

THE RELATIONSHIP OF NETWORK QUALITY AND CUSTOMER SUPPORT TOWARDS CUSTOMER SATISFACTION FOR MOBILE TELECOMMUNICATION INDUSTRY IN INDONESIA

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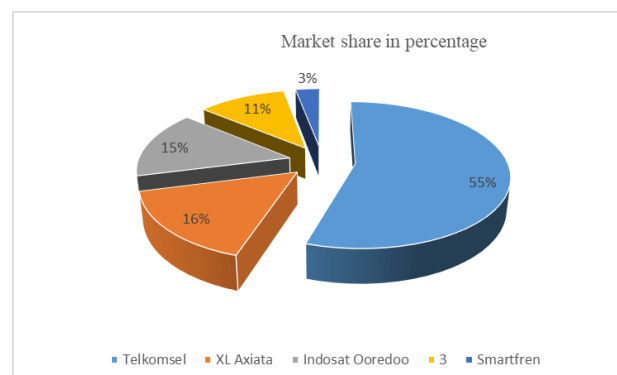
Abstract---*The purpose of this study is to measure the relationship between the network quality and customer support towards customer satisfaction. The penetration rate for telecommunication have reached almost to the maximum and there are more options to customer in selecting their preferred service provider. At the point of stiff competition, service provider need to carefully assess their service quality especially related to network and customer support. This study was conducted using Seven-Likert scale questionnaires with a total of 300 respondents from various demographic. The results were analyzed using Cronbach's α , Pearson's correlation and regression analysis techniques. The results of the research showed that network quality and customer support affects the customer satisfaction. The research presents a comprehensive framework enabling mobile service providers to understand the factors affecting consumer satisfaction. In terms of practical implication, manager of customer services or customer experiences may look at the result for their strategic marketing activities.*

Keywords---*Customer satisfaction, Network quality, Customer support, Telecommunication industry, Indonesia*

I. Introduction

The competition of mobile cellular in Indonesia is getting tough. There are more than 356 million subscription of the mobile lines. The number shows that there are people who registered more than single account as the number of eligible people for subscription based on population is below than that.

Diagram 1: Market share in Telecommunication industry as at 2019



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Based on the diagram above, Telkomsel hold the higher market share of 55% in Indonesia market. Fierce competition between XL Axiata, Indosat and 3. There is no other way to win the market except providing the best network quality and customer services. Today, telecommunication customer is free to switch their network as there is less barrier that may stop customer from making decision. The flexibility practiced in telecommunication industry may allowed customer to terminate their lines and change to others without much hassle. Customer to the certain extend may use the same mobile numbers thus may not interrupt customer communication activities, the only way that telecommunication company may stop customer from switch is by offering the customer a contract package. Normally the contract is for 2 years and customer may not allowed to breach the contract except by paying the early termination contract. The contract normally come together with free phones or devices in order to attract customer to subscribe.

Prepaid customer is fragile and easily switch. Prepaid customer normally very price sensitive and there are concerns about any telecommunication packages. They are also very particular about the network quality and customer support. They have more bargaining power compared to postpaid customers.

II. Literature review

Customer satisfaction

Customer is important for a business. The business created because of profit and customer is the one who will have determined whether the business is successful or not. The competition in telecommunication is not limited to the packaging and pricing but in getting customers. Customer is important as it may generate revenue to the service provider. The tough competition in the industry lead to more challenging effort for service provider to keep customer. Customer have more options to choose which service provider that they want to register or subscribe. Customer have more bargaining power than the supplier. The only way to keep customer is through keeping them in the customer life cycle. Past research indicates that (Lien, Cao, & Zhou, 2017; Ruiz Díaz, 2017; Wang, Ou, & Chen, 2019) will only remain in the cycle should they are satisfied with the service provided by the service provider. Customer satisfaction according to (Hassan & Shamsudin, 2019; Razak & Shamsudin, 2019; Mohd Farid Shamsudin, Esa, & Ali, 2019) is a state where customer evaluate the service rendered to them more than they expected. Achieving customer satisfaction means that the service provider has done something positive that is meeting or exceeding the customer expectations.

