ANALYSIS IMPACT OF NETWORK INCIDENT ON COMPLAINTS OF CONSUMER SERVICES IN PT. TELKOMSEL

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ABSTRACT

Telkomsel is currently the largest cellular operator in Indonesia. In 2016 Telkomsel implemented a business process called OTE program (Operation Transformation Excellent). The main purpose of Telkomsel Operation Excellent is to maintain the experiences of Telkomsel customers. But from data it was found that total trend of customers complains about weak signal, unable to access data and disruption of cellular telephone activity experienced an upward trend of around 27% from the third quarter 2017 to second quarter 2018 period, this could inform experiences of dissatisfied Telkomsel customers. Refer to incident network activity in Telkomsel tends indicated a stagnant trend, it only increase 5% from third quarter 2017 until the second quarter of 2018 period. The purpose of this research is to find out and conduct in-depth analysis / studies to review the effect of incidents (availability) in Telkomsel network elements on customer complaints. The theoretical approach used in this study is service management, the definition of complaints, behavior of customer complaints, triggers of customer complaints, complaint handling and critical incident techniques. Research population data for the period December 2016 to October 2018. Data tested using multiple linear regression to determine the significant variables that affect customer complaints. Data analysis and processing by using SPSS software. Obtained results, three independent variables, minor, major and critical incident simultaneously affect the number of weak signal complaints, data service complaints and no effect on complaints of cellular telephone services. The incident became a trigger for the emergence of complaints with r-square value 13.8% for weak signal complaints, 17.0% for complaints of data access, 0.3% for complaints of cellular telephone services. Critical and minor incidents partially affect the number of weak signal complaints and data service complaints.

Keywords: Service Management, Network Incident, Complaints Behavior, Multiple Linear Regressions

INTRODUCTION

Maintenance of network elements in telecommunications architecture is one of the vital parts in the Telecommunications industry. Apart from Telco Operators who have to expand network coverage to reach islands in Indonesia, operators must also guarantee network availability very well. To maintain the availability of network elements by conducting periodic and continuous monitoring of these devices, a centralized command system is needed to see indications that lead to the disruption of the availability of the network element. Telkomsel already has a command system called the Integrated Operation Center (IOC) which in general terms of telecommunications can be called the Network Operation Center (NOC). In its development, in 2015 Telkomsel conducted an assessment of business processes in the Integrated Operation Center (IOC) unit called the OTE (Operation Transformation Excellent) program. One of the objectives to make the IOC Telkomsel become world class standard with three areas of transformation, process, people, and tools. From these goals and objectives, the OTE program

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is one aspect to support Telkomsel's mission, which is to guarantee experiences that exceed customer expectations by maintaining network availability and quality from the NOC side. If previously the incident management process starts from alarm monitoring using a single Element Management System (EMS) and no interference tickets and performance measurement. This OTE program uses several enhanced tools through EMS umbrella and an integrated end-to-end ticketing system. This is expected to make Mean Time To Resolved (MTTR) disturbances faster and also measurable so that the process of handling disruption is documented in more detail to later become a study for problem management. In its journey, the OTE program, which began in 2016, is expected to have a good impact on customers. One description of customer experience by looking at indicators of customer complaints, because customer complaints are one form of dissatisfaction that can describe the form of bad experience from customers. Telkomsel has classified various types of customer complaints into several categories according to indications of the cause. Top three of customer complaints in the second semester of 2017 which are classified as being related to network activities such as complaints of data access, cellular phones and weak signals.

Trend of customer complaints related to network activities, customer complaint data from 2017 to 2018 which consists of complaints of weak signals, unable to access data, and disruption of telephone activity. Customer complaints experience an upward trend of around 27% from the 2017 quarterly period to the second quarter of 2018. Increasing trend of customer complaints related to network activities can directly or indirectly describe the form of customer dissatisfaction. If it is compared with network activities that refer to network incident data that occurs in the period 2017 to 2018 found Telkomsel network activity from network incident references tends to fluctuate. The incident rose in Q4-2017 and subsequently declined to Q2-2018. From Q3-2017 to Q2-2018 the incident only increased by around 5%. From the incident data when compared it is not directly proportional to the increasing trend of Telkomsel customer complaints. One of the complaining customer motivations is triggered by service failure or incident. Data on the location of customer complaints about 28% of customer complaints occur in the city of Jakarta. Surabaya, Bandung, Medan, Makassar contributed 5% each. The city of Jakarta accounts for a very significant total customer complaint compared to 62 other cities.

