Evaluation of quality with risk assessment using Kano model and FMEA in Indonesia airline services

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Abstract, Competition in the airline industry has increased this triggers the development of low cost carrier. One airline that has felt the impact of this increased competition is the airline Garuda Indonesia, which previously controlled the airline market share in Indonesia before the emergence of low cost carrier. Garuda Indonesia airline as a market leader still need to improve their services because the satisfaction of some customers is not as high as Garuda Indonesia expected. Based on preliminary studies conducted, there are still customers who feel not satisfied with the services provided by the Garuda Indonesia airline. To maintain the number of customers and increase the number of customers using Garuda Indonesia flight services, Garuda Indonesia airlines must evaluate the quality of service and improve the quality of services provided. This study aims to evaluate the quality of service on airlines using the Kano model and perform quality risk calculations on airline service using Failure Mode and Effects Analysis (FMEA) method. By using KANO Model and Failure Mode and Effect Analysis (FMEA), there are 8 service attributes that need to be improved by Garuda Indonesia Airlines. The service attributes include the ease of check-in and waiting time, the time of departure and the arrival of the aircraft, the suitability of the number and the flight schedule, the flight safety, safety standard, the ticket price compared to the competitors, the suitability of the ticket price with the services provided, compensation in case of loss or damage to the luggage and the quality of the dish / snack served during the flight. These attributes need to be upgraded by Garuda Indonesia airlines to increase customer satisfaction so customers will reuse.

Keywords: quality of aviation services, risk quality, KANO model, contentment, interest, Failure Mode And Effect Analysis

1. Introduction

Business aviation in Asia is a growing business sector in recent years. The Indonesian government announced a policy of deregulation in 2000 that airlines allow ease of permitting a new airline [1]. The deregulation policy of stimulating the growth of low-cost airline services in Indonesia (Low Cost Carrier) [2]. The increase in airline service is accompanied by increased volume number of passengers using air transportation. In table 1 shows that in 2015 the arrival of aircraft with domestic flights 791.8

thousand units by the number of 75.6 million passengers. When compared with the previous year the arrival of aircraft and passengers at domestic flights raise 2.86 percent and 2.31 percent [3].

The development of airline service and an increase in passenger volume will increase competition among airline service company. Competition among airline companies have encouraged the emergence of customer perception of the quality of the services provided by each airline. If the quality of services that relate directly to the customer is not in accordance with customer expectations, then the customer will be dissatisfied, and probably would choose another airline later [4].

Table 1 Aircraft and Passenger Arrival of Domestic Flight, in 2011 - 2015

| Year | Arrivals of Domestic Flight | |
	Aircraft (Unit)	Passenger (Person)
2012	719.030	69.494.439
2013	800.193	77.568.403
2014	769.762	73.889.533
2015	791.783	75.593.248

Source:Modification from www.bps.go.id

One airline in Indonesia who have been affected due to the increased competition is Garuda Indonesia. However, following deregulation rules of the Garuda Indonesia airline now in second ranks in 19,96 million people, or 26% of total domestic passengers after the Lion Air amounted to 26,48 million people in 2015, or 35% of total domestic passenger as much as 76,62 million passengers [5]. Garuda Indonesia airlines also conduct strategic business by offering higher prices than its competitors on the market segmentation to provide better services [6].

In addition, based on the results of a preliminary survey in the form of an online questionnaire to find out the attributes of dissatisfaction with Garuda's service to 46 respondents of Garuda Indonesia airline customers, it is known that four of the six attributes of dissatisfaction exceed 50% of respondents. These attributes include 63% of the passenger baggage services, amounting to 52% of the airline employee service in helping, amounting to 67% of the compensation awarded airline in case of delays and by 72% against the conformity of the prices with the services obtained. This preliminary survey suggests that there are customers who are not satisfied, it could be due to the poor service received by customers [4], so it is necessary to evaluate the quality dimension to see the risks of service in case of failure in providing services to do repairs. Risk is the possibility of loss or possibility of undesirable results. One type of risk is reputational risk, reputation risk which is the risk of potential damage caused by a negative public opinion [7].

