

Quality Improvement of Tix.id Application During Covid-19 Pandemic Using Gap Analysis, and Quality Function Development (QFD) Method by Using House of Quality (HOQ)

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Abstract

Tix.id is an online digitally based application that allows users to purchase and book the schedule of seats for a movie at the cinema. Tix.id is engaged in the service sector, which requires a different way in terms of quality assurance compared to the manufacturing sector. So it is needed several analytical tools in assess customer satisfaction, performance, quality, and so on. Gap analysis is present as one of the tools that can be used to assess the performance of the Tix.id application. Gap Analysis is an analytical method that compares actual performance with expectations with the hope that the results of this analysis can be used as reference and information for future planning and improving the quality of performance. HOQ (House of Quality) is a quality assurance tool that helps to focus on the characteristics of the products produced by observing the market segmentation, consumer needs and desires. In this report, the data will be collected from the users of Tix.id application, and then the data will be analyzed using gap analysis to find the gap between the user's perception and the user's expectation of Tix.id application. From the gap analysis then HOQ will be made to obtain certain information that will be used to provide the solution to improve the application to fulfil the user's expectation of Tix.id.

Keywords

Tix.id, House of Quality, Gap Analysis, Quality Function Development

1. Introduction

Tix.id is an online digitally based application that allows users to purchase and book the schedule of seats of a movie at the cinema. In other words, Tix.id is driving the digitalization of the purchasing process of cinema tickets in Indonesia that offers the convenience of the reservations, purchases, schedule and seat selection, distribution of film information and outlets, to payment processing using a variety of payment methods. Tix.id is engaged in the service sector which requires a different way in terms of quality assurance compared to the manufacturing sector. So it needs several analytical tools in assessing customer satisfaction, performance, quality, and so on (Yulianti & Gozali, 2021). Gap analysis is present as one of the tools that can be used to assess the performance of the Tix.id application. Gap

Analysis is an analytical method that compares the actual performance with expectations with the hope that the results of this analysis can be used as reference and information for future planning and improving the quality performance. HoQ (House of Quality) is a quality assurance tool that helps to focus on the characteristics of the products produced by observing the market segmentation, consumer needs and desires (Charista & Gozali, 2020; Gozali et. al., 2021). In this report, Tix id service level analysis will be carried out with Gap Analysis and House of Quality tools to improve the application service quality (Laurensia & Gozali, 2021; Ningrum & Gozali, 2020).

1.1 Objectives

The purpose of using Gap Analysis and House of Quality from the application Tix.id is as follows:

1. Knowing the Gap Analysis from the Tix.id application.
2. Knowing the House of Quality from the Tix.id application.
3. Knowing the solutions to improve Tix.id service quality, so Tix.id could fulfil the customer's expectations.

2. Literature Review

2.1 Definition of Gap Analysis

The difference between expectations and the reality of the quality of service received is called a gap. The gap is important in quality services and is defined as the gap between expected services (expectations) and the perceived service (perception) (Kaihatu, 2008). Gap Analysis is an analysis that compares actual performance with expectations (potential) to identify whether the system/service that is running meets the needs of the consumers or not (Harianja et al. 2015). The process in this analysis begins with determining what steps should be taken from the current state to achieve the desired goal. The components of this analysis consist of three kinds, namely a list of characteristics of the current situation, a list of things needed in the future to fulfil goals, and a list of things that cause gaps (Parasuraman, 1991).

2.2 Benefits of Gap Analysis

Gap Analysis has the benefit of assessing how big the gap is between the actual performance and the expected work standards, knowing the performance improvements needed to close the gaps, and being one of the bases for making decisions regarding the priorities and costs needed to meet the service standards that have been set (Picard et al. 2016). This difference between perceptions and expectations is called the "gap" or service quality gap, which is formulated as $\text{Gap} = \text{Perception} - \text{Expectation}$ (Purnama, 2006).

2.3 Types of Gaps

According to the model developed by Parasuraman, Zeithalm, and Berry in 1995, there are five gaps (Parasuraman, et al. 1995):

1. Management's Perception Gap, namely the difference between the assessments services according to service users and management's perception of service user expectations.
2. Quality Specification Gap, namely the gap between management perceptions regarding service user expectations and service quality specifications.
3. Service Delivery Gap, namely the gap in service quality specifications and service delivery.
4. Marketing Communication Gap, namely the gap between service delivery and external communications. Customer expectations of quality service are affected by statements made by the company through external marketing communications.
5. Gaps in perceived service, namely differences in perceptions between services perceived and expected by the customer if both are proven the same, then the company will get a positive image and impact.

2.4 Quality Function Deployment (QFD)

Quality Function Deployment is a structured method for identifying, classifying, and ranking customer needs, benefits or added value expected from products/services, then connecting them to design the desired product characteristics using HoQ (House of Quality) to provide information certainty (Utami, 2015). QFD is a structured methodology, where this method is used in the product planning and development process to determine the specifications of consumer needs and desires, as well as systematically evaluate the advantages and disadvantages of a product or service's ability to meet consumer needs and desires (Cohen, 1995). QFD begins with customer "voice" research and then continues with product planning, product design, process planning, and process control planning. The main

benefits that can be felt when using QFD are reducing costs, increasing revenue, and reducing production time (Miranda et al, 2003).

