

Analysis of Consumer Complaint Handling on Indonesian Consumer Site using K-Means Cluster Method

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ABSTRACT

A consumer complaint is a consumer's right to submit a complaint about a service or product provided, or in other words, a complaint is an expression of consumer dissatisfaction either verbally or in writing caused by the loss experienced by the consumer and the non-fulfillment of the agreed agreement. The government is very aware of the various things experienced by consumers as users of goods and services. Through the presidential regulation of the Republic of Indonesia number 50 of 2017 concerning consumer protection strategies and through this regulation the relevant sectors make various efforts to improve their performance related to following up on every complaint. Non-hierarchical grouping using the k-means method is the placement of objects based on the closest group means. Through the results of data processing conducted through research on consumer submission data based on the type of complaint, it shows that there is significance in all variables of incoming complaints, completed complaints, complaints in process with a significance level (sig) less than 0.05. Therefore, there is a significant difference in the clusters formed that relate to all these variables. And in the table the largest F value is 355,957 which indicates that the complaints entered in each cluster are different. So it can be concluded that the greater the value of F, the greater the difference in cluster 1, cluster 2, cluster 3 for the variable concerned.

Keywords: *Method, K-Means, Complaint Handling, Cluster Analysis*

1. INTRODUCTION

Consumer (community) complaints are one of the most important agendas of the central government, especially the Ministry of Trade to assess how successful each sector is in carrying out its main tasks in regions throughout Indonesia. Consumer (community) complaints are the most important part for local agencies. Through this study, an analysis of consumer complaints was carried out on Indonesian consumer websites in 9 complaint sectors. in order to determine the cluster of consumer complaints by applying the K-means method. The results of this analysis can be used to become regulations for the government and 9 consumer complaints sectors to follow up on any consumer complaints. Consumer (community) complaints are the most important part for local agencies. Because the contextual thing in terms of complaints leads to the goal of improving service performance to the community. In addition, the complaint media is a tool that can be used to bridge the related sectors in carrying out activities [1].

2. LITERATURE REVIEW & HYPOTHESES DEVELOPMENT

The research related to the analysis of consumer complaints first refers to the Road Map for the Development of National Public Service Complaint Management based on three outcome measures, targets, and complaints management programs. The second study analyzes the effect of service quality, complaint handling, customer value on customer satisfaction and Word of Mouth at the Unissula Sub-Branch Office of PT Bank Pembangunan Daerah Jawa Tengah The analysis model in this study uses a structural equation model. While the analysis technique in this study uses the Structural Equity Model (SEM) using the SmartPLS 3 computer program, the third study analyzes five indicators of public services, namely Reliability which is characterized by the provision of appropriate and correct services; tangible which is characterized by the provision of adequate human resources and other

resources; responsiveness, which is characterized by a desire to serve consumers quickly; The fourth study analyzes the management of complaints submitted by patients on the quality of health services in hospitals. NS. Tenggara Seberang Parexite, Kutai Kartanegara Regency. This research uses descriptive qualitative research method. The fifth study describes and analyzes the implementation of public complaints at the SAMSAT office in Samarinda City and identifies things that become obstacles in the management of public complaints services at the SAMSAT office in Samarinda City. The results of the study concluded that the mechanism for distributing complaints directly or indirectly carried out by the Samarinda City SAMSAT office had not been carried out optimally.

3. RESEARCH METHODOLOGY

The research method used in this research is to use a survey method by conducting a review of the complaint handling service through the website related to what data consumers complain about. The software used in this study to perform the analysis is the SPSS version 26 application, This research covers only 9 research sectors, many common complaints are known. This research is also based on the theory of the consumer complaint mechanism and the supporting and inhibiting factors in handling consumer complaints.

4. RESULT AND DISCUSSION

In the variable Number of complaint sectors, the data obtained are 73 with values. Based on data processing, there are 5 variables analyzed from N information or the amount of data, minimum, maximum, mean, and standard deviation. Therefore, the explanation can be described as follows:

1. On the variable receiving complaints, the data obtained are 73 with a minimum value of 1, a maximum of 78, a mean of 17.48, and a standard deviation of 21,213.
2. In the consumer rights recovery variable, the data obtained are 73 with a minimum value of 0 and a maximum of 45, a mean of 8.22, and a standard deviation of 9.512.
3. In the complaint variable in the process, the data obtained are 73 with a minimum value of 0, a maximum of 50, a mean of 9, 26 and a standard deviation of 13,438

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std Deviation
incoming complaint	73	1	78	17,48	21,213
Complaint resolved	73	0	45	8,22	9,512
Complaints in progress	73	0	50	9,26	13,483
Valid (N)	73				

It can be seen that the table 2 below shows the three clusters that were first formed with the cluster center value of each data. Then the next stage of the K-Means Clustering method performs the iteration stage or what is known as the reallocation of the existing cluster, and then displays changes in the value of the cluster center.

Table 2. Initial Cluster Centers

	1	2	3
Zscore: incoming complaint	2.24013	-77685	2.24013
Zscore: Complaint resolved	3.86676	-75895	71287
Zscore: Complaints in progress	79657	-68684	3.02167

The iteration process through the description contained in the table below iteration occurs 2 times, because in iteration 1 = centroid is not significant, iteration 2 = centroid value is significant. The centroid is in all significant and the cluster has been formed and the iteration stops. The clusters that have been determined are three clusters that have an iteration process of 2 iterations with a minimum distance of 3,452.

Table 3. Iteration History

Iteration	Change in Cluster Centers		
	1	2	3
1	.855	.411	.488
2	.000	.000	.000

a. Convergence achieved due to no or small change in cluster centers. The maximum absolute coordinate change for any center is .000. The current iteration is 2. The minimum distance between initial centers is 3.452.

The final cluster center table of each cluster after the iteration stops can be seen from the output table 4 of the SPSS program below:

Table 4. Final Cluster Center

	Cluster		
	1	2	3
Zscore: incoming complaint	2.57011	-52143	1.31416
Zscore: Complaint resolved	3.07829	-42636	79547
Zscore: Complaints in progress	1.87203	-51962	1.50648

The table 5 below shows that cluster 1 has 4 (members), cluster 2 has 55 (members). Cluster 3 has 14 (members) indicating consumer complaints classified at low levels are in cluster 1, cluster 2 shows consumer complaints classified at high levels from cluster 3 showing consumer complaints classified at a moderate level.

Table 5. Number of cases in each cluster

Cluster	1	4.000
	2	55.000
	3	14.000
Valid		73.000
Missing		.000

5. CONCLUSIONS

Through the results of research and discussions that have been carried out, it can be concluded that:

1. By applying the k-means cluster method in this study to classify consumer complaints from 73 types of complaints included in the mapping of 9 consumer complaint sectors and 1 general complaint sector, based on consumer complaints for the January-December 2020 period. K-means cluster analysis in the grouping of consumer complaints from 73 types of complaints was formed into 3 clusters.
2. The characteristics of the cluster formed are as follows:
 - a. Cluster 1 contains groups of types of consumer complaints that have a value below the average while the average population in the cluster is in the low category.
 - b. Cluster 2 contains groups of types of consumer complaints that have an average value of consumer complaints above the average, while the average population in the cluster is in the high category.
 - c. Cluster 3 contains groups of types of consumer complaints that have an average value of consumer complaints with a population in the cluster with a medium category.
3. The variable that gives the biggest difference in the cluster formed in consumer complaints from 73 types of complaints is the complaint in process variable with an F value of 186,846 and a significant value of 0.000 and consumer complaints that have the level of complaints resolved are in the housing sector and the general complaint sector .

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