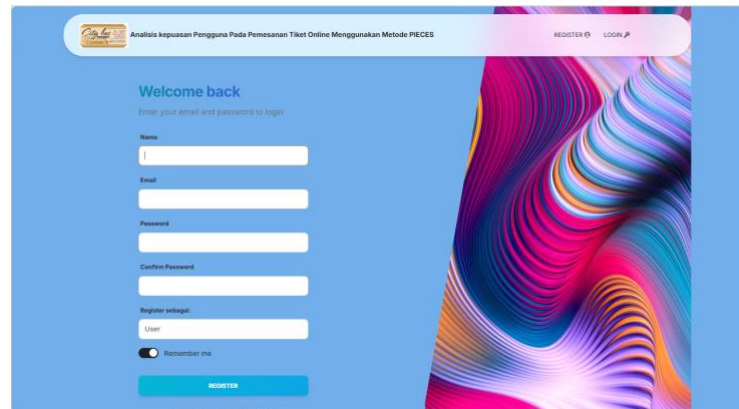


Fig. 4: Register Page

c) Admin Dashboard Page

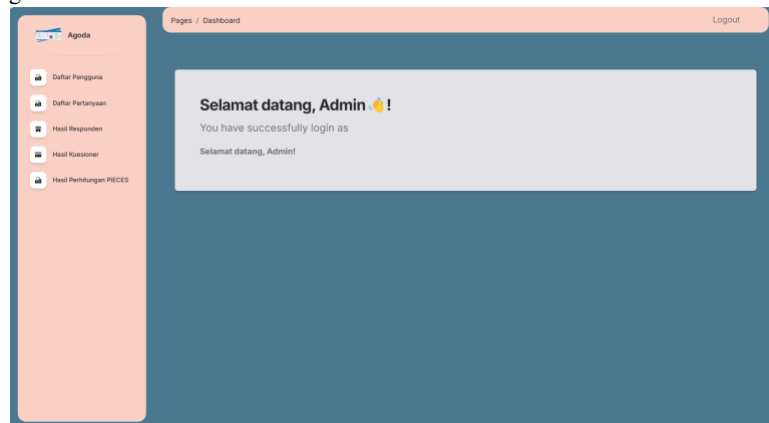


Fig. 5: Admin Dashboard Page

d) User List Page

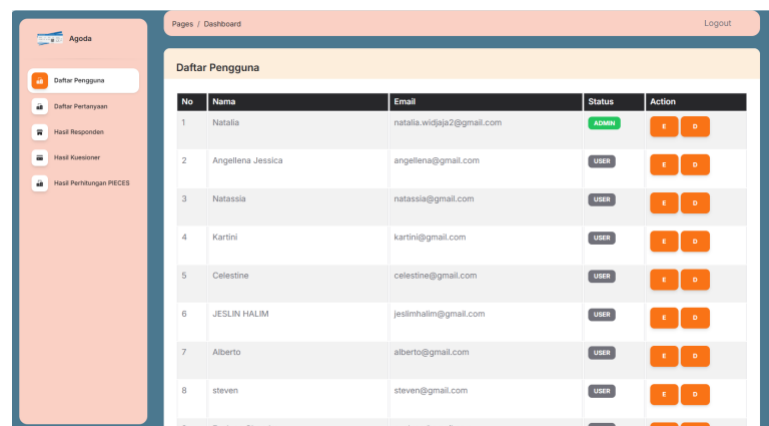


Fig. 6: User List Page

e) Question List Page

No	Question	Dimensi	Option
1	Aplikasi AGODA menawarkan kecepatan loading yang sangat baik saat di akses	Performance	Sangat ts Tidak set Ragu-rag Setuju Sangat ts
2	Tampilan antarmuka aplikasi AGODA dirancang supaya mudah dipahami	Performance	Sangat ts Tidak set Ragu-rag Setuju Sangat ts
3	Terdapat fitur aplikasi AGODA lengkap dan bekerja dengan baik	Performance	Sangat ts Tidak set Ragu-rag Setuju Sangat ts
4	Aplikasi AGODA cepat dalam merespon perintah	Performance	Sangat ts Tidak set Ragu-rag