2.5 Advantages and Disadvantages of QFD

As a method, QFD has its advantages and disadvantages. Where the advantages of QFD include (Reilly, 1999) :

1. Customer-driven: The focus is on what the customer wants, not what the company thinks its customers want. "Voice of the Customer" drives the development process.
2. Competitive analysis: Other products in the market are examined, and the product of the company is judged against the competition.
3. Reduced development time: The possibility of design changes is reduced because the QFD process focuses on improvements to be made to meet key customer requirements. Careful attention to customer needs reduces the risk that changes will be required at the end of the project life cycle. Time is not spent on developing non-essential functions and features.
4. Reduced development costs: Identify the necessary changes that occur early in the project life cycle. Minimizing changes after production reduces warranty costs and product support costs.
5. Improve teamwork. Apart from the advantages, there are also some disadvantages QFD, i.e. it is difficult to distinguish between different consumer needs conflicting, difficult to meet the needs of different consumer groups or segments, and the conceptual gap between consumers and companies in the early stages of the QFD process.

2.6 House of Quality (HOQ)

House of Quality (HoQ) is a tool that supports the QFD method, using a matrix that relates consumer desires to design measures and compares design measures so that practitioners can concentrate on the most important and valuable characteristics. The term 'house' is used because the QFD tool used looks similar to a house with several rooms and a roof. The HoQ matrix was first used in the process of displaying Voice of Customer (VoC) or consumer needs for technical responses (Alexander et al. 2015).

3. Methods

The following is an explanation of the flowchart that has been made in Figure 1 as follows:

- a) Identifying the problems that occur in the Tix.id application.
- b) Doing a literature study from journals and books about the Gap Analysis and House of Quality.
- c) Gathering data from users of Tix.id application that will be used to perform a Gap Analysis about the Tix.id application.
- d) Making a Gap Analysis about the Tix.id application based on the data gathered from the users of Tix.id application.
- e) Making House of Quality about the Tix.id application.
- f) Providing the solutions to improve the service of the Tix.id application so the application can fulfil the user's expectation.
- g) Implementing the solutions that have been made on the Tix.id application.

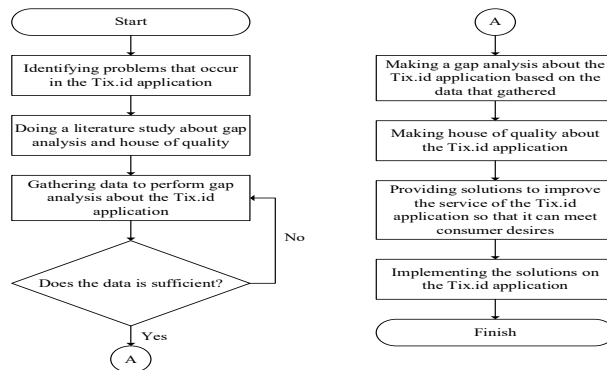


Figure 1. Flowchart of Improving Quality of Tix.id Application

4. Result and Discussions

4.1 Number of Samples

Before doing the Gap Analysis and creating the House of Quality, the first thing that needs to be done is to find the number of samples that will be used. This needs to be done so that the number of samples obtained is following the needs so that the data obtained are valid. The number of samples needed was found using assumptions of a 95% confidence level and a 10% margin of error. The formula to obtain the number of samples is as follows:

$$n = \frac{A^2 x B(1-B)}{d^2}$$

$$n = \frac{0.95^2 x 0.5(1-0.5)}{0.1^2}$$

$$n = 100 \text{ Users}$$

Description:

A = Confidence Level (A= 95% = 2)

B = Maximum Estimate (0.5)

d = Margin of Error

Based on the calculations that have been carried out using the formula for the number of samples, the minimum required for some samples is 100 people, which means that the number of samples used in this study is sufficient, namely 100 people.

4.2 Gap Analysis

After getting the data from the questionnaire that has been distributed, then the data will be processed to find out how big the gap between perception and respondents' expectations of the Tix.id application. A gap analysis of the Tix.id application can be viewed in Table 1.