Customer satisfaction lead to advantages to service provider. Past research (Borishade et al., 2018; Chicu, Pàmies, Ryan, & Cross, 2019; Kim, Cho, & Kim, 2019) stated that satisfied customer will eventually lead to profit. The profit is derived from the repeats purchase. (M. Shamsudin et al., 2015; Mohd Farid Shamsudin & Razali, 2015) claimed that satisfied customer have high chances of repeat purchase. (Davras & Caber, 2019; Gerdt, Wagner, & Schewe, 2019; Y. Liu et al., 2019) also stated that satisfied customer will have high chance of coming back to the service provider. Customer satisfaction will also help the service provider in facing loyalty crisis. Satisfied customer according to (Hirata, 2019; Zhang, Zhang, & Zhang, 2019) will remains with the service provider during the tough competition. Satisfied customer will also defend the service provider during the minor service failure. (Ahmed, Tarique, & Arif, 2017; Khamis & AbRashid, 2018) indicates that customer satisfaction is important as they are less sensitive towards the price. Customer who satisfied with a service will tolerate in terms of pricing. They don't mind paying extra as long as they can have enjoyed the service from their choices. (Hassan & Shamsudin, 2019; M. F. Shamsudin, Nurana, Aesya, & Nabi, 2018) claimed that satisfied customer supported the income generation by repeat purchase and being loyal. (Razak & Shamsudin, 2019) at the same time supported the findings from (Lien et al., 2017; Ruiz Díaz, 2017; Wang et al., 2019) that satisfied customer not only being loyal but they

are insensitive towards price. Based on the past research, service industry especially in telecommunication industry need to focused in providing the best service to customer as they help the service provider to sustain and compete in the industry.

(Mannan, Mohiuddin, Chowdhury, & Sarker, 2017; Özer, Argan, & Argan, 2013; Santouridis & Trivellas, 2010) reported that satisfied customer helps service provider to grow. Satisfied customer indirectly will have expressed their feelings to family and friends (M. F. Shamsudin, Razak, & Salem, 2018; M. F. Shamsudin, Shabi, & Salem, 2018). It was also highlighted by (Liang, Ma, & Qi, 2013; Özer et al., 2013; Santouridis & Trivellas, 2010) that satisfied customer will continuous support the service provider not only by repeat purchase but also open for new product innovation. Satisfied customer will support the service provider by purchasing to other products supplied by the service provider (Eberle, Milan, & Dorion, 2016; Forsythe, 2016; Khamis & AbRashid, 2018). Satisfied customer may subscribe not only the current packages but will also subscribe to other services for their families, or add more subscription such as internet, supplementary lines and others. Satisfied customer according to (Izogo, 2016; Shafei & Tabaa, 2016; Sharma & Sharma, 2019) will support the service provider as long as they remain in the customer life cycle.

Service provider may face challenges in getting new customer to subscribe to their new products. They need to invest more in communication and advertisements in order to attract the potential customer to subscribe to the products (Hassan & Shamsudin, 2019; Mohd Farid Shamsudin, Esa, et al., 2019). New customer normally will go through a normal process where they will compare and evaluate which product is the best. One of the way is by asking their family and friend before making decision (Liang et al., 2013; Santouridis & Trivellas, 2010). Satisfied customer according to (Oliver, 1993; Oliver & Swan, 1989) will help service customer to promote the products as they experienced the service and have a sense of belonging in order to ensure the service provider that they are supported will be success in the market.

Overall according to (Hassan & Shamsudin, 2019; M. F. Shamsudin, Nurana, et al., 2018; Mohd Farid Shamsudin, Esa, et al., 2019) customer satisfaction can be achieved when the service provided to the customer is meeting or exceeding their expectations. Market player in the telecommunication industry need to carefully understand the customer needs and focused in servicing the customer. Competition in limited market will resulted to focusing in getting customer from competitor instead of getting new one as there is little left to be penetrated. Service provider not only requested to keep their service at high level (Berry & Parasuraman, 1993; A. A. Parasuraman, Zeithaml, & Berry, 1991; A. Parasuraman, Berry, & Zeithaml, 1991) but to ensure other elements such as network quality and customer support at their best level in the market.

