Analysis of the Effect of Public E-Health Service Quality on the Creation of Public Value
Case Study: PMR Hospital Surabaya City

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Keywords: Customer Satisfaction, Service Quality, E-Health, Public Value, and Partial Least Square (PLS)

Abstract: Utilization of information technology becomes very important role because it has been proven that by using information technology, effectiveness, efficiency in doing a faster process is achieved. With the existence of fast and quality health service is expected to increase public value in society. Quality of service could be obtained from customer satisfaction which is formed by customer perception. One of the emerging areas of health by adopting information technology is E-Health. E-Health Innovation in Indonesia is spearheaded by the Surabaya City Government with the aim of making it easier for people to come to the community health centre (*Puskesmas*) and hospitals to register online, both new patients and old patients. Thus, no longer long queues occur and the patient could estimate the time to come to the targeted health facility. Enthusiastic people of Surabaya in utilizing E-Health online registration system is high enough to spur other private health agencies to apply a similar system. PMR hospital located in Surabaya City is an international private hospital that has implemented a similar system. But in reality the system has not been able to create maximum public value in accordance with hospital expectations. This study is aimed at analysing the influence of service quality online registration system E-Health Hospital PMR Surabaya city to maximize the creation of public value. The research method used in this research was descriptive quantitative approach. Data collection of respondents for quantitative research would be taken in Surabaya City area based on respondents by using E-Health online registration application. The sampling technique used in this research was the questionnaire survey using partial least square data analysis (PLS). The number of samples in this study was 100 respondents. The result showed that E-Health had positive and significant effect to Public Value with original value sample estimate of 0.267 and t-test result obtained by t-count (3.036) > t-table (1.96). This means that if the better E-health, then the Public Value was increasing. Recommendations of research results indicate that there is an improvement in the system by building or adding a service and system criticism survey system and suggestions on the online registration application of the Surabaya City PMR Hospital.

1 INTRODUCTION

Rohman (2008) Public services is a service or giving to public the form of the use of public facilities, both services and non-services, which are performed by public organizations in this case a government. Public service is a must for the state or government to serve its citizens. Public services are not easy to do and many countries fail to do good public services for their citizens, Rohman (2008). The failure and success of a public service can be determined by the services quality or services provided by the public service.

One area of public service is health. Each healthcare service institution is required to create a competitive advantage in the face of new competitors engaged in the same service agency that must have the ability to develop strategic choices in order to adapt to a dynamic environment. Health field is a public service that needs to be improved in terms of service quality. The aim is to develop the implementation of quality, transparent, easy, cheap, fast, fair, and fair public service delivery to all people in order to support the public interest.

In Indonesia the use of information technology for the health sector has been regulated in Law no. 36 of 2009 on health, where to organize effective

and efficient health efforts required information and health services conducted through the system information and through cross-sector. E-health is one of the innovations undertaken to overcome these obstacles. According to Wickramasinghe and Goldberg (2004) that E-Health or electronic health, which is essentially driven by the use of information and communication technologies in health has the potential to transform the health industry worldwide in terms of infrastructure, cost and quality of service.

The enthusiasm of Surabaya society in utilizing the online registration system is high enough to spur other private health agencies to implement similar systems. PMR hospital located in Surabaya is an international private hospital selected by the researcher. PMR hospitals have utilized the E-Health service-based E-Health website but it is not yet optimal, as evidenced by the visits of patients who are admitted to PMR hospitals either directly registering or through online registration through websites tend to be quiet or under-capacity (UC). As preliminary information, PMR hospital has 25 polies ready to serve outpatients with a maximum capacity of patient per 25 to 30 patients per day. This indicates that PMR Hospital with the service capacity provided has not met the target customer with maximum. The following is the data obtained by the researcher for the last 3 (three) months based on the patient visit in PMR Hospital Surabaya.

Table 1.1: Data on patient visit in PMR Hospital 2017.