There is a fact that customer complaints related to network activities have increased significantly. But on the other hand, network activities that refer to network incidents are fluctuated and the incidents are not significant. And also the demands of Telkomsel management to maintain good experience for customers, one of which has been implemented by the OTE program. There needs to be an in-depth analysis to analyze the effect of network incidents (availability) on Telkomsel network elements on customer complaints related to network activities. This also supports the improvement of the IOC towards service operation. So from that this study analyzes the influence of network incidents with customer complaints that are tied to network activities in Telkomsel, so the research takes the topic of Influence of Network Incidents on Customer Service Complaints at PT. Telkomsel which focuses on cities with the highest total customer complaints, Jakarta.

RESEARCH OBJECTIVE

The purposes of this study are:

1. To find out the significant effect of network incidents on complaints of weak signals from Telkomsel customers.

2. To find out the effect of significance of network incidents on complaints of data access services on Telkomsel customers.
3. To find out the significant effect of network incidents on complaints of cellular telephone services on Telkomsel customers.

THEORETICAL DESCRIPTION

Service Management Concept

An organization facilitates the production and distribution of goods, and the organization by adding value to life through various intangible things given. This category can be called service. Service can be defined as an economic activity that produces time, place, form, or psychological utility (Cengiz Hakseve, 2013). Service is an action, action or performance. Service can also be defined differently from goods. An item is a tangible object that can be made and sold or used later. Service is intangible and does not last long. Service is created and consumed simultaneously (or almost simultaneously). The key to understanding the difference between goods and service lies in the realization that these goods are not entirely different, Earl W Sasser (1978) makes a mapping in a continuum about goods and services in Figure 1.

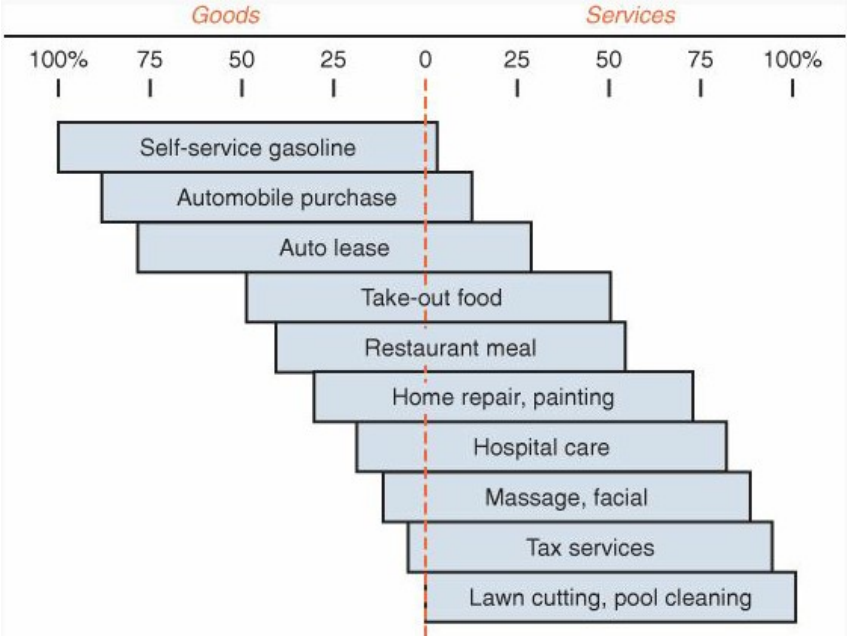

Figure 1. Mapping of Goods and Services

Customer Complaints Behavior

Customers make complaints when the quality of a product or service is not in line with expectations (Angelena Boden, 2001). According to (Larivet and Brouard, 2010) customer complaints can be defined as "customer protests against companies with the aim of obtaining exchanges, refunds or apologies" which have several characteristics and implications. Reasons for customer protests, namely the causes of customer dissatisfaction and are multi-interpretive. Product deficiencies, slow service delivery, poor employee behavior, product damage and shipping problems are among the most common problems (Estelami, 2000). Behavior of customer complaints is a complex construction, although three factors are generally mentioned in different definitions of a phenomenon, either separately or in a whole. This definition describes the state of mind of customers who complain, behavior, and actions of communication. The definition of customer complaint behavior is generally based on