Table 1. Gap Analysis of Tix.id

No.	Quality Service	Expectations	Perception	Gap
Reliability				
1.	Tix.id allows for quick booking of cinema tickets	4.15	4.1	-0.05
2.	Tix.id rarely experience problems	3.9	3.85	-0.05
3.	Tix.id provide an accurate film schedule	4.15	4.2	0.05
4.	Tix.id provide updated data	4.1	4.2	0.1
5.	Tix.id can provide complete cinema location information	4.15	4.2	0.05
Tangibles				
6.	Tix.id easy to operate	3.95	3.9	-0.05
7.	Tix.id has an attractive interface	3.7	4	0.3
8.	Tix.id has complete features (synopsis and trailer of the film)	3.95	4	0.05
9.	Tix.id allows for a variety of payment methods	3.95	3.9	-0.05
10.	Tix.id can be used for all types of OS Smartphone	4.2	4.25	0.05
Responsiveness				
11.	Tix.id get app updates for the better	3.9	3.95	0.05
12.	Tix.id has a feedback feature that listens to user complaints	3.6	3.9	0.3
13.	Tix.id has a tutorial feature for the first user	3.5	3.9	0.4
14.	Tix.id allows easy creation of new accounts	3.8	4.05	0.25
15.	Tix.id have customer representatives	3.7	3.9	0.2
Assurance				
16.	Tix.id ensure the security of user data	3.9	4	0.1
17.	Tix.id guarantees original booked cinema tickets that can be used	4.2	4.35	0.15
18.	Tix.id guarantee cheaper ticket prices	3.95	3.85	-0.1
19.	Tix.id guarantee a more enjoyable cinema viewing experience	3.7	3.8	0.1
20.	Tix.id guarantee the redemption of points into vouchers	3.7	3.9	0.2
Empathy				
21.	Tix.id respond to user comments via Google Play or the App Store	3.7	3.8	0.1
22.	Tix.id respond to user complaints regarding app users	3.9	3.95	0.05
23.	Tix.id collaborate with third-party applications	3.75	4.05	0.3
24.	Tix.id provide complete information about payment procedures via debit/credit card	3.65	3.85	0.2
25.	Tix.id serve complaints about refunds	3.65	3.8	0.15

Based on Table 1, there are several services from the application of Tix.id which has a minus gap between perception and expectation. This happens because the respondents' perception of the Tix.id application is smaller than the expectations. Some of these ministries can be seen as follows:

1. Tix.id app allows quick booking of cinema tickets (Reliability).
2. Tix.id application rarely experiences problems (Reliability).
3. Tix.id application is easy to operate (Tangibles).
4. Tix.id application allows various payment methods (Tangibles).
5. Tix.id application guarantees cheaper ticket prices (Assurance).

4.3 Aspects Of The Quality Profile Based On The Order Of Gap Values Tix.Id

After calculating the gap value of each aspect, then we sort the aspects from the gap value with the largest minus. Aspects of quality profile based on the gap order can be seen in Table 2.

Table 2. Aspects of Quality Profiles Based on GAP Order

No	Quality Aspects	GAP
18	Tix.id guarantee cheaper ticket prices	-0.1
1	Tix.id allows for quick booking of cinema tickets	-0.05
2	Tix.id rarely experience problems	-0.05
6	Tix.id easy to operate	-0.05
9	Tix.id allows for a variety of payment methods	-0.05
3	Tix.id provides an accurate film schedule	0.05
5	Tix.id can provide complete cinema location information in different cities	0.05
8	Tix.id has complete features (synopsis and trailer of the film)	0.05
10	Tix.id can be used for all types of OS Smartphone	0.05
11	Tix.id get app updates for the better	0.05
22	Tix.id respond to user complaints regarding app users	0.05
4	Tix.id provide updated data	0.1
16	Tix.id ensure the security of user data	0.1
19	Tix.id guarantee a more enjoyable cinema viewing experience	0.1
21	Tix.id respond to user comments via Google Play or the App Store	0.1
17	Tix.id guarantee on great booked cinema tickets that can be used	-0.15
25	Tix.id serve complaints about refunds	0.15
15	Tix.id have customer representatives	0.2
20	Tix.id guarantee the redemption of points into vouchers	0.2
24	Tix.id provide complete information about payment procedures via debit/credit card	0.2
14	Tix.id allows easy creation of new accounts	0.25
7	Tix.id has an attractive interface	0.3
12	Tix.id has a feedback feature that listens to user complaints	0.3
23	Tix.id collaborate with third-party applications	0.3
13	Tix.id has a tutorial feature for the first user	0.4

After making the order of quality aspects based on the order of the gap with the largest minus value, then the aspects that have a minus gap value will be reviewed in the House of Quality.

4.4 Gap Analysis of Competing Applications

After looking for the Gap Analysis from the Tix.id application, then we calculate the Gap Analysis for a competitor application, namely the CGV Cinemas. The gap analysis for the CGV Cinemas application can be seen in Table 3.

Table 3. Gap Analysis CGV Cinemas

No.	Quality Service	Perception	Expectation	Gap
Reliability				
1	CGV Cinemas allows fast cinema ticket booking	4.2	4.3	-0.1
2	CGV Cinemas rarely having trouble	3.9	4.1	-0.2
3	CGV Cinemas provides accurate movie schedule	4.3	4.2	0.1
4	CGV Cinemas provides updated data	4	4.2	-0.2
5	CGV Cinemas can provide the cinema location's information in various cities	4.3	4.1	0.2
Tangibles				
6	CGV Cinemas is easy to operate	4.1	4.2	-0.1
7	CGV Cinemas has attractive interface	3.7	3.8	-0.1
8	CGV Cinemas has complete features (synopsis and trailer)	4.2	4.1	0.1
9	CGV Cinemas allows various payment methods	3.9	4.1	-0.2
10	CGV Cinemas can be used for all types of OS Smartphones (iOS and Android)	4.2	4.1	0.1
11	CGV Cinemas frequently updates the application to become better	3.9	3.8	0.1
12	CGV Cinemas features feedback that listens to user complaints	4.1	3.9	0.2
13	CGV Cinemas features tutorials for the first time users	3.8	3.5	0.3
14	CGV Cinemas allows creating new accounts easily	4	3.7	0.3
15	CGV Cinemas has help center (Customer Representatives who are ready to help if there are problems related to the application)	3.9	3.5	0.4
Assurance				
16	CGV Cinemas guarantees the security of user data	4.1	4.2	-0.05
17	CGV Cinemas guarantees that the cinema tickets ordered are genuine and can be used	4.5	4.1	0.4
18	CGV Cinemas guarantees cheaper ticket prices	4.2	3.7	0.5
19	CGV Cinemas guarantees more enjoyable cinema experience	4.4	4	0.4
20	CGV Cinemas guarantees exchanging points into vouchers	4.2	3.7	0.5
Empathy				
21	CGV Cinemas responds to user comments via Google Play or App Store	4	3.7	0.3
22	CGV Cinemas responds to user complaints regarding the use of the application	4.2	3.8	0.4
23	CGV Cinemas cooperates with third-party applications	4.1	3.7	0.4
24	CGV Cinemas provides complete information regarding payment procedures via debit/credit cards	4.1	3.8	0.3
25	CGV Cinemas serves complaints about refunds	4	3.4	0.6