Network quality

(Lien et al., 2017; Ruiz Díaz, 2017; Shafei & Tabaa, 2016; Wang et al., 2019) indicates that customer will choose the best network quality when it comes to the telecommunication and internet providers. Network quality is the overall measurement of the services provided by the service provider to the customer. Network quality in the context of telecommunication industry is referring to the quality of connection, upload and download services, signal strength and output quality that lead to the overall customer experience. (Eberle et al., 2016; Lau, Cheung, Pires, & Chan, 2019) emphasis that the network quality is reflecting the strength of the service provider. It requires high investment and effort in order to fulfill the customer needs, wants and demand. The higher is the network quality is the better as it will ensure that customer enjoyed the best services from the service provider (I. Muhammad, Farid Shamsudin, & Hadi, 2016; M. Shamsudin et al., 2015).

Network quality also refers as the overall service reliability that the service provider given. The service reliability means that customer can rely on the service provider to make used of the service as and when they required (Izogo, 2016; Octabriyantiningtyas et al., 2019; Sharma & Sharma, 2019). The service is available at any point of time when customer wanted to use them. Service at the same time should be competitive as compared to others. The service provider need to ensure that the offer the best network coverage as compared to others (Mohd Farid Shamsudin, Ishak, et al., 2019). Service

provider must also ensure that they have the best technology that can meet or suit the customer expectation or needs. Service competitiveness may have resulted to the overall customer evaluation and feedback upon using the services. (Abd-elrahman, Hassan, El-borsaly, & Hafez, 2019; Izogo, 2017; Phong, Khoi, & Nhat-Hanh Le, 2018) emphasis that network quality not only should be reliable and competitive but also should be consistent. The service provider should avoid the service failure that may lead to negative experience (Giovanis, Zondiros, & Tomaras, 2014; Jusoh, Zakuan, Bahari, Ariff, & Hayat, 2012; Octabriyantiningtyas et al., 2019). Service provider must also ready to provide a quick service recovery should there is anything un-avoided happens that lead to interruption on the usage of network services.

Network quality is according to (Hassan & Shamsudin, 2019; M. Shamsudin et al., 2015) is related to the level of service competitiveness. Customer may have no chance to compare which service provider provide the best quality if there are no options given. Today, there are option given to customer to choose and compare which of the service provider in the market that may offer the best network quality. (Chang, Hsu, Huang, & Chen, 2019; Hino, 2017; Shin & Kim, 2007) stated that in any circumstances, the best service network will win the market as customer is always looking for the best that can have satisfied their needs and wants. Indirectly according to (Bergel & Brock, 2018; Chuah, Rauschnabel, Marimuthu, Thurasamy, & Nguyen, 2017; Parry & Sarma, 2019) the competition in the market among the industry player will give advantage to customer as they compete to provide a quality service to their customer in order to sustain and compete in the market (Cen & Li, 2019; Chakraborty, 2019; Gu, Wang, & Lu, 2019). (Firman, 2002; Kaur, Sharma, & Mahajan, 2012; Minarti & Segoro, 2014) on the other hand highlighted that service competitiveness alone is not sufficient in order to sustain in the market. Service provider need to provide service consistency. Service consistency according to (Gu et al., 2019; Yan, Zhang, & Yu, 2019) is the ability of the service provider to offer a reliable network that can gain customer trust over a period of time. (Mohd Farid Shamsudin, Esa, et al., 2019) emphasis that service error, service failure and poor quality may lead to customer dissatisfaction and as a result may cause to customer switch or churn.

(Mwakatumbula, Moshi, & Mitomo, 2019; Yang, Xu, Yang, & Chen, 2018) highlighted that poor quality such as frequent drop call may cause customer to complaint. Service provider should take the complaint as a feedback from customer and rectify immediately. Past research (Hahm, Chu, & Yoon, 1997; Klein & Jakopin, 2014) indicates that only 30% of customer complaint but the rest will only talk to their circle and switch to other networks. Drop call normally is a result of poor signal quality (Amin, Al-Obeidat, et al., 2019; Lommerud & Sjørgard, 2003). Service provider may need to expand their coverage and invest in a good system that can cater a large number of customer. A good signal quality may result to customer satisfaction (Chen & Yang, 2015; Lee & Ahn, 2007; Mahendrawathi, Astuti, & Nastiti, 2015). The same point also highlighted by (Hassan & Shamsudin, 2019; I. Muhammad et al., 2016; M. Shamsudin et al., 2015) that a good signal coverage not only will captured new market but invite more customer to subscribed. Service provider that managed to have wider coverage may stand a chance to have more subscriber. (Vaez Shahrestani, Shahin, Teimouri, & Shaemi Barzoki, 2019; Vidal-Salazar, Cerdón-Pozo, & de la Torre-Ruiz, 2016) stated that servicing of new are may provide advantage to the service provider in getting more new customer.