Data pasien rawat jalan pada Rumah Sakit PMR Okt – Des 2017						
No.	Bulan/hari	Daftar Langsung	Aplikasi Online	Jumlah	Capacity	Ket.
1.	Oktober	187	130	317	750	UC
2.	November	214	129	343	750	UC
3.	Desember	218	140	358	750	UC

Source: Internal data of PMR Hospital visitors' statistics (2017)

Benefit to be gained by PMR Hospital by improving service quality is able to create maximum public value. The technique used in this study is non-probability sampling, where all elements of the population do not have the same opportunity or opportunity to be a member of the research sample and the type of non-probability sampling used in this study is purposive sampling that is sampling technique based on criteria and the characteristic of the specified sample. Data collection used direct survey method with questionnaires instrument. For further analysis, used Partial Least Square (PLS) method and analysis technique. PLS was chosen by the researchers with the consideration that PLS is a

powerful analytical method because it can be applied to any data scale, does not require many assumptions and the sample size does not have to be large. PLS is a more appropriate approach for predictive purposes, especially in conditions where indicators are formative.

2 LITERATURE REVIEW

Service quality is closely related to the customer epuasan k are believed to be major factors that significantly impact customer value. Customer was believed to be a significant impact on the increase in revenues. This becomes something that is important for profit-seeking companies.

Some studies conclude that customer satisfaction does not have a significant impact on customers, customers also have no significant impact on corporate profits. The theories used in this study include from various literature journals, guidebooks of quality Partial Least Square (PLS), online media, as well as one of the object of One Hospital which became the research place. In this case the health agency company which is the object of research is PMR Hospital in Surabaya city .

2.1 Quality of Service

Kotler & Keller (2009) state that service quality is the totality of features and characteristics of products or services that are capable of satisfying the stated or implied customer requirements. A qualified company is a company capable of delivering its products or services to meet or exceed customer expectations.

From the definition of service quality can be concluded that the quality of service is all forms of activities undertaken by the company to meet consumer expectations. Service in this case is defined as services or services delivered by the owner of services in the form of ease, speed, relationship, ability and hospitality addressed through the attitude and nature in providing services for customer satisfaction.

2.2 Public Service

Gronross (2013) states that service is an activity or a series of activities that are invisible (not palpable) that occur as a result of interaction between consumers with employee or other things provided by the company service providers intended to solve consumer or customer problems.

Ratminto and Atik Septi Winarsih (2006) conclude that public service or public service is as any form of service, either in the form of public goods or public services which in principle is the responsibility and implemented by government agencies in central, regional, and in the environment of State-Owned Enterprises, in an effort to meet the needs of the community as well as in the implementation of the provisions of the laws and regulations.

2.3 Public Value

Customers have the same needs, but the wish of each customer is different. This causes the customer's perception of the product or service offered by the company will give different value in customer's eyes. Value is something that is individual because something that is valuable to someone is not necessarily valuable to others. Sometimes customers value a product or service based on the merits of the product or service, but in another situation the customer judges a product or service based on the employee's service or friendliness in serving the customer regardless of the benefits of the product or service.

The public value / customer value is a level of satisfaction determined when a customer sees more value from a product and the service performance received from a process of purchasing a product or service (Lupiyoadi, 2006). The more value to customers given by a product or service is a customer's answer to determine his choice. On basically the customer is looking for the greatest value provided by a product or service.

2.4 E-Health

E-Health is an internet application or other related technology in the healthcare industry that aims to improve access, efficiency, effectiveness, and quality of medical and business processes, involving the organization of medical services (hospitals or clinics), medical practitioners (physicians or therapists) laboratories, pharmacies, insurance, and patients as consumers. Solutions on offer E-Health including products, systems and services, for example, health information, electronic medical records, drug purchasing services, communication systems between users, and other information on disease prevention, diagnosis, treatment, health monitoring and lifestyle management.