Based on Table 3, there are several services from the application of CGV Cinemas that has a minus gap between the perception and the expectations. This occurs because the respondents' perception of the Tix Id application is smaller than their expectations. Some of these ministries can be seen as follows:

1. The CGV Cinemas app allows booking movie tickets that fast (Reliability).
2. The CGV Cinemas application rarely experiences problems (Reliability).
3. The CGV Cinemas application is easy to operate (Reliability).
4. The CGV Cinemas application has an attractive interface (Tangibles).
5. The CGV Cinemas app allows payment methods that are diverse (Tangibles).
6. CGV Cinemas application guarantees the security of user data (Assurance)

4.5 Aspects of Quality Profile Based on GAP CGV Cinemas Value Order

After calculating the gap value of each aspect, next, we sort the aspects from the gap value with the largest minus. Aspects of the quality profile based on the GAP order can be seen in Table 4.

Table 4. Aspects of Quality Profiles Based on GAP Order

No.	Quality Aspect	GAP
2	CGV Cinemas rarely having trouble	-0.2
4	CGV Cinemas provides updated data	-0.2
9	CGV Cinemas allows various payment methods	-0.2
1	CGV Cinemas allows fast cinema ticket booking	-0.1
6	CGV Cinemas is easy to operate	-0.1
7	CGV Cinemas has attractive interface	-0.1
16	CGV Cinemas guarantees the security of user data	-0.1
3	CGV Cinemas provides accurate movie schedule	0.1
8	CGV Cinemas has complete features (synopsis and trailer)	0.1
10	CGV Cinemas can be used for all types of OS Smartphone (IOS and Android)	0.1
11	CGV Cinemas frequently updates the application to become better	0.1
5	CGV Cinemas can provide the cinema location's information in various cities	0.2
12	CGV Cinemas features feedback that listens the user complaints	0.2
13	CGV Cinemas features tutorials for the first time users	0.3
14	CGV Cinemas allows creating new accounts easily	0.3
21	CGV Cinemas responds to user comments via Google Play or App Store	0.3
24	CGV Cinemas provides complete information regarding payment procedures via debit/credit cards	0.3
15	CGV Cinemas has help center (Customer Representatives who are ready to help if there are problems related to the application)	0.4
17	CGV Cinemas guarantees that the cinema tickets ordered are genuine and can be used	0.4
19	CGV Cinemas guarantees more enjoyable cinema experience	0.4
22	CGV Cinemas responds to user complaints regarding the use of the application	0.4
23	CGV Cinemas cooperates with third party applications	0.4
18	CGV Cinemas guarantees cheaper ticket prices	0.5
20	CGV Cinemas guarantees exchange points into vouchers	0.5
25	CGV Cinemas serves complaints about refunds	0.6

4.6 Customer Requirement

From the Gap Analysis, customer needs can be identified. Then the rate analysis will be filled with customer requirements. The service quality of Tix.id will be filled according to the respondents. Customer needs can be seen in Table 5.

Table 5. Customer Requirements

No	Demanded Quality
18	Tix.id guarantee cheaper ticket prices
1	Tix.id allows for quick booking of cinema tickets
2	Tix.id rarely experience problems
6	Tix.id easy to operate
9	Tix.id allows for a variety of payment methods
3	Tix.id provides an accurate film schedule
5	Tix.id can provide complete cinema location information in different cities
8	Tix.id has complete features (synopsis and trailer of the film)
10	Tix.id can be used for all types of OS Smartphone
11	Tix.id get app updates for the better
22	Tix.id respond to user complaints regarding app users
4	Tix.id provide updated data
16	Tix.id ensure the security of user data
19	Tix.id guarantee a more enjoyable cinema viewing experience
21	Tix.id respond to user comments via Google Play or the App Store
17	Tix.id guarantees original booked cinema tickets that can be used
25	Tix.id serve complaints about refunds
15	Tix.id have customer representatives
20	Tix.id guarantee the redemption of points into vouchers
24	Tix.id provide complete information about payment procedures via debit/credit card
14	Tix.id allows easy creation of new accounts
7	Tix.id has an attractive interface
12	Tix.id has a feedback feature that listens to user complaints
23	Tix.id collaborate with third-party applications
13	Tix.id has a tutorial feature for the first user

4.7 Technical Response

The technical response is several ways to improve or maintain service quality to meet customer needs. The technical response can be seen in Table 6.