Based on these problems, when the quality of service fails to meet customer expectations, it will affect the customer's decision to reuse the airline's services. This bad influence can be said to be a reputation risk because of negative public opinion on airlines so that airlines can lose customers. In the study conducted Hu and Hsiao (2016) to improve the quality of airline services, Hu and Hsiao integrate Kano Model and Failure Mode and Effects Analysis (FMEA) to provide an assessment of the quality attributes and the development model of risk assessment of quality in order to improve the quality of service on flights in Indonesia. Model Kano used for this model focuses on two relationships between customer satisfaction with the performance quality attributes that are not purely linear [4] and the method of Failure Mode and Effects Analysis (FMEA) focuses to explore all types of potential errors, this method to evaluate the level of risk by analyzing type of error, probability of failure, failure severity and danger level [8]. Based on the research description in the background, the purpose of this study is to evaluate the quality of service on airlines using the Kano model. Then perform the calculation of quality risk on airline service using Failure Mode and Effects Analysis (FMEA) method. This study will be useful for the decision maker on an airline in doing development appropriate to the needs of the customer.

2. Literature review

2.1. Flight Service Quality

According to Lewis and Booms (1983), quality of service is a measure of how well the level of service provided by the service provider is able to adjust to the expectations of consumers [9]. While customer satisfaction is an emotion that is generated from the assessment of the range of experiences. This assessment is composed of a variety of different processes depending which triggers an effective response [10]. Intense competition and shrinking profit making airline should increase the quality of services provided to customers. Be very specific customer care services and often tend to switch to another carrier that provides better services [11]. Saha and Theingi (2009) showed that, related to the order of priority, the dimensions of service quality decline are the flight schedule, cabin crew, and employees [12].

2.2. KANO Model

To survive in the aviation industry, the airlines must be efficient to reduce costs. Quality of service is a factor that affects customer satisfaction. Service quality factors that affect the customer in selecting the flight trasnportasi [13]. Kano Model developed by developed by Prof. Noriaki Kano is a method used to categorize attributes of a product or service based on how well the products/ services are able to satisfy customers. Kano Model distinguishing attributes - attributes of the services into three categories, must-be (basic needs), one-dimensional (performance needs) and Attractive (excitement needs) [14].

2.3. Failure Mode and Effects Analysis

FMEA is a way in which a part or a process that might fail to meet a specification, creating a defect or non-compliance and the impact on customers if the failure mode is not prevented or corrected [15]. FMEA involves three stages: analyzing the damage from failure; Risk Priority Number (RPN) is calculated by multiplying the severity (S) based on events (Oc), and then with detection (D). Shahin (2004) integrates the model of Kano and FMEA, and showed that the severity could be considered as a function of incident and detection. Shahin also developed a new risk index, i.e. the ratio of correction (Cr), to identify gaps between the current value and the target value, and it is assumed that there is a current value and the target [4].

3. Research Methodology

Data collection was carried out by distributing questionnaires to respondents on condition that they had used Garuda Indonesia Airlines for at least 4 trips. Researchers spread directly to the respondents directly. The dimensions used in this study are dimension that is often used to measure the level of customer satisfaction for services commonly called Airline Quality (Airqual) [16]. The dimensions consist of Airline Tangibles, Terminal Tangibles, Personnel, Empathy and Image.

3.1. Questionnaire Model

The questionnaire used consists of 6 parts. The first part, contains the introduction and identity data or demographic profile of respondents. The second part, the functional state of the KANO Model. The third part, the KANO Model dysfunctional statement. Part four, customer satisfaction level questionnaire. Part five, customer importance questionnaire. Part six, questionnaire frequency of service failure based on customer.

3.2. Data Processing

3.2.1. Kano Model. The first step in applying the Kano Model is making service attributes in the form of functional and dysfunctional revelation. Furthermore, the questionnaire will be filled out by

respondents and researchers will match the answers to the questionnaire by using Kano model evaluation tables. In the calculation of the model can be used.

After classifying the service attributes into categories Kano followed by calculating the two indices are useful for customer satisfaction coefficient to facilitate the calculation of the average impact on satisfaction and dissatisfaction: Increment Satisfaction Index (SII) and Dissatisfaction Decrement Index (DDI) with the following formula:

$$SII = \frac{(A+O)}{(A+O+M+I)} \qquad (1)$$

$$DDI = \frac{(O+M)}{(A+O+M+I)\ x\ (-1)} \qquad (2)$$

According Matzler and Hinterhuber (1998), the coefficient indicates how strong a product feature may affect customer satisfaction or, in the case of a discrepancy, the dissatisfaction [4]. Then counting Contribution Satisfaction Index (SCI) using the following formula:

$$SCI_i = \frac{SII_i - DDI_i}{max\ (SII - DDI)} \qquad (3)$$

According to Hu and Lee (2011), when satisfactory service attributes, can increase customer satisfaction and reducing dissatisfaction. Therefore, the positive difference between the SII and DDI can be understood as a contribution to the total satisfaction of service attributes [17].