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dissatisfaction and the goods-dominant (G-D) perspective and results-oriented. As a result, complaint behavior is defined as post-purchase activity (Landon, 1980). Defining customer complaint behavior as "an expression of dissatisfaction by individual consumers (or on behalf of consumers) to those responsible in either the distribution channel or complaint handling agent". The most common definition of customer complaint behavior, however, is suggested by Singh and Howell (1985), where the behavior of customer complaints is conceptualized as a set of various responses (behavior and non-behavior), some or all triggered by dissatisfaction felt in the period purchase. Finally, Stephens (2000) states that "complaining is a post-purchase process that may or may not occur when a customer is disappointed." This unfavorable experience can be expressed in the form of verbal and / or non-verbal communication to other entities and can lead to behavior change (Tronvoll, 2008). This definition of customer complaint behavior is a dynamic behavior process from customers who have experienced bad service interactions. Incidents during service interaction and evaluation after interaction as motivation to complain (Tronvoll, 2008). One option is that they can leave the company or be involved in filing complaints and will choose to file complaints in public (von der Heyde Fernandes and Pizzuti dos Santos, 2008) such as voicing complaints to the company.

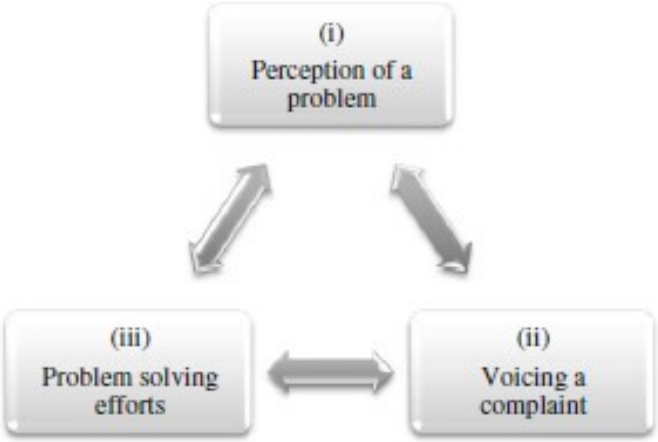

Figure 2. *Complaint stages from a customer perspective*

Service Quality as a Trigger of Complaint Behavior

Complaints do not always come from dissatisfaction and dissatisfaction does not always lead to complaint behavior, this indicates that dissatisfaction is not enough to cause customers to complain (Day: 1984; Singh and Pandya: 1991). Davidow and Dacin (1997) for example, have shown that personality-related variables represent almost half of the complaints responses. Thus, complaining behavior will appear to be more complex than a simple reaction to post-purchase dissatisfaction. However, experts agree that the source of complaint behavior is influenced by the quality of service. As a result, it is interesting to understand the effect of quality and then its effect on complaint behavior. The process and influence of service quality that are important for customer experiences and customer complaint behavior, are usually categorized into broad item based categories. Grönroos (1984) uses a technical and functional quality framework to capture the influence of service quality. Brady and Cronin Jr. (2001) used a service quality model consisting of three factors, namely the quality of interaction, the quality of the physical environment and the quality of the results.

In addition, a number of researchers have suggested that the additive effects of the quality of service processes and results are on post-consumption behavior, indicating that results attributes, such as reliability are determinants of service quality that are more important than process attributes, such as responsiveness, empathy and assurance (Brady and Cronin Jr. 2001; Parasuraman et al. 1988). Hui et al (2004), argue that there is a significant interactive effect of two types of service quality on post-consumption behavior. His research confirms that service quality can be multiple rather than additive. As a result, unexpected negative impressions resulting from bad experiences have a substantial effect on post-consumption behavior. This will again cause service quality to have a clearer effect on post-consumption behavior when the quality of the results is not good, than when the quality of the results is good (Hui et al. 2004). This condition is important to understand the behavior of post-consumption complaints is also important to understand the service process and the types of important influences of service quality. The behavior of customer complaints can be triggered by many different factors, despite two prominent categories: (i) customer perceptions of negative critical incidents (eg core service failures, failure of interactions between customers and service companies or responses to failures) and (ii) low customer evaluation which is below the reception zone even though there are no incidents that need to cause an evaluation. The first category is when customers feel negative critical incidents or a series of negative incidents that are critical. Negative critical incidents are defined as incidents that will change customer behavior and or behavior towards a service company in a negative direction. Negative critical incidents can arise from various types of periods. There are two types of negative critical incidents that are felt: (i) service failures that are actually experienced and disclosed by customers due to unavailability of services, slow service or shipping errors (Bitner et al, 1990) and (ii) negative incidents felt by customer, even though it is not a real service failure because the service process is carried out according to the service blueprint. As a result, customers can see negative incidents of critical incidents as service failures even though the service process is carried out in accordance with the service blueprint.