Table 6. Technical Response

No	Demanded Quality	Technical Responses
18	Tix.id guarantee cheaper ticket prices	Making improvements to the application
1	Tix.id allows for quick booking of cinema tickets	Expand collaboration with more payment apps
2	Tix.id rarely experience problems	Provide more interesting offers
6	Tix.id easy to operate	Shorten the response time of the complaint and assistance services
9	Tix.id allows for a variety of payment methods	Provide training to help center operators
3	Tix.id provides an accurate film schedule	Expand cooperation with more cinemas
5	Tix.id can provide complete cinema location information in different cities	Perform Auto Application Updates regularly
8	Tix.id has complete features (synopsis and trailer of the film)	Listen to User Advice and Comments
10	Tix.id can be used for all types of OS Smartphone	Provide a booth at the user's destination cinema
11	Tix.id get app updates for the better	Provide proof of Tix.ID cooperation with a cinema
22	Tix.id respond to user complaints regarding app users	Make advertisements on television
4	Tix.id provide updated data	Create ads on social media
16	Tix.id ensure the security of user data	Give discount for new users
19	Tix.id guarantee a more enjoyable cinema viewing experience	Give an annual ticket purchase package
21	Tix.id respond to user comments via Google Play or the App Store	Increase the number of operators for the help center
17	Tix.id guarantees original booked cinema tickets that can be used	Create a virtual assistant in the application
25	Tix.id serve complaints about refunds	Reduce ads from other apps inside the tix.id app
15	Tix.id have customer representatives	Collaborate with famous artists or public figures
20	Tix.id guarantee the redemption of points into vouchers	Become a sponsor of a certain event
24	Tix.id provide complete information about payment procedures via debit/credit card	Provide new features on the application about the latest artists or movies
14	Tix.id allows easy creation of new accounts	
7	Tix.id has an attractive interface	
12	Tix.id has a feedback feature that listens to user complaints	
23	Tix.id collaborate with third-party applications	
13	Tix.id has a tutorial feature for the first user	

4.8 Relationship

At this stage, the House of Quality will be used to provide an assessment of the strength of the relationship between customer requirements and technical responses. The relationship will be filled with the number 0 for unrelated, number 3 for a weak relationship, number 6 for a strong relationship, and number 9 for a very strong relationship. The relationship can be seen in Table 7.

Table 7. Relationship

No	Demanded Quality	Technical Responses
18	Tix.id guarantee cheaper ticket prices	0 9 9 9 0 0 6 0 6 0 0 0 0 0 0 0 0 9 9 0 0 0 0 0 0 0 6 0
1	Tix.id allows for quick booking of cinema tickets	9 3 3 6 0 0 6 0 0 0 0 0 0 0 0 0 0 3 0 0 3 0 0 0 0 0 0 0 0
2	Tix.id rarely experience problems	9 0 0 3 6 0 9 3 0 0 0 0 0 0 0 0 0 9 6 2 0 0 0 0 0 0 0 0
6	Tix.id easy to operate	9 0 0 0 0 0 9 6 0 0 0 0 0 0 0 0 0 0 3 2 0 0 0 0 0 0 0 0
9	Tix.id allows for a variety of payment methods	9 9 9 0 0 0 9 9 6 0 0 0 0 3 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0
3	Tix.id provides an accurate film schedule	6 0 0 0 0 0 6 9 3 0 0 0 0 0 0 0 0 0 0 0 3 0 0 0 0 0 0 0 0
5	Tix.id can provide complete cinema location information in different cities	9 0 0 0 0 0 6 0 0 0 0 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
8	Tix.id has complete features (synopsis and trailer of the film)	9 0 0 0 0 0 6 6 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3
10	Tix.id can be used for all types of OS Smartphone	9 6 0 0 0 0 9 6 0 0 0 0 0 0 0 0 0 0 0 0 3 0 0 0 0 0 0 0 0
11	Tix.id get app updates for the better	9 6 6 6 6 6 9 0 0 0 0 0 0 0 0 0 0 3 6 3 6 6 6 0 0 0 0 0
22	Tix.id respond to user complaints regarding app users	3 0 0 6 6 0 0 9 0 0 0 0 0 0 0 0 0 6 6 6 6 0 0 0 0 0 0 0
4	Tix.id provide updated data	0 0 9 3 0 9 9 3 0 0 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
16	Tix.id ensure the security of user data	0 6 0 0 0 6 0 6 0 0 0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
19	Tix.id guarantee a more enjoyable cinema viewing experience	9 9 9 9 6 6 9 9 9 9 6 3 3 9 9 3 3 6 3 3 6 3 6 0 0 0 0 0 0
21	Tix.id respond to user comments via Google Play or the App Store	3 0 0 6 6 0 0 9 0 0 9 0 0 0 0 0 0 3 3 0 0 0 0 6 0 0 0 0 0
17	Tix.id guarantees original booked cinema tickets that can be used	0 6 0 0 0 0 9 0 0 0 9 9 3 3 0 0 0 0 0 0 0 0 6 6 0 0 0 0 0
25	Tix.id serve complaints about refunds	6 9 9 0 9 9 0 0 0 6 0 0 0 0 0 0 0 3 0 0 9 6 0 0 0 0 0 0 0
15	Tix.id have customer representatives	0 0 0 9 9 0 0 0 9 9 0 0 0 0 0 0 0 0 9 9 0 0 3 0 0 0 0 0
20	Tix.id guarantee the redemption of points into vouchers	6 9 9 0 0 0 6 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 0 0 0
24	Tix.id provide complete information about payment procedures via debit/credit card	9 6 6 0 0 0 0 0 0 6 0 0 3 3 0 0 0 0 0 0 6 6 0 0 0 0 0 0 0
14	Tix.id allows easy creation of new accounts	9 0 0 3 6 0 6 0 0 6 0 0 0 0 0 0 0 0 3 6 0 0 0 0 0 0 0 0 0
7	Tix.id has an attractive interface	9 0 0 0 3 6 9 0 0 0 0 0 0 0 0 0 0 0 3 3 0 0 0 0 0 0 0 6
12	Tix.id has a feedback feature that listens to user complaints	9 0 0 9 9 6 6 9 6 0 0 6 0 0 0 0 0 0 0 9 9 0 0 0 0 0 0 0 0
23	Tix.id collaborate with third-party applications	9 9 9 0 0 0 6 0 0 6 0 3 0 3 6 3 0 0 0 0 0 0 9 6 0 0 0 0 0
13	Tix.id has a tutorial feature for the first user	9 0 0 3 0 0 9 0 6 0 3 3 0 0 0 3 9 0 0 0 0 0 0 0 0 0 0 0 0