3.2.2. Improvement Effort Index. Hu and Lee (2011) integrate the model Kano with interest rate analysis to create an Improvement Effort Index (IEI). IEI value, thus proposed to identify the improvements resulting from the satisfaction of service quality attributes. IEI is formulated as follows [17]:

$$IEI_i = a_i x\ SCI_i \qquad (4)$$

Where, a_i is the weight standards of quality attributes, which are used to prioritize the improvement of the contribution of the attributes attribute, which is obtained by integrating the level of interest and customer satisfaction. a_i value obtained from:
1. Determine the value of the benefit and satisfaction of each attribute separately on a scale ranging from maximum to minimum.
2. Calculate the difference of the satisfaction index by subtracting the values of importance
3. Determine the difference in the index scale ranging from maximum to minimum. If there is a difference of attributes with the same index, attributes the higher level of satisfaction was given a higher rating. Ranked number called priority weight (w_i), and shows the change in the number of index rankings.
4. Calculate a_i using the normalized weighted priority as $a_i = w_i$ / max (w_i).

3.2.3. Calculation of Failure Mode and Effect Analysis (FMEA). Having scored Improvement Effort Index (IEI) calculation occurrence (Oc) based on frequency of occurrence from failure questionnaire filled out by the respondent Services together with the previous questionnaire. The RPN value of each cause of failure is calculated using the formula:

$$RPNi = IEI_i x\ Occurence_i x\ Detection_i \qquad (5)$$

Shahin (2004) integrates the model of Kano and FMEA, and showed that the severity could be considered as a function of incident and detection. Shahin also developed a new risk index, the ratio of correction (Cr), to identify gaps between the current value and the target value, and assume that [4]:

$$Cr_i = 1 - \frac{RPN_{Tg}}{RPN_i} \qquad (6)$$

Information:

RPN_{Tg} = Value attribute is the target of a body

RPN_i = The current value of an attribute

RPNTg value obtained by multiplying the value Improvement Effort Index (IEI) minimum with a minimum value of Occurrence.

Detection in the correct ratio calculation assumed to be constant because the formula Shahin (2004), the severity of which increases do not necessarily correspond with the increase in detection. After obtaining a Cr value attribute of the rank ordering done the maximum to a minimum, with a maximum value of an attribute that should be improved by in order not to lose customers and can increase the satisfaction of customers [4].

4. Results and Discussion

4.1. Characteristics of Respondents

Data was collected by distributing questionnaires, carried out directly by researchers at Ahmad Yani Airport, Semarang, Central Java. The number of respondents who filled out a questionnaire was 207, but which can be used for further analysis of 200 respondents with a random number. Of all respondents, 51% (102) were male and 49% (98) were women; 44% (89) were aged 17-24 years; 56% (111) were aged 25-60 years: 39% (79) are a student / students, and 61% (121) Employees. In total, 41% (83) is traveling for business, while 59% (117) were traveling for non-business purposes. Regarding the frequency of trips, 68% (135) of passengers flew 1-3 times per year and 32% of passengers flew more than five times a year.

4.2. The reliability and validity testing

Testing the validity of this by comparing the value of r obtained (count r) with r tables seen from the table r *Corrected Item - Total Correlation*. The critical values for testing the validity can be seen in the table r with a significance level α = 0.05 and the amount of data N = 200, then earned critical value of 0.1388. Therefore, testing the validity of the questionnaire in the study had a limit count r ≥ 0.1388. The validity of the test results showed that the questionnaire used is valid. Reliability testing is done by looking at the value of Cronbach's alpha. If the value of *Cronbach's alpha* ≥ 6, then isntrumen research can be said to be reliable. If the value of *Cronbach's alpha* < 6, the instrument can be said to be unreliable research. Reliability test results showed that the questionnaire used is reliable.