Past research related to quality (C. T. Liu, Guo, & Lee, 2011; Minarti & Segoro, 2014; Stenbacka & Takalo, 2019) highlighted that customer is also looking for an attractive value added service that service provider offered to customer. The value added service should be at least at par or better than competitor. (Belwal & Amireh, 2018; Gerpott & Bicak, 2016; Iwashita, Shimogawa, & Nishimatsu, 2011) added that the value added service should be the one that add value to customer based on their needs and usage necessity. Matching the needs of customer with the value added service will provide a clear advantage to the service provider. On top of all the dimension mentioned above, service packages offered to customer will be the important things that customer will compare and evaluate. The service packages according to (Hahm et al., 1997; Klein & Jakopin, 2014; Yang et al., 2018) will includes the phone price, coverages, monthly commitment fees and the data

size given for each customer per account. There are also services that may allowed customer to share their value added services within their closed user group such as family and friends. The data size also depends on the network quality with regards to the speed of upload and download. (M. Shamsudin et al., 2015) stated that service provider need to be more creative in offering their packages as customer have too much information and they have more bargaining power that forced the service provider to work hard in servicing and pleasing them to stay in the network.

Customer support

Customer support is important in any service industry. It is a provision of service that the service provider allocates before, during and after the purchase. Customer support is important in ensuring that customer go through positive customer experience throughout their customer life cycle (Thompson, Loveland, & Loveland, 2019). Very often that customer was left out after they registered themselves as a customer. Effort made by the sales team to acquire customer was not shared by the rest of the organization. As a result, customer may feel frustrated because they don't have proper channel to share their problem or difficulty. (Gerpott, Rams, & Schindler, 2001; Giovanis et al., 2014; L. Muhammad & Gul-e-Rana, 2019) emphasis that customer support is the key of customer retention especially in telecommunication company.

Customer support as mentioned by (Gerdt et al., 2019; Özer et al., 2013; Shafei & Tabaa, 2016) started as early as before customer register themselves as a customer. During that time customer may called or walk in asking for more information. Customer may need some clarification before they make decision. Customer support play the role to attract customer at the frontline to reflect the good customer policy of the service provider (Mohd Farid Shamsudin, Esa, et al., 2019). Customer may like the way he or she has been treated and decided to become customer. Service provider should provide the customer support at the convenience of customer. Make them easier to complaint and do enquiries. (M. Shamsudin et al., 2015) stated that hotline service is among the popular customer support since last two decades ago but in 21st century the support expanded to a more technology based services such as online chat, email enquiries, online video for instructions and automate reply for simple problem or questions by customer.

(Hahm et al., 1997; Segarra-Moliner & Moliner-Tena, 2016; Yang et al., 2018) suggested that customer support should not let the customer to wait for long time to be entertained especially during phone call or walk in enquiries. Service provider should provide enough personnel to handle certain number of customer (M. F. Shamsudin, Nurana, et al., 2018). Today, the online customer service support is the most popular where customer can express their complaint and will be answered in a short time of period. Today, most of the service provider offered a customize care where they split the problems into micro topic so that the problem will be answered by the expert upon the filter process. (Amin, Shah, et al., 2019; Keshavarz & Jamshidi, 2018; Saafein & Shaykhian, 2014) claimed that a good customer support will lead to customer satisfaction and thus contribute to customer retention and loyalty.

Overall, based on literature (Narteh, 2018; Oh, 1999; Xia & Jin, 2008) it can be concluded that customer support is important especially in service based industry such as telecommunication. There is a need to serve them before, during and after the subscription. The service will never end as that is the nature of the business (M. Shamsudin et al., 2015; Mohd Farid Shamsudin & Razali, 2015).