Fig. 7: Question List Page

f) Respondent Data Results Page

No	Nama	Email	Jenis Kelamin	Usia	Pendidikan Terakhir	Pekerjaan
1	Angellena Jessica	angellena@gmail.com	Perempuan	< 25	SMA / SMK	Mahasiswa / Pelajar
2	Natassia	natassia@gmail.com	Perempuan	< 25	S1	Mahasiswa / Pelajar
3	Kartini	kartini@gmail.com	Perempuan	36 - 40	S2	karyawan Swasta
4	Celestine	celestine@gmail.com	Perempuan	< 25	SMA / SMK	Mahasiswa / Pelajar
5	JESLIN HALIM	jeslinhalim@gmail.com	Perempuan	< 25	SMA / SMK	Mahasiswa / Pelajar
6	Alberto	alberto@gmail.com	Laki-laki	< 25	S1	karyawan Swasta
7	steven	steven@gmail.com	Laki-laki	< 25	SMA / SMK	karyawan Swasta
8	Evelyne Chandra	evelyne@gmail.com	Perempuan	< 25	SMA / SMK	karyawan Swasta
9	Felicia	felicia@gmail.com	Perempuan	< 25	SMA / SMK	Mahasiswa / Pelajar
10	Felisha	felisha@gmail.com	Perempuan	< 25	SMA / SMK	Mahasiswa / Pelajar
11	Steven Julianto	stevenjulianto@gmail.com	Laki-laki	< 25	SMA / SMK	karyawan Swasta
12	Tigoh	tigoh@gmail.com	Perempuan	< 25	S1	Mahasiswa / Pelajar
13	Viola Lotus	viola@gmail.com	Perempuan	< 25	SMA / SMK	Mahasiswa / Pelajar
14	Faustine	faustine@gmail.com	Perempuan	< 25	SMA / SMK	Mahasiswa / Pelajar

Fig. 8: Respondent Data Results Page

g) Questionnaire Data Results Page

No	Nama	Aplikasi AGODA Menawarkan Kecepatan Loading Yang Sangat Baik Saat Di Akses	Tampilan Antarmuka A
1	Angellena Jessica	Sangat Setuju	
2	Natassia	Setuju	
3	Kartini	Setuju	
4	Celestine	Setuju	
5	JESLIN HALIM	Setuju	
6	Alberto	Setuju	
7	steven	Setuju	
8	Evelyne Chandra	Sangat Setuju	
9	Felicia	Setuju	
10	Felisha	Setuju	
11	Steven Julianto	Sangat Setuju	
12	Tigoh	Setuju	
13	Viola Lotus	Setuju	
14	Faustine	Setuju	