The actual service failure is when the service process becomes different from the service blueprint or service process intended. Although, variations of the blueprint may not be considered service failures by customers (Michel, 2001). The second category that can trigger complaint behavior is when appointments from service providers (Grönroos, 2007) or value propositions (Vargo and Lusch, 2004) are not consistent with zone of tolerance of overall service experience. This is regardless of whether the service provider is blamed or not. Other researchers have explained the factors that can generate complaints such as customer expectations formed by corporate communication, prior experience, personal needs (Parasuraman et al, 1985) and company image (Grönroos, 1988). Negative critical incidents and evaluation of their consequences are the basis for negative impressions that result in a poor service experience. Negative impressions can be defined as a state of cognitive and affective discomfort caused by inadequate feedback relative to the resources used by customers in each part of the service interaction process and evaluation of values in use. Although there are many types of resources that can be used, the usual resources in complaint behavior are competence (knowledge and skills), experience, finance, time, confidence, energy, and so on. Whereas feedback is benefits obtained from service providers or stakeholders. Customers are by definition included in the complaints process when they experience something that triggers a negative impression, as shown in Figure 3 which is a model of incident activity with interactions on complaint behavior (Bård Tronvoll, 2008).

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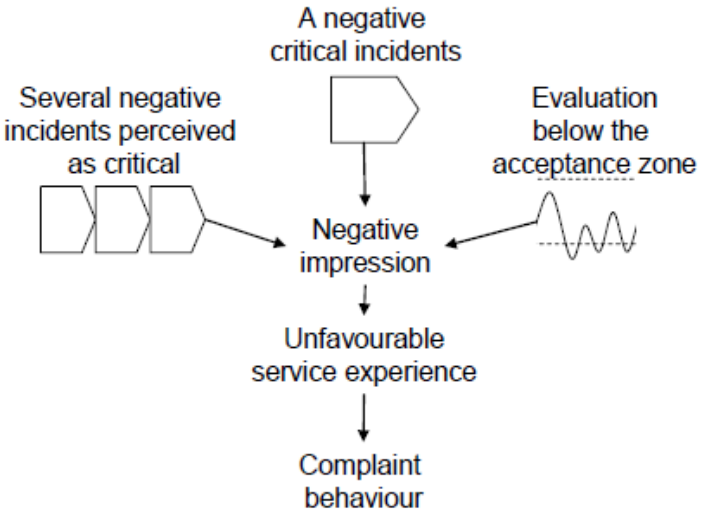

Figure 3. Model of incident activity and interaction on complaint behavior

RESEARCH FRAMEWORK

Service quality has a clearer effect on post-consumption behavior when the quality of the results is not good, than when the quality of the results is good (Hui et al : 2004). This condition is important to understand the behavior of post-consumption complaints and understand the service process including the types of important influences of service quality. In this study the object is the Telecommunications industry where services include signal quality, cellular calls and data access. Signal quality failure, cellular call service and data access are caused by service provider network incidents. References to service or network incident failures in this study, namely Minor incidents, Major incidents, and Critical incidents reference by Telkomsel.

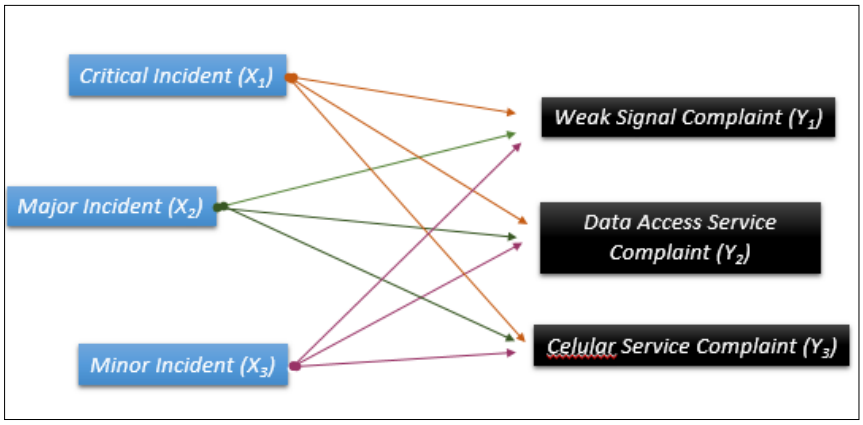

Figure 4. Research framework based on incident activity models and interactions on complaint behavior