4.9 Planning Matrix

Planning matrix is a method used by HoQ users to measure the demanded quality and the customer requirements (which includes importance to customer, customer satisfaction performance, competitive satisfaction performance, goal, improvement ratio, sales point, row weight). Then, continued by making the technical response, which is a response of the service provision unit to meet the needs and desires of service users. The technical response is a stage where organization identify or analyze whether the product or service requirements desired by customers can be met. The planning Matrix can be seen in Table 8.

Table 8. Planning Matrix

No	Demanded Quality	Technical Response																		Importance Level	Target / Goal	Sales Point	Improvement Ratio	Row Weight			
		Making improvements to the application	Expand collaboration with more payment apps	Provide more interesting offers	Shorten the response time of the complaint customer services	Expand cooperation with more cinemas	Provide training & help center operators	Expand cooperation with more cinemas	Introduce New Application Update regularly	Listen to User Advice and Comments	Provide both at the user's demand on cinema	Provide proof of Tix ID cooperation with a cinema	Make advertisements on television	Present ads on social media	Give discount for new users	Give an annual ticket purchase package	Increase the number of operators for the help center	Form a virtual assistant in the application	Reduce ads from other apps inside the Tix ID app						Collaborate with famous artists or public figures	Increase response of customer	Provide new features on the application about the latest movies or series
18	Tix.id guarantee cheaper ticket prices	0	9	9	0	0	6	0	6	0	0	0	0	0	9	9	0	0	0	6	0	3.95	5	1.5	1.266	7.5	
1	Tix.id allows for quick booking of cinema tickets	9	3	3	6	0	0	6	0	0	0	0	0	0	3	0	3	3	0	0	0	4.15	4.5	1.5	1.084	5.4	
2	Tix.id rarely experience problems	9	0	0	3	6	0	9	3	0	0	0	0	0	0	9	6	3	0	0	0	3.9	4.5	1.5	1.154	5.4	
6	Tix.id easy to operate	9	0	0	0	0	0	9	6	0	0	0	0	0	0	0	0	3	3	0	0	3.95	5	1.5	1.266	6	
9	Tix.id allows for a variety of payment methods	9	9	9	0	0	9	9	6	0	0	0	0	3	3	3	0	0	0	0	0	3.95	5	1.5	1.266	7.5	
3	Tix.id provides an accurate film schedule	6	0	0	0	0	6	9	3	0	0	0	0	0	0	0	0	0	0	0	0	4.15	5	1.5	1.285	7.5	
5	Tix.id can provide complete cinema location information in different cities	9	0	0	0	0	6	0	0	0	0	0	0	3	3	0	0	0	0	0	0	4.15	4.5	1.5	1.084	6.75	
8	Tix.id has complete features (synopsis and trailer of the film)	9	0	0	0	0	6	6	6	0	0	0	0	0	0	0	0	0	0	0	3	3.95	5	1.5	1.266	7.5	
10	Tix.id can be used for all types of OS Smartphone	9	6	0	0	0	9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	4.2	5	1.5	1.19	7.5	
11	Tix.id get app updates for the better	9	6	6	6	6	6	9	0	0	0	0	0	0	3	6	3	6	6	0	0	3.9	4.5	1.5	1.154	5.4	
22	Tix.id respond to user complaints regarding app users	3	0	0	6	6	0	0	9	0	0	0	0	0	0	0	6	6	0	0	0	3.9	4.5	1.5	1.154	6.75	
4	Tix.id provide updated data	0	0	3	0	9	9	3	0	0	0	3	3	0	0	3	0	0	0	0	0	4.1	5	1.5	1.22	7.5	
16	Tix.id ensure the security of user data	0	6	0	0	6	0	6	0	0	9	3	3	0	0	3	3	0	0	0	0	3.9	5	1.5	1.282	7.5	
19	Tix.id guarantee a more enjoyable cinema viewing experience	9	9	9	9	6	9	9	9	6	3	3	9	3	3	6	3	3	6	3	6	3.7	5	1.5	1.351	7.5	
21	Tix.id respond to user comments via Google Play or the App Store	3	0	0	6	6	0	0	9	0	0	3	3	0	0	0	0	0	0	0	0	3.7	5	1.5	1.351	6	
17	Tix.id guarantees original booked cinema tickets that can be used	0	6	0	0	0	9	0	9	9	3	3	0	0	0	0	0	0	0	0	0	4.2	5	1.5	1.19	7.5	
25	Tix.id solve complaints about refunds	6	9	0	9	9	0	0	0	6	0	0	3	0	0	9	6	0	0	0	0	3.65	5	1.5	1.37	7.5	
15	Tix.id have customer representatives	0	0	0	9	9	0	0	9	9	0	0	0	0	0	0	9	9	0	3	0	3.7	5	1.5	1.351	7.5	
20	Tix.id guarantee the redemption of points into vouchers	6	9	9	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	3	0	3.7	4.5	1.5	1.316	5.4	
24	Tix.id provide complete information about payment procedures via debit/credit card	9	6	6	0	0	0	0	6	0	0	6	3	3	0	0	6	6	0	0	0	3.65	4.5	1.5	1.233	5.4	
14	Tix.id allows easy creation of new accounts	9	0	0	3	6	0	6	0	6	0	0	0	0	3	6	0	0	0	0	0	3.8	4.5	1.5	1.184	6.75	
7	Tix.id has an attractive interface	9	0	0	0	3	6	9	0	0	0	0	0	0	0	0	0	3	3	0	0	6	3.7	5	1.5	1.351	7.5
12	Tix.id has a feedback feature that listens to user complaints	9	0	0	9	6	6	6	9	6	0	0	0	0	0	9	9	0	0	0	0	3.6	5	1.5	1.389	7.5	
23	Tix.id collaborations with third-party applications	9	9	9	0	0	6	0	3	0	3	6	3	0	0	0	0	9	6	0	0	3.75	5	1.5	1.333	7.5	
13	Tix.id has a tutorial feature for the first user	9	0	0	3	0	0	9	0	6	0	3	3	0	0	3	9	0	0	0	0	3.5	4.5	1.5	1.286	5.4	