4.3. Kano Model

Kano Model aims to categorize attributes of a product or service based on how well the product or service capable of satisfying the customer. Steps in the processing of Kano models that convert the questionnaire with the Likert scale questionnaire into Kano categories. To classify the Kano attributes / categories for each respondent, the Kano evaluation table is used. Grouping Kano dimensions can be seen in Table 2.

Kano Model indicates that what belongs to the category of Attractive by 4 attributes. Attributes PER 6 (Availability of airline employees in assisting passengers) is a service attribute that has a high value attractive category as many as 73 respondents. So, Garuda Indonesia can increase customer satisfaction by improving the service attributes. Category One-dimensional as many as 25 attributes. Attributes IMG 1 (flight operations, safety standards) is a service attribute that has a high value category one-dimensional as many as 148 respondents. So, Garuda Indonesia can increase customer satisfaction by improving the performance of the service attributes. Category Must-be as much as 7 attributes. Attributes PER 7 (Awareness airline employee on his job) is a service attribute that has a high value category of must-be as many as 91 respondents. Thus, the service attributes must be maintained the performance because customers assume that Garuda Indonesia airline employees should know the task that should be done before being asked by the customer. The last category is the

category indifferent as much as two attributes. Attributes TTANG 3 (Availability of facilities, shops and restaurants at the airport) is a service attribute that has a high value indifferent category as many as 108 respondents. So, the service attribute should not be increased, because if there is an increase in performance of the service attribute it will not increase customer satisfaction.

4.4. Calculation of Value Improvement Effect Index (IEI)

Improvement Effort Index (IEI) is used to identify the improvements resulting from the satisfaction of service quality attributes. In this study, IEI value obtained from the calculated value Contribution Satisfaction Index (SCI) obtained from the Increment Satisfaction Index (SII) and Dissatisfaction Decrement Index (DDI) on Kano Model. Attributes ATANG 3 (Availability of medical devices on the plane) had the largest SSI values. Thus, if providing such service passenger satisfaction can be increased more than the other attributes. While IMG 1 (flight operations safety standards) has the lowest DDI value than others, improving these attributes can reduce customer dissatisfaction.

Attributes EMP 2 (clarity on compensation in case of loss or damage to baggage) has the highest value of importance or interest than others. This indicates that customers assume that the service is an essential and mandatory in-flight service. While the EMP attribute 5 (Ease to reach the location of airline office) has the value of the lowest satisfaction or satisfaction than others. This indicates that the ministry of this service must be improved if the airline.

IEI value can be obtained by considering the level of interest and customer satisfaction, and the value of the Contribution Satisfaction Index (SCI). IEI value calculation results, attributes Atang 1 (the aircraft used look clean and modern) are the attributes that have the greatest IEI value. These results indicate that these attributes have a high level of interest and low levels of satisfaction. As a result, this attribute is a priority that should be improved. In accordance with Hu and Lee (2011), the type of this attribute must be given a high priority to be improved [17].

Table 2 Questionnaire Customer Needs in Kano Model (*a*)

No.		Attribute	Category	SSI	DDI
1	ATANG 1	The aircraft used is clean and modern look	O	0,794	-0,648
2	ATANG 2	The quality of the dishes / snacks served during flight	O	0,7026	-0,662
3	ATANG 3	Availability of safety equipment on board the aircraft	O	0,795	-0,71
4	ATANG 4	The cleanliness of the toilets in the plane	O	0,645	-0,655
5	ATANG 5	Cleanliness or condition of a seat on the plane	O	0,705	-0,59
6	ATANG 6	Comfort conditions in an aircraft passenger seat	O	0,72	-0,725
7	ATANG 7	The quality of air conditioning in the aircraft cabin	O	0,735	-0,545
8	TTANG 1	Airport design (looks clean and modern)	O	0,48	-0,43
9	TTANG 2	Toilet hygiene airport	O	0,45	-0,585
10	TTANG 3	Availability of facilities in the airport shops and restaurants	I	0,3385	-0,169
11	TTANG 4	Availability of vehicle parking facilities at the airport	M	0,2857	-0,342
12	TTANG 5	The capacity of the airport to accommodate passengers	M	0,352	-0,408
13	TTANG 6	The quality of indoor air conditioning in airports	O	0,551	-0,663
14	TTANG 7	Facilities smoking areas at airports	A	0,3862	-0,354
15	TTANG 8	Clarity of directions in the airport facilities	M	0,3112	-0,48
16	TTANG 9	Availability of airport trolley	A	0,551	-0,464
17	TTANG 10	Reliability at the airport security system (CCTV, X-ray, personnel)	O	0,77	-0,68
18	TTANG 11	Airport worker clothes look attractive and neat	O	0,54	-0,425
19	TTANG 12	Comfort in the airport waiting room	O	0,515	-0,6
20	PER 1	The attitude of airline employees	O	0,625	-0,535
21	PER 2	The ability of airline employees in explaining questions	O	0,63	-0,525
22	PER 3	The skills and experience of airline employees in serving passengers	O	0,65	-0,515
23	PER 4	If the service equation airline employees on every passenger	I	0,35	-0,225
24	PER 5	Knowledge of airline employees in answering any questions passengers	M	0,465	-0,52
25	PER 6	The availability of airline employees in assisting passengers	A	0,62	-0,39
26	PER 7	Airline employee awareness of duty	M	0,29	-0,655
27	PER 8	Ease of booking and ticketing transactions	O	0,56	-0,785
28	PER 9	Ease of check-inand time waiting	O	0,675	-0,83