RESEARCH HYPOTHESIS

Based on the research framework where the influence of the Minor, Major and Critical incidents is on the number of customer complaints related to network activity, the hypothesis 1 (H_1), hypothesis 2 (H_2), and hypothesis 3 (H_3) are written as follows:

H_1: There are effects of Minor, Major, Critical incidents together on the number of complaints of weak signals from Telkomsel customers

H_2: There are influences of Minor, Major, and Critical incidents together on the number of complaints of Telkomsel customer data access services

H_3: There are influences of Minor, Major, and Critical incidents together on the number of complaints on Telkomsel customers' cellular telephone services

DATA COLLECTION

Data collection is an important part of a study. Data collection techniques used in this study are divided into two types, namely literature studies and secondary data from internal data at PT. Telkomsel comes from the Network Service Helpdesk section and the Incident Management section in the IOC Management division of PT. Telkomsel. Library study is a data collection technique used to find the theoretical basis of various sources, both in the form of books, journals and other media. Secondary data collection is done by manually querying Telkomsel's customer complaints server for customer complaint data and manually queries from the ticket server for incident history data. The data from the query is in the form of a file.

DATA ANALYSIS

The term regression was first used in statistics by Sir Francis Galton in 1877. Galton made a study that showed that the nature of the height of a child born was actually decreased (regress) from the height of his parents. Then Galton used the word "regression" to name the analysis of the process of predicting the relationship between the variable height of the child and the height of his parents. According to Ritonga and Setiawan, regression analysis is a statistical technique for investigating and compiling a model of the relationships between variables.

One of the uses of regression in research is predicting the value of the dependent variable (Y) if the independent variable (X) is known. In this study the independent variables are Incident Critical (X_1), Incident Major (X_2), Incident Minor (X_3) and the dependent variable is customer complaint (Y). The data analysis method used is linear regression analysis. Regression analysis is part of parametric statistics used to analyze interval or ratio data (Sugiyono, 2013) which assumes a normal distribution.

RESULTS

Impact Incident to Signal Complaints

The results of the F test in this study indicate that critical, major and minor incidents significantly influence weak signal complaints. From this study for weak signal complaints has a determination value of 13.8%, which means that only 13.8% of weak signal complaints can be explained by the incident. Bard Tonvoll in his research stated that the customer experience affected by the incident will raise the limit of dissatisfaction and have an impact on the threshold of zone-of tolerance. In this study it was found that network incidents in telecommunication legacy service business had an effect of 13.8% on complaints of weak signals, the rest influenced by other factors. This supports the theory of complaint behavior triggered by service failures that are actually experienced and expressed by customers due to unavailability of services, slow service or errors in shipping (Bitner et al. 1990). The results of the t test in this study show that critical incidents and minor incidents have a significant effect on weak signal complaints. Referring to the ETSI definition of critical incidents in the Telecommunications service indicating that service conditions are affected and immediate

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corrective action is needed. For definitions of minor incidents it indicates that there is non-service that affects the disturbance conditions and corrective actions that must be taken to prevent more serious errors. From the results of this minor incident the effect on complaints is indicated that the occurrence of incidents with a frequency that is quite a lot will become unfavorable service which can be a trigger for customers to make complaints. Critical incidents and minor incidents affect the increase in weak signal complaints because when an incident occurs it can cause signal loss or a decrease in the power of the BTS beam on the customer's cellphone. From this study the massive trigger of the incident (reactionary trigger) only has a low determination rate.