4.10 Technical Correlation

Technical correlation shows a correlation between the technical responses. The correlation is shown by symbols that can be seen as follows:

- a. Symbol ++ = Very strong correlation
- b. Symbol + = Strong correlation
- c. Symbol = No correlation

Example in Technical Response of “Improvement to application” with “Expanding cooperation with more cinemas”, is given a very strong correlation, because if the Tix.id application expands cooperation with other cinemas, the Tix.id application automatically needs to update the system to be able to book tickets at other cinemas. Technical correlation can be seen in Table 9.

Table 9. Technical Correlation

Technical Responses	Importance Level	Target / Goal	Sales Point	Improvement Ratio	Row Weight
Making improvements to the application	●	▲	▼	▲	1
Expand collaboration with more payment apps	●	▲	▼	▲	2
Provide more interesting offers	●	▲	▼	▲	3
Shorten the response time of the complaint and assistance services	●	▲	▼	▲	4
Provide training to help center operators	●	▲	▼	▲	5
Expand cooperation with more cinemas	●	▲	▼	▲	6
Perform Auto Application Updates regularly	●	▲	▼	▲	7
Listen to User Advice and Comments	●	▲	▼	▲	8
Provide a booth at the user's destination cinema	●	▲	▼	▲	9
Provide proof of Tix ID cooperation with a cinema	●	▲	▼	▲	10
Make advertisements on television	●	▲	▼	▲	11
Create ads on social media	●	▲	▼	▲	12
Give discount for new users	●	▲	▼	▲	13
Give an annual ticket purchase package	●	▲	▼	▲	14
Increase the number of operators for the help center	●	▲	▼	▲	15
Create a virtual assistant in the application	●	▲	▼	▲	16
Reduce ads from other apps inside the tix id app	●	▲	▼	▲	17
Collaborate with famous artists or public figures	●	▲	▼	▲	18
Become a sponsor of a certain event	●	▲	▼	▲	19
Provide news features on the application about the latest artists or movies	●	▲	▼	▲	20
Importance Level					
Target / Goal					
Sales Point					
Improvement Ratio					
Row Weight					

4.11 Direction of Improvement

The direction of improvement is the direction of technical response improvement made according to customer wishes. In the direction of improvements, several symbols can be seen as follows:

- a. ● This means that customers prefer a technical response with certain targets.
- b. ▲ This means that customers prefer a greater technical response.
- c. ▼ This means that customers prefer a smaller technical response.

The direction of Improvement can be seen in Table 10.