No.	Attribute		Category	SSI	DDI
29	EMP1	Timeliness departure and arrival of aircraft	O	0,635	-0,635
30	EMP2	Clarity in compensation in case of loss or damage to luggage	O	0,505	-0,645
31	EMP3	Treatment airline on luggage	O	0,575	-0,845
32	EMP4	Availability of health workers during flight	O	0,425	-0,705
33	EMP5	Ease of reaching the airline office locations	M	0,325	-0,445
34	EMP6	Conformity number and flight schedule	O	0,5619	-0,675
35	IMG 1	Flight operations safety standards	O	0,84	-0,86
36	IMG 2	Conformity with the prices of services provided	M	0,3141	-0,639
37	IMG 3	Ticket prices compared with competitors	O	0,5128	-0,605
38	IMG 4	Citra airline	A	0,45	-0,445

4.5. Calculation of Value Failure Mode and Effect Analysis (FMEA)

IEI high value does not indicate a high rate for the service attributes. Managers must improve service quality attributes as determined by the results of IEI, but also consider the level of occurrence of the failure of the service attributes. So then analyzes the risk quality of this attribute by using FMEA.

These three attributes have a high quality risk and should be prioritized for improvement. But to know the total risk FMEA quality used to calculate the value of Correction Ratio (Cr).

Correction Value Ratio (Cr) in the calculation FMEA that has the highest value is the attribute PER 9 (The ease of check-in and waiting time) of 0.9940 which indicates that this service attributes have a high quality risk to the airline if it is not repaired. While the value of Correction Ratio (Cr) which is the lowest possible TTANG 3 (the availability of shops and restaurants at the airport) at 0.1424 which indicates that the service attributes to customers are not important enough and the Kano model these attributes into categories so that repairs will not be indifferent measurably increase customer satisfaction. Correction Value Ratio (Cr) can be seen in Table 3.

Table 3 Failure Mode and Effect Analysis (FMEA) (*a*)