Fig. 9: Questionnaire Data Results Page

h) PIECES Calculation Results Page

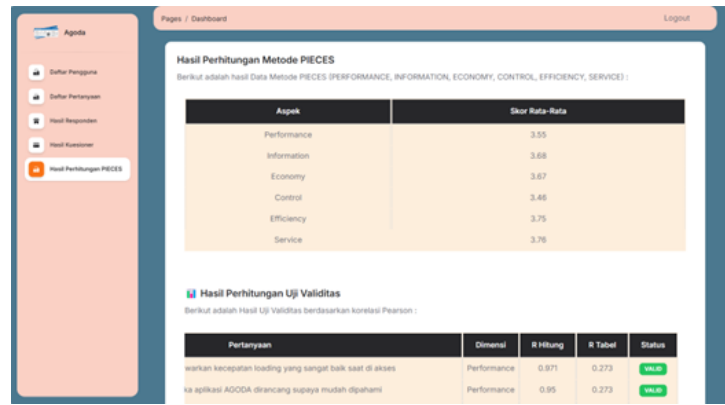


Fig. 10: PIECES Calculation Results Page

i) User Dashboard Page

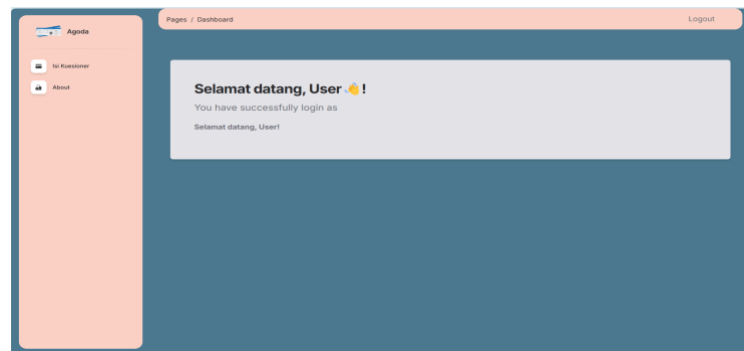


Fig. 11: User Dashboard Page

j) Questionnaire Contents Page

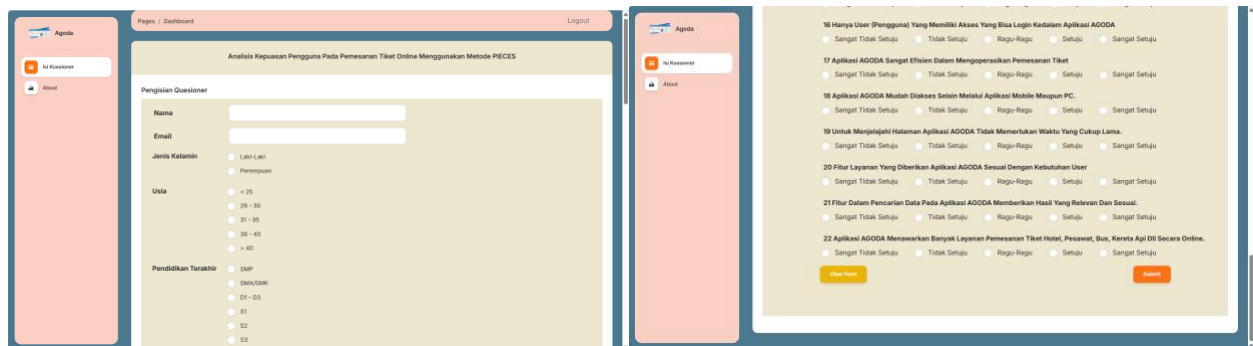


Fig. 12: Questionnaire Contents Page

## 2. Discussion

The results of the PIECES calculation for each category are as follows:

Table 2 : Calculation Results of the PIECES Method

Aspects	Average Score
Performance	3.55
Information	3.68
Economy	3.67
Control	3.46
Efficiency	3.75
Service	3.76

## 3. Conclusion

Factors like system speed (performance), clarity and accuracy of information (information), and system reliability and comfort (service and control) greatly affect user satisfaction. The better the service quality, the higher the user satisfaction. Common problems users face include delays in the system during busy times, changes to payment rules, and unclear information about technical issues. These are main concerns for improving the system in the future. Online ticket booking is seen as more efficient and satisfying compared to traditional

methods. Online booking services offer easy access, fast booking process, and flexibility in time and place, providing more comfort. As a result, users prefer digital systems over manual ones. This is based on an analysis of the parts where performance aspects and information provided contribute the most to user satisfaction. Both aspects are key factors in evaluating the comfort and trust in online ticket booking services

#### 4. Suggestions

Make sure to provide clearer and more detailed information about the cancellation and schedule change policies for your travel plan. Detailed and simple information helps users feel more secure. Strengthen customer service features, such as live chat, a call center, and AI-driven responsive support, so users can quickly get solutions to their problems. It is highly recommended to regularly conduct user satisfaction reviews by regularly running surveys or collecting feedback to improve the service. The app's interface should be designed in a way that is intuitive and easy to use for all groups. This ensures that it is not only suitable for users who are familiar with digital technology.

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