Table 10. Direction of Improvement

▲	Making improvements to the application
▲	Expand collaboration with more payment apps
▲	Provide more interesting offers
▲	Shorten the response time of the complaint and assistance services
▲	Provide training to help center operators
▲	Expand cooperation with more cinemas
▲	Perform Auto Application Updates regularly
▲	Listen to User Advice and Comments
▲	Provide a booth at the user's destination cinema
▲	Provide proof of Tix ID cooperation with a cinema
▲	Make advertisements on television
▲	Create ads on social media
▲	Give discount for new users
▲	Give an annual ticket purchase package
▲	Increase the number of operators for the help center
▲	Create a virtual assistant in the application
▲	Reduce ads from other apps inside the tix id app
▲	Collaborate with famous artists or public figures
▲	Become a sponsor of a certain event
▲	Provide news features on the application about the latest artists or movies

4.12 Target

The target column will be filled with concrete actions that must be taken by the service provider in accordance with the technical response.

- a. Absolute Importance

The formula for absolute importance can be seen as follows:

$$\text{Absolute Importance} = \sum(\text{Row Weight} \times \text{Value Relationship})$$

- b. Relative Importance

The formula for relative importance can be seen as follows:

Relative importance = (Absolute Importance / \sum Absolute Importance) \times 100 %

c. Rank Importance

Importance rank is the order of the relative importance of largest to smallest.

Targets can be seen in Table 11.

Table 11. Target

	Target																				
	Updating the appearance of the application every time a user updates the application																				
	Cooperate with payment applications Ovo, Gopay, Shopeppy, etc																				
	Give more discounts and cashback																				
	Increase the number of assistance and service operators																				
	There is an operator training once a month																				
	The application can be used for Blitz Megaplex and Plix Cinema cinemas																				
	Provide tutorial features and reduce ads on the application																				
	Make improvements according to user comments																				
	Open a booth at the cinema as an on-site help center																				
	Make advertisements in cooperation with certain cinemas																				
	Make advertisements on national television stations																				
	Create ads on Instagram, Twitter and YouTube																				
	Give 70% discount for the first 1 week of use																				
	Provide a year ticket purchase package at a low price																				
	Increase the number of operators by 40%																				
	Create virtual assistant feature in app UI																				
	Only accept ads from booming apps or games																				
	Make collaborations with Korean artists																				
	Sponsoring award events on national television stations																				
	Provide news information about the latest artist or film																				
Absolute Importance	1052	602.1	399.6	486.5	496.8	600.3	926.1	594	420.3	180	183.2	250.7	196.2	206.1	439.7	553.5	226.8	180	196.2	130.5	8321
Relative Importance	13%	7%	5%	6%	6%	7%	11%	7%	5%	2%	2%	3%	2%	2%	5%	7%	3%	2%	2%	2%	100%
Rank Importance	1	3	11	7	8	4	2	5	10	14	15	12	16	17	9	6	13	18	19	20	

4.13 Customer Rating

The customer rating is filled in based on the average respondent's perception of a competitor's application, namely CGV Cinemas. Customer ratings can be seen in Table 12.

Table 12. Customer Rating

1	2	3	4	5	Perception
					4.2
					4.2
					3.9
					4.1
					3.9
					4.3
					4.3
					4.2
					4.2
					3.9
					4.2
					4
					4.1
					4.4
					4
					4.5
					4
					3.9
					4.2
					4.1
					4.1
					3.7
					3.9
					4.1
					3.8

4.14 House of Quality

The process of making a House of Quality starts from customer requirement until the customer rating, the House of Quality for Tix.id application can be seen in Figure 2.

is in the aspects of reliability and tangibles (tangibility). There is also a service quality gap from the cheaper Tix.id ticket prices. This shows that the ticket prices sold on the Tix.id application are not much different from the official ticket prices for cinemas. In the rank importance section in the House of Quality, the largest percentage is 13% on the target of "update the appearance of each user's application". This shows that updating the appearance of the application must be done first to continue to provide the best service. So the best advice that can be given by the author is, that the Tix.id application updates the application's interface every time the user updates the application. From the Gap Analysis, in the Assurance aspect, one assessment criteria need to be reviewed further, which is the application guarantees cheaper ticket prices. In the aspect of reliability, the thing that needs to be reviewed further is the application Tix.id can enable fast ticket booking, and the application rarely experiences problems because they do not meet the expectations of the user. On the Tangibles aspect, the criteria that need to be reviewed further namely the application is easy to operate and provides a variety of various payment methods. From the Gap Analysis, the criteria that need to be reviewed further are then analyzed using the House of Quality. The order of targets for improving the performance of Tix.ID services based on the rank importance of the house of quality that has been made is as follows:

1. Update the appearance of each user's application with application updates
2. Provide tutorial features and reduce advertisements on the application.
3. Cooperating with payment applications such as Gopay, Ovo, etc.
4. The application can be used for other cinemas such as Blitz Megaplex and Flix Cinema.
5. Make improvements according to user comments.
6. Increase the number of Customer Service operators.
7. Conduct operator training once a month.
8. Increase discounts and cashback.
9. Opened a booth at the cinema as an on-site help centre.
10. Create advertisements in cooperation with certain cinemas.

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