No.	Attribute	SCI	Importance	Satisfaction	a_i	IEI	Oc	RPN (QR)	Cr (QR) Value	Cr (QR) Rank
1	ATANG 1	0,848	4,42	4,105	0,105	0,089	1,465	0,131	0,922	33
2	ATANG 2	0,802	4,315	3,6	0,711	0,570	1,765	1,006	0,990	8
3	ATANG 3	0,885	4,565	4,07	0,368	0,326	[b]1,295	0,422	0,976	23
4	ATANG 4	0,765	4,51	3,845	0,553	0,423	1,465	0,619	0,984	16
5	ATANG 5	0,762	4,615	4,11	0,447	0,341	1,435	0,489	0,979	20
6	ATANG 6	0,850	4,66	3,935	0,737	0,626	1,585	0,993	0,990	9
7	ATANG 7	0,753	4,44	3,98	0,316	0,238	1,470	0,350	0,971	26
8	TTANG 1	0,535	4,155	3,755	0,263	0,141	1,535	0,216	0,953	30
9	TTANG 2	0,609	4,405	3,79	0,526	0,320	1,795	0,575	0,982	17
10	TTANG 3	0,299	3,985	3,825	0,026	[a]0,00786	1,510	0,012	0,142	38
11	TTANG 4	0,369	4,31	3,53	0,789	0,291	2,200	0,641	0,984	15
12	TTANG 5	0,447	4,335	3,655	0,632	0,282	1,925	0,544	0,981	18
13	TTANG 6	0,714	4,3	3,91	0,211	0,150	1,595	0,240	0,958	29
14	TTANG 7	0,436	4,025	3,66	0,158	0,069	1,785	0,123	0,917	35
15	TTANG 8	0,465	4,365	3,97	0,237	0,110	1,570	0,173	0,941	31
16	TTANG 9	0,597	4,55	3,975	0,474	0,283	1,700	0,481	0,979	21
17	TTANG 10	0,853	4,715	3,895	0,816	0,696	1,390	0,967	0,990	10
18	TTANG 11	0,568	4,085	3,925	0,053	0,030	1,455	0,043	0,766	36
19	TTANG 12	0,656	4,32	3,84	0,342	0,224	1,645	0,369	0,972	24
20	PER 1	0,682	4,505	4,055	0,289	0,198	1,420	0,280	0,964	28
21	PER 2	0,679	4,35	3,99	0,132	0,089	1,385	0,124	0,918	34
22	PER 3	0,685	4,53	3,945	0,500	0,343	1,440	0,493	0,979	19
23	PER 4	0,338	4,29	4,11	0,079	0,027	1,425	0,038	0,733	37
24	PER 5	0,579	4,425	3,925	0,395	0,229	1,385	0,317	0,968	27
25	PER 6	0,594	4,46	3,96	0,421	0,250	1,440	0,360	0,972	25
26	PER 7	0,556	4,45	4,065	0,184	0,102	1,500	0,154	0,934	32
27	PER 8	0,791	4,59	3,89	0,684	0,541	1,680	0,909	0,989	11

No.	Attribute	SCI	Importance	Satisfaction	a_i	IEI	Oc	RPN (QR)	Cr (QR) Value	Cr (QR) Rank
28	PER 9	0,885	4,59	3,495	0,947	0,839	2,015	1,690	0,994	1
29	EMP1	0,747	4,76	3,53	0,974	0,727	2,105	1,531	0,993	2
30	EMP2	0,677	4,815	3,505	1,000	0,676	1,665	1,126	0,991	7
31	EMP3	0,835	4,575	3,91	0,579	0,484	1,845	0,892	0,989	12
32	EMP4	0,665	4,525	3,85	0,605	0,402	1,755	0,706	0,986	14
33	EMP5	0,453	4,155	3,46	0,658	0,298	1,460	0,435	0,977	22
34	EMP6	0,728	4,59	3,575	0,921	0,670	2,175	1,458	0,993	3
35	IMG 1	1,000	4,625	3,775	0,842	0,842	1,515	1,276	0,992	4
36	IMG 2	0,561	4,565	3,64	0,868	0,487	2,335	1,137	0,991	6
37	IMG 3	0,658	4,545	3,6	0,895	0,588	1,985	1,168	0,991	5
38	IMG 4	0,527	4,755	3,98	0,763	0,402	1,840	0,739	0,986	13

Description: a an IEI value targets

b is the value of the target Oc

There are eight attributes that should be improved by the airline Garuda Indonesia using the Pareto principle states that the failure of service attributes, 80% of the consequences caused by the 20% of the cause [18]. This principle is often used in management, economics and business to improve productivity and make better decisions, then the necessary remedial measures.