From the results of the Focus Group Discussion (FGD) with service operation, network customer care, incident management, and tools management at PT Telkomsel on January 8, 2019 to formulate several factors besides network incidents that affect weak signal complaints, namely determining network incidents at Telkomsel still just focusing on the number of network elements that down. The absence of analysis at the time of the incident can detect in detail any area that allows the existence of blank spots this can be one of the factors why when network incidents occur have a weak influence on complaints, because customers still feel they get a signal and are still within the limits of service expectations customer need. The difference factor in perceptions of call center agents in capturing customer reports can affect the accuracy of the types of complaints the customer intends because of differences in the ability of each call center agent and the incomplete standard standards for mapping these types of complaints, this can make missed information complaints. Another factor is many cases of complaints in Telkomsel after an in-depth investigation was carried out by checking several performance indicators, there were no indicators that could allow poor performance, this supports the theory put forward by Gustafsson (2005) & Roos (2006) regarding complaints by situational triggers where negative incidents are felt by the customer, even though it is not a service failure because the process is in accordance with the service provider's blueprint. There is also an unreachable coverage that influences customers to make complaints, because the area where the customers are located does not yet enter coverage from Telkomsel BTS, this is a type of personal complaint from weak signals.

Table 1. Result Multiple Regression Linier Incident to Signal Complain

Complain	Result	Incident		
		Minor	Major	Critical
Signal Complain	F	37.068		
	Sig	0.000		
	t	5.972	0.524	7.778
	Sig.	0.000	0.600	0.000
	a	17.325		
	b	0.651	0.521	15.177
	R^2	13.8%		

Impact Incident to Data Access Complaints

The results of the F test in this study indicate that critical incidents, major and minor influences significantly affect complaints of data access services. From this study, data service complaints have a determination value of 17%, which means that only 17% of data service complaints can be explained by incidents. This supports the theory of Bard Tonvoll in

his research stating that the customer experience affected by the incident will increase the limit of dissatisfaction and have an impact on the threshold of zone-of tolerance. From the results of the t test in this study shows that critical incidents and minor incidents significantly influence the complaints of data access services. This can be interpreted that critical incidents can be a trigger for complaint behavior in telecommunications consumers. The incident defined in this study is an incident that caused the loss of availability of BTS. The results obtained from this study successfully support the legitimacy theory. Referring to the ETSI definition of critical incidents in the Telecommunications service indicating that service conditions are affected and immediate corrective action is needed. While minor incidents indicate non-service that affects the disturbance conditions and corrective actions that must be taken to prevent more serious errors. From the results of this minor incident the effect on complaints is indicated that the occurrence of incidents with a frequency that is quite a lot will become unfavorable service which can be a trigger for customers to make complaints. Referring to the dissertation of Bard Tronvoll, the loss or reduction of services, if the telecommunication industry can be interpreted as a BTS signal on a customer's cellphone, it is one of the zone zones of customer expectations, this can trigger complaints. This loss of availability from the BTS can cause the BTS capacity to back up the signal causing the capacity of the BTS to be full, this is what makes internet data access slow or difficult to access. From this study the massive trigger of the incident (reactionary trigger) only has a low determination rate.

From the results of the Focus Group Discussion (FGD) with the service operation, network customer care, incident counseling and tools management at PT Telkomsel on January 8, 2019 to formulate several factors besides network incidents that affect data access complaints. One factor is the difference in perception of call center agents in capturing customer reports that can affect the accuracy of the types of complaints the customer intends due to differences in the ability of each call center agent and incomplete standard standards to maping these types of complaints, this can make a complaint information missed. From the results of the FGD, one of the main factors for customers is complaining about data access, namely from network quality. Quality network has not been monitored by Telkomsel in real time.

Many cases in Telkomsel after an in-depth analysis of availability indicators were not found, but it turned out that the problem was in the performance of the device caused by licenses, modules, and configurations on the BTS device. There are also many cases that after obtaining results from various indicators there are no anomalies in terms of availability and quality, it turns out the problem is in the IT devices that have problems. Some cases of complaints of access to data after the onsite investigation was obtained did indeed result in poor data performance, after being checked it turned out that the capacity on the device was indeed set low, this shows that planning capacity also affects compensation. Another factor is many cases of complaints in Telkomsel after an in-depth investigation was carried out by checking several performance indicators, there were no indicators that could allow poor performance, this supports the theory put forward by Gustafsson (2005) & Roos (2006) regarding complaints by situational triggers where negative incidents are felt by the customer, even though it is not a service failure because the process is in accordance with the service provider's blueprint.

