The Impact of MultiChannel's Single Phase Queue and E-KTP Process Service on Community Satisfaction in Lamongan Regency

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ABSTRACT: Queues have become an important part of operations management. The queue arises because the need for services occurs outside the capacity and service facilities so that service users get services slowly or quickly so that it impacts on people's satisfaction of absolute needs. The purpose of this study was to measure the level of community satisfaction in the service process of the E-KTP provided by Department of Population and Civil Registration . Multi-Channel Queue One phase starts when it occurs when two or more service facilities are flowed by a single queue. The research method uses quantitative analysis. Results Shows that there is a significant influence on multi-channel one-phase queuing system and E-KTP process services on community satisfaction. Because most people assume that the structure of the queue implementation process there are two or more service facilities provided by the multi-channel queuing system- The single-phase implemented in Lamongan works quite effectively.

Keywords: Multi channel, queuing system, community satisfaction

1 INTRODUCTION

In the globalization era today, absolute satisfaction is critical to support a service activity. However, this is not easy to realize, because people's tastes are not exactly the same between one and another. Government agencies are required to make people feel satisfied by providing better services. Besides, another factor that influences is time. Along with the growth of the population in Indonesia that is not matched by adequate infrastructure, the queue has become part of everyday experience. The multi-channel -single phase queuing system in the service sector can be the factor that determines people's satisfaction with the services provided. Long waiting time can cause dissatisfaction; as a result, people who are not satisfied will be angry and can also cancel service usage. A service provided in Lamongan Regency is the service of making e-KTP. In the process of making e-KTP, employees directly face consumers (the public). This requires employees to implement strategies so that e-KTP services can work well and not disappoint consumers. Many strategies can be used to provide the best service to consumers. It is now increasingly recognized that service and satisfaction are important aspects; therefore, government institutions must strive to provide the best quality of service to the public. Services that exceed consumer expectations can be perceived as excellent quality service.

Conversely, if the service received is lower than consumer expectations, the quality of service is perceived as poor service. Because of that, the authors intend to find out information on the level of service satisfaction of the public by conducting the survey at the Office of Population and civil registration of Lamongan Regency. Furthermore, the office of the population and civil service office of Lamongan Regency uses a multi channel Single phase queuing structure with multi channel Single Phase occurs where there are two or more service facilities flowed by a multi-channel - Single phase queuing system. The author would like to know the influence of the multi-channel- Single-phase queuing system and e-KTP service on community satisfaction

According to Pangestu (2000) Queue is a set of customers, services as well as a rule that regulates the arrival of customers and the processing of queue service problems, which are marked by service time patterns, facility capacity, customer arrival patterns and service rules.

According to Heizer & Render (2013), queues are people or goods in a line that are waiting to be served. In queuing theory, there is also a queuing system structure that shows the queuing process that occurs in an activity carried out in everyday life.

According to Heizer & Render (2013), there are four basic types of queuing processes, namely:

1. *Single Channel - Single Phase* means that only one channel enters the service system, or there is one channel entering the service system or one service facility; 2. *Single Channel - Multi-Phase*, showing that there are two or more services that are carried out in sequence; 3. *Multi-Channel - Single Phase*, occurs where there are two or more service facilities flowed by a single queue; 4. *Multi-Channel - multi-phase*, this system has several service facilities at each stage. The queuing models were first developed by AK Erlang, a Danish mathematician, and engineer. Queuing models are based on mathematical probability assumptions about how many subscriptions need to be served and how and when they will come to be served at a service facility. The models are designed to estimate how many subscriptions are waiting in lines, length of waiting lines, how busy service facilities are, and what will happen if service times or arrival patterns (service requests) change.

Waiting lines where a number of physical entities (migrants) are trying to receive services from limited facilities (service providers), so migrants have to wait for some time in a line to be served.
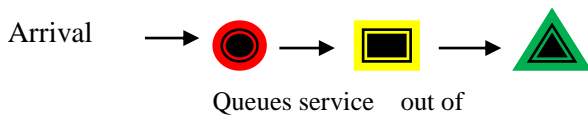

Queues service   out of

Figure 1. Single Channel - Single Phase

According to Heizer & Render (2013), the queuing process is generally categorized into four basic structures, namely:

1) One path, one stage (*Single channel - single phase*). In this single-channel – single-phase queuing structure, the consumers will be called to come, enter, and form a single channel – single phase in one line/service flow and then will face one service facility.

Queues service   out of

Figure 2. Single Channel - Single Phase

2) One path, many stages (*Single channel- multiple phase*). In this queuing structure, consumers are called to come, enter, and form a queue in several service streams and then will be served by one service facility until the service is completed.