Among other attributes, simplicity in service check-in and waiting time (PER 9) into priority because of low customer basically want the ease of getting a seat (seat accessibility) is desired. An airline is said to have a high accessibility when a potential passenger seat can get the necessary ahead of the scheduled departure time [19]. Further attributes of departure and arrival punctuality (EMP 1), this attribute is one of the factors that customers expect in choosing the airline. Timeliness departure and arrival of the aircraft into service before flying expectations that will affect the customer satisfaction [20]. Next attributes of suitability number and flight schedule (EMP 6), Frequency is a factor that is important in a flight operation. From various studies that have been conducted, it was observed that the fundamental needs of the customer service is the frequency of flights flying high with the schedule as needed. For customers traveling point to point, the higher flight frequencies mean providing a higher flexibility for passengers to travel, as more alternatives that can be selected flights [19]. The next attribute is the low operating security standards (IMG 1), this service attributes into priority due to flight safety and security are key factors to influence the customers in choosing the airline. This is in line with the research conducted by Marsetyawan (2006), which revealed that, the factors of safety and comfort are the most important factors in the selection of airlines in Indonesia, followed by differences in service factors, differences in aircraft factors (vibration / shock / noise) and time and tariff differences [20]. Further attributes of prices compared to competitors (IMG 3). This attribute has become a priority because Garuda Indonesia is a domestic airline that offers higher airline ticket prices compared to other airlines because Garuda Indonesia has a Service oriented strategy instead of Price Oriented as is done by Lion Air airline. The offer price is higher than any other competitor does not match the customer perceived service quality [6]. Another attribute is the stability of ticket prices with the services provided (IMG 2). According Prayag (2007), service quality is the main activity in the marketing strategy undertaken by companies where the company must have a commitment to always provide quality services in order to grow and develop [20]. In addition, Garuda Indonesia have a Service Oriented Strategy so that customers have high expectation if using airline services in Garuda Indonesia. Clarity in compensation in case of loss or damage to luggage (EMP 2) also entered into the improvement priority because the airline must ensure that baggage be accepted immediately when passengers arrive at their destination. Passengers in first class and business should get their luggage in the first priority [19]. Last is the attribute quality of meal / snack is served during the flight (ATANG 2), Dish / snack served during flights, including in-flight service into which the in-flight service is a direct reflection of the airline Garuda Indonesia this attribute should enter into a priority.

5. Conclusions and recommendations

5.1. Conclusions

In a study conducted at Garuda Indonesia airline flights shows the results of the evaluation of the quality of service using the model contained Kano to four categories. The first part attractive category, there are four service attributes that fit into this category include smoking area facilities, availability of the trolley, the availability of airline employees and the airline's image. The second part of the one-dimensional category, there are 25 service attributes that fit into this category. The third part of the category of must-be, seven service attribute that fit into this category. The last part indifferent category, there are two service attributes that fit into the category of indifferent.

In the research that has been evaluated on the level of customer satisfaction and the level of importance of Garuda Indonesia airline customers. Garuda Indonesia airline customers are very satisfied with the cleanliness service attributes or the condition of the seats in the airplane and the availability of airline employees in helping passengers. While customers feel very dissatisfied with the attributes of service in checking and waiting times. At the level of importance, Garuda Indonesia airline customers feel very important to the attributes of service clarity in compensation in the event of loss or damage to luggage. Whereas customers feel unimportant towards the service attributes of the availability of shop and restaurant facilities at the airport.

In this study, after calculation of risk on the quality of airline services by using Failure Mode and Effects Analysis (FMEA) there are 8 service attributes that should be prioritized airlines Garuda Indonesia to improve. The service attributes are easy on check-in and waiting time, time of departure and the arrival of the aircraft, suitability number and flight schedule, flight operations, safety standards, ticket prices compared to competitors, conformity with the prices of services provided, the clarity of the compensation in case of loss or damage to luggage and quality of the dishes / snacks were served during the flight.

After doing this research recommendation that can be given to the management of Garuda Indonesia airlines, among others, increase the counter - counter check in at the airport to avoid queuing and replace inexperienced staff and make a more concise check-in procedure or add self check in counter. In addition to conducting regular inspections of the fleet of aircraft, providing clear information on the cause and length of time delay or delay to passengers. Passengers are given compensation in accordance with government regulations. Garuda Indonesia Airlines are more aware of the destinations most targeted by customers, so airlines can provide more frequent flights than other destinations. Garuda Indonesia airlines pay more attention to flight security procedures in accordance with international aviation standards, provide promo tickets with low fares or by giving discount or discount promo if buying direct round trip tickets and Garuda Indonesia provides television facilities, music media, and a more complete magazine compared to other airlines. In addition to telling compensation what customers will get in the event of baggage damage when checking in. Garuda Indonesia choose the aircraft supplier in the airplane well and conducted an evaluation related to the performance of the food supplier in order to stay well maintained.

5.2. Recommendation

This study was limited in scope only area in the city of Semarang. This further research is recommended to do at a larger scope as in the Central Java region or even in the entire scope Indonesia. So it can better represent conditions experienced by customers Garuda Indonesia in general. In addition, researchers better understand the working procedures on services provided by Garuda Indonesia to its customers.

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