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Table 2. Result Multiple Regression Linier Incident to Data Access Complain

Complain	Result	Incident		
		Minor	Major	Critical
Data Access Complain	F	47.566		
	Sig	0.000		
	t	7.903	-1.682	8.553
	Sig.	0.000	0.093	0.000
	a	106.035		
	b	4.007	-8.083	81.047
	R^2	17%		

Impact Incident to Cellular Call Complaints

From the results of the F test and t test in this study show that critical incidents, major and minor have no effect on complaints of cellular telephone services. From this study, complaints about cellular telephone services have a value of 0.30%, which means that only 0.30% of mobile phone service complaints can be explained by incidents. Referring to the dissertation of Bard Tronvoll, the loss or reduction of services, if the telecommunication industry can be interpreted as a BTS signal on a customer's cellphone, it is one of the zone zones of customer expectations, this can trigger complaints.

However, it does not apply to customers who make complaints about cellular telephone services, because cellular telephone activities will still be possible even though the BTS signals on the customer's cellphone are reduced because the core network devices are not affected by incidents on the radio network side. From the cellular theory concept, telephone service will be disrupted if there is damage to switching / core devices and core concepts that have been implemented. Telkomsel has used the pool concept, meaning that the redundancy has been guaranteed. This indicates that complaints cannot carry out cellular telephone activities and cannot be explained from the incident on the massive radio network side.

From the results of the Focus Group Discussion (FGD) with the service operation section, network customer care, incident management, and tools management at PT Telkomsel on January 8, 2019 to formulate several factors that affect telephone service complaints. Of the many cases that have occurred, the complaints factor for telephone service is caused more by specific factors such as provisioning, profiling, call forwarding, and VPN call features. Where these problems exist in IT devices at Telkomsel.

On the side of the network the problem of telephone difficulties is on the core service side of the switching device (MSC), HLR, VLR so availability of radio devices does not really affect the cellular telephone service. Then the difference factor in the perception of the call center agent in capturing customer reports can affect the accuracy of the types of complaints the customer intends because of differences in the ability of each call center agent and incomplete standard standards for mapping these types of complaints, this can make complaints information missed. The ability of call service agents to map the causes of customers making complaints on telephone and IT services can be a factor that is not precisely the category of telephone service complaints caused by network activities.

Table 3. Result Multiple Regression Linier Incident to Cellular Call Complain

Complain	Result	Incident		
		Minor	Major	Critical
Cellular Call Complain	F	0.703		
	Sig	0.550		
	t	0.711	-1.360	0.453
	Sig.	0.477	0.174	0.651
	a	62.13		
	b	0.284	-4.706	3.059
	R^2	0.30%		

CONCLUSION

After testing the hypothesis using multiple linear regression in the SPSS Statistics program, the following conclusions are obtained:

1. Weak signal complaints are affected simultaneously by independent variables, minor, major and critical incidents. Network incidents have a determination of r-square value of 13.8%, meaning that only 13.8% of weak signal complaints that can be explained by incidents and amounting to 86.2% are explained by other factors. Particularly critical and minor incidents significantly influence the number of weak signal complaints.
2. Data access service complaints are affected simultaneously by independent variables, minor, major and critical incidents. Network incidents have a determination of r-square value of 17%, meaning that only 17% of data access service complaints can be explained by network incidents and 83% are explained by other factors. Particular critical and minor incidents significantly influence the number of data access complaints.
3. Complaints of cellular telephone services simultaneously are not affected by independent variables, minor, major and critical incidents. Network incidents have a determination of r-square value of 0.30%, meaning that only 0.30% of complaints about cellular telephone services can be explained by network incidents and 99.97% are explained by other factors.

SUGGESTIONS

Based on the results obtained from this study, the authors have suggestions for Telkomsel in general, from the results of this study obtained a low value of determination on network availability incident variables, this can be an indication of the need for Telkomsel to be more concurrent about the incident from the viewpoint of service quality more customer service oriented to support more specific customer complaints handling. This can be realized if the management service starts being implemented by Telkomsel. That way Telkomsel can more specifically handle customer complaints with the right solution, fast and do preventive actions before customers' expectations or experience are disrupted. One of them, Telkomsel, can start monitoring the user experience of the customer. The value of customer experience can also be asked to customers after customers have used Telkomsel services. The next suggestion for Telkomsel concern from the service side is to monitor real time traffic performance from radio access devices, to measure anomalies that were not previously available in the availability point of view. From the point of view of the customer care front office agent, the author has a suggestion to make a more detailed standard to create a category of customer complaint cases. So that the results of the customer complaints category

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can be more appropriate if it is related to network activity. This is to support the results of a better analysis.

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