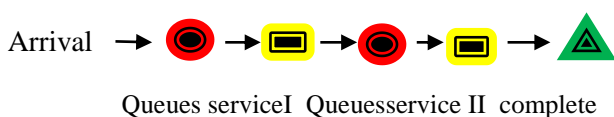Queues serviceI Queuesservice II complete

Figure 3. Single Channel Multiple Phase Queues

3) Multiple lines, one stage (*Multiple channel-single phase*). In the queuing structure, consumers all

called to come, enter, and form a queue in one line/service flow and then will face several parallel identical service facilities.
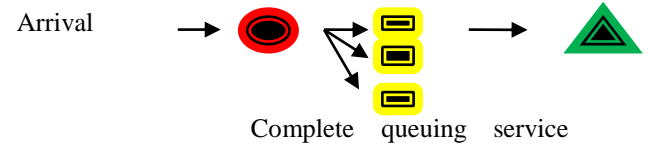

Complete   queuing   service

Figure 4. Multiple Phase Single Channel Queues

4) Many paths, many stages (*Multiple channel-multiple phase*). In this queuing structure, consumers are called to come and enter the service system, which is operated by several identical parallel service facilities leading to the service facilities thereafter until the service is complete.

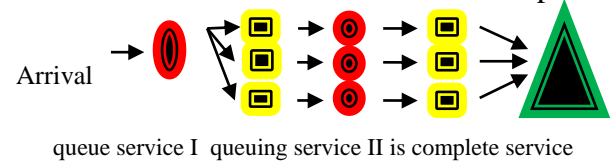queue service I queuing service II is complete service

Figure 5. Multiple Channel Multiple Phase Queues

According to Heizer & Render (2013), the queuing model helps managers to make decisions, by analyzing the queue, many performance measurements of a queue can be obtained as follows:

1. The average time spent by customers in multi-channel - Single-phase queue;
2. The average time spent by customers in the system (waiting time for service time);
3. The average number of customers in the system;
4. Probability of service facilities will be empty;
5. System utilization factor;
6. Probability of a number of customers in the system.

According to Donthu (2011: 12), there are two techniques for managing waiting time, namely managing operations and managing operations perceptions involving staff level and queuing strategies. While the management of perception involves changing customer perception of "waiting" and not reducing the actual waiting time but reducing the effect of perception on "waiting" is very important, because the actual waiting time cannot always be controlled and because the service perceived as a substitute for the actual service affects customer satisfaction.

1.1 Service

According to Etta & Sopiah (2013), service is any action or performance that can be offered by one party to another party, which is basically intangible and does not result in ownership of something. Furthermore, service is an economic activity that has a number of intangible elements (values or benefits)

associated with it, and involves a number of interactions with consumers or with property, but does not result in ownership. Based on some of the definitions above, service basically has the following characteristics:

1) Something that is intangible, but can meet consumer needs;
2) The service production process can either use or not use the help of a physical product;
3) Services do not result in the transfer of rights or ownership;
4) There is an interaction between service providers and users.

The classification, according to Hiller and Lieberman, is as follows:

1) The commercial service system is a very broad application of queuing models;
2) Material Systems-industrial businesses are a service system that includes a line of production, material systems, handling, and so on;
3) The social service system is a service system that is managed by a local or national office.

1.2 *Service characteristics*

Sopiah (2013) argued that service has four characteristics that distinguish it from goods, namely:

1) Intangible (*intangibility*). Service is different from goods as services cannot be seen, felt, touched, heard, or enjoyed before the service was purchased. In other words, consumers cannot judge the results of services before they enjoy themselves. Therefore, for unconsciousness, consumers will look for signs or evidence of the quality of the service.
2) Inseparability. Normally, manufactured goods are stored in inventory, distributed, sold, and then consumed. While services are usually sold first, then they are produced, and consumed simultaneously. Interaction between service providers and customers is a special feature in service marketing as both affect the *outcome* of the service.
3) Varies (*variability*).Waiter is highly variable because it is a non standardoutput (*nonstandardized-output*), meaning that many variations, qualities and types may occur depending on whom, when, and where the service is produced.
4) Not durable (*perishability*).

According to Tjiptono (2015) service consists of customer support, product service, flexibility in meeting customer demand, flexibility to respond to changes

According to Ratminto & Septi (2011: 28) the size of the success of service delivery is determined

by the level of satisfaction of service recipients. Satisfaction of receiving services is achieved if the recipient of the service receives services that are in accordance with what is needed and expected

1.3 *Service quality dimensions*

According to Etta & Sopiah (2013), five dimensions of service quality are:

1) Reliability, namely the ability to provide the promised service *accurately* (*accurately*) and the ability to be trusted (*dependably*). IT shows that the service is always accomplished on time, in the same manner, and without mistakes;
2) Responsiveness, namely the willingness or desire of employees to provide services needed by consumers.
3) Guarantee (*assurance*). It includes knowledge, skills, friendliness, courtesy, and trustworthiness of personal contacts to dispel consumer's doubts;
4) Empathy, which includes attitudes of personal or company contacts to understand the needs and difficulties of consumers, good communication, personal attention, and ease of communication or relationships;
5) Physical products (*tangibles*), availability of physical facilities, equipment and means of communication, and so forth that must exist in the service process.