III. Methodology

Initially the survey questions were assessed using a pilot test among 50 respondents. The purpose of the pilot test is to measure the feasibility of the overall process as it is the key of the main study. The pilot test enables the researcher to estimate the actual time taken to complete the study per respondent. It will also alert the researcher on the problem such as understanding the language or sentences. The pilot test will enable to identify human error or data problems that may become

serious during the full data collection. Finally, the pilot test enables the researcher to assess the response time as a benchmark during the actual data collection process. Data were then collected using the intercept method. Data were collected from various popular area in Indonesia. Intercept data collection was used because it is fast and convenient. Only popular areas visited by majority of people were selected. The fact is most of the population at least is a customer of any one of the service provider. A total of 342 respondents were participated in the study. The study used a self-administered survey in the month of December, 2019 across various age and income groups. Incomplete questionnaire was remove and left only 300 complete usable surveys. Seven Likert scale were used (1 = “strongly disagree”; 7 = “strongly agree”)

IV. Data analysis and results

Table 1: Summary of statistics of questionnaire survey

Constructs	Number of Items	Mean	Sd
Network quality	6	5.134	1.204
Customer support	6	6.234	1.420
Customer satisfaction	5	5.565	1.078

Table 1 above indicates the details of items according to the constructs together with the mean value.

Table 2: below shows the rotated factor loadings and their eigenvalue and Cronbach alpha value. The results indicated that calculated alpha value is more than 0.7 that reflects a good consistency among items.

Table 2: Result of factor analysis

No	Network quality	Customer support	Customer satisfaction
NQ 1	0.931		
NQ 2	0.952		
NQ 3	0.913		
NQ 4	0.910		
NQ 5	0.742		
NQ 6	0.715		
CS 1		0.813	
CS 2		0.886	
CS 3		0.755	
CS 4		0.952	
CS 5		0.746	
CS 6		0.915	
SAT 1			0.738
SAT 2			0.835
SAT 3			0.841
SAT 4			0.916
SAT 5			0.870
Eigenvalue	6.674	3.332	1.613

Cumulative percentage of explained variance	37.106	58.321	73.431
Cronbach alpha	0.873	0,864	0.834

Table 3 shows the AVE values for constructs ranged in between 0.55 to 0.79 indicating good reliability. The table also shows that all values are above the threshold value 0.7. It means that all the constructs have high reliability value.

Table 3: Measurement model results

Constructs	Standardized loadings	t statistics	CR	AVE
NQ 1	0.931	21.146**	0.96	0.78
NQ 2	0.915	22.357**		
NQ 3	0.962	21.463**		
NQ 4	0.910	22.258**		
NQ 5	0.742	16.567**		
NQ 6	0.725	16.123**		
CS 1	0.813	20.586**	0.87	0.71
CS 2	0.846	20.674**		
CS 3	0.755	14.212**		
CS 4	0.922	21.668**		
CS 5	0.736	14.388**		
CS 6	0.945	21.265**		
SAT 1	0.718	14.256**	0.81	0.54
SAT 2	0.825	18.321**		
SAT 3	0.831	18.799**		
SAT 4	0.946	21.133**		
SAT 5	0.870	18.121**		

** indicates significant at $p < 0.01$ level

Table 4: Correlations between constructs

	Network quality	Customer support	Customer satisfaction
Network quality	0.78*		
Customer support	0.06	0.71*	
Customer satisfaction	0.18	0.35	0.54*

*Diagonal elements are AVE

The AVE value for customer support is 0.71 while the squared inter-construct correlations estimates value is 0.35. AVE for network quality is 0.78 and the squared inter-construct correlations estimates value is 0.06 for customer support recovery and 0.18 for customer satisfaction. Table 5 is the final results of the path analysis. Both hypothesis is supported

Table 5: Path analysis of structural model

Casual path	Hypothesis	Path coefficient	t-stat	Results
Network quality → Customer satisfaction	H1	0.245**	3.455	Supported
Customer support → Customer satisfaction	H2	0.332**	5.541	Supported

** indicates significance at P<0.01 level

V. Discussion and implications

The results of the research showed that network quality and customer support affects the customer satisfaction. The result shows that customer is more concerned on the core services provided by the service provider as compared to other value added services. Service provider need to pay more attention on the network quality and customer support towards satisfying the customer. There is not much choice available from the perspective of service provider as they need to fulfill the requirements in order to sustain in the industry. At the same time each service provider should also be alert with the competitor movement. The level of service offered must be at the same or more from others. Customer at the point of having ample choice may choose only the best for themselves. The burden to the telecommunication industry is to cope with the customer needs and demand. Another challenges are the fast development of technology that may come out with new valued added or services that may benefit to customer. There is no wait and see game policy in the telecommunication industry as every single step is crucial in determining the future market share and profitability.

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