1.4 *Consumer (community) satisfaction*

Consumer satisfaction is defined as a condition in which consumer expectations of a product are in accordance with the reality that is accepted by consumers. Etta & Sopiah (2013) revealed that consumer satisfaction is a feeling of pleasure or disappointment that arises after comparing perceptions or impressions with the performance of a product and its expectations.

According to Ching (2017) community satisfaction is a post-evaluation of a product or service in the hope that consideration is taken into account and is a function of the difference between results and expectations.

Consumers are satisfied with the products / services purchased and used will repurchase the products / services offered. In general, satisfaction can be interpreted as a similarity between the performance of products and services received by the product and service performance expected by consumers. In the era of intense business competition like now, customer satisfaction is the

main thing. Consumers are likened to be the kings who must be served, although this means opening up everything to the consumer. An attempt to satisfy consumer needs to be done profitably or to get the *win-win situation*, which is the state in which both parties feel satisfied and not harmed

2 RESEARCH METHODS

According to Arikunto (2010), Upon consideration of the purpose of the study, the research was conducted by collecting information through existing symptoms, which is the state of symptoms according to what it is when the study was conducted. In this study, a comparison between certain phenomena. In this study, what will be tested is the influence of multi-phase queues Single phase and e-KTP services on consumer satisfaction in the Lamongan Regency. The number of samples taken by researchers is 60 consumers.

3 RESULT AND DISCUSSION

Table 1. Validity Test

Variable	Indicator	R count	R table	Remarks
X1 (Multi-channel - Single phase)	X1.1	0.749	0.256	Valid
	X1.2	0.786	0.256	Valid
	X1.3	0.744	0.256	Valid
X2 (Service)	X2.1	0.818	0.256	Valid
	X2.2	0.883	0.256	Valid
	X2.3	0.846	0.256	Valid
Y (Community Satisfaction)	Y1	0.772	0.256	Valid
	Y2	0.749	0.256	Valid
	Y3	0.738	0.256	Valid

Source: Processed data using SPSS version 23.0

The above calculation of the Validity and Reliability testings showed the results that all data are said to be valid and reliable.

Table 2. Reliability Test

Indicator	Cronbach's Alpha	Reliable Standards	Remarks
X1	0.632	0.6	Reliable
X2	0.802	0.6	Reliable
Y	0.617	0.6	Reliable

Source: Processed data using SPSS version 23.0

Furthermore, the Multiple Linear Regression Analysis test results obtained

$$Y = 2.402 + 0.360 X_1 + 0.419 X_2$$

Table 3. Multiple Linear Regression

Model	Unstd. Coef.		Std. Coef.	t	Sig.
	B	Std. Er.	Beta		
Contant	2.402	.996		2.412	.019
X1	0.360	.115	.360	3.118	.003
X2	0.419	.096	.504	4.367	.000

a . Dependent Variable: Y

Model	Sum of Squares	D f	Mean Square	F	Sig.
Regresi	82.378	2	41.189	52.634	.000 [b]
Residual	44.606	57	.783		
Total	126.983	59			

a. Dependent Variable: Y

b. Predictors: (Constant), X2, X1

Source: *Processed data using* SPSS version 23.0

If described is a constant value of 2.402 means that if the number of multi-channel queues Single phase and the service remains/does not experience an addition/reduction, then the amount is a constant value of 2.402; the coefficient value for the multi-channel queue variable - Single phase (X_1) of 0.360 means that each increase in the number (X_2) of 1% then the community satisfaction variable (Y) in the Lamongan Regency will increase by 0.360% assuming that the other independent variables of the model regression are fixed; coefficient for variable services (X_2) of 0.419 means that any increase in the number of service(X_2) 1% is a variable of people's satisfaction (Y) in the Lamongan Regency will rise 0.419%, assuming that the other independent variables from the regression model are fixed. Multiple Correlation Test addressing the results of R= 0.805 (close to 1) means that the independent variables: queue (X1), service (X2) have a strong and direct (positive) relationship / influence of 0.805 on community satisfaction (Y)

4 CONCLUSIONS

The results of the partial test analysis (t test) and simultaneous test (F test) showed that there was a significant influence of the single phase multi-channel queuing system and e-KTP services on community satisfaction in Lamongan Regency. This is because most people consider that the application of the Multi Channel - Single Phase queue process structure in which there are two or more service facilities flowed by a single queue that has been implemented in Lamongan regency has been effective enough so that it can affect the level of community satisfaction, although there needs to be an increase and improvement in terms of queue waiting time.

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