E-Health can be seen from corporate or corporate solutions in the health sector that involves support of all aspects of government structure, such as hospitals, health centers, health offices, pharmaceutical industries, higher education (health-related), and polyclinics. If E-Health is fully supported by the population and community administration within the scope of the region, city, province, or national, then E-Health will be a future application in order to optimize the public health system.

2.5 Relationships between Variables Theory as the Basis of the Hypothesis

There are three types of relationships between variables, namely symmetrical relationships, causal relationships, and interactive relationships (mutual influence). To find the relationship between two variables or more is done by calculating the correlation between the variables that will look for the relationship. Correlation is a number that shows the direction and strength of the relationship between variables or more. This means expressed in the form of a positive or negative relationship, while the strength of the relationship is expressed in the magnitude of the correlation coefficient.

The relationship of two or more variables is positive, if the value of one variable is increased, it will increase the other variable, and vice versa. If the value of one variable is lowered, it will decrease the other variable. The relationship of two or more variables is stated as negative, if the value of one variable is increased, it will decrease the value of the other variable, and vice versa. If the value of one variable is lowered, it will increase the value of another variable.

2.6 Partial Least Square (PLS) Method

Partial Least Square (PLS) is an alternative method of estimating models to manage Structural Equation Modeling (SEM). The PLS design was made to overcome the limitations of the SEM method. In the SEM method requires large data, no missing values, must be normally distributed, and should not have multi-collinearity, whereas in PLS use a distribution free approach where data can be distributed in a certain way. Besides that, PLS can also be used on a small number of samples.

Yamin and Kurniawan (2009) say that PLS is used to determine the complexity of the relationship

of a construct and other constructs, as well as the relationship of a construct and its indicators. PLS is defined by two equations, namely the inner model and the outer model. The inner model determines the specification of the relationship between the construct and its indicators. The extract is divided into two, exogenous and endogenous. Exogenous extract is the cause of the constituent, which is not affected by other constructs. Exogenous extracts give effect to other constituents, while endogenous extracts are the extracts described by exogenous compounds. Endogenous extract is the effect of exogenous constructs.

According to Gahazali (2006) that PLS method has its own advantages including: data does not have to be multivariate normally distributed (indicators with category scale, ordinal, interval until the ratio can be used on the same model) and the sample size does not have to be large.

3   METHOD

The form of this research was descriptive quantitative research. This research was conducted by distributing questionnaires to the community, especially the people who have been treated outpatient to the hospital in Surabaya City and conical to the respondent who registered online E-Health at PMR Hospital Surabaya City.
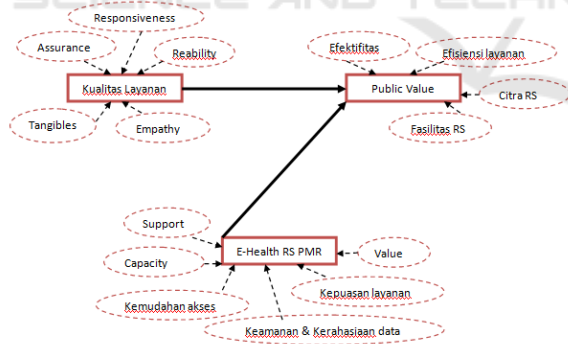

Figure 3.1: Conceptual Model.

The population in this study was the community or hospital patients who have done outpatient treatment. The sample to be used in this study was the community or patients who registered either directly or online for outpatient treatment of the hospital.

Data collection methods in the study used the instrument in a questionnaire (Arikunto, 2002). Questionnaires were a number of written questions that were used to obtain information from respondent.

The data analysis method was used Smart PLS software that run with computer media. PLS (Partial Least Square) was a variance-based structural equation analysis (SEM) that could simultaneously perform testing of measurement models as well as structural model testing. The measurement model was used for validity and reliability test, while the structural model was used for causality test (hypothesis testing with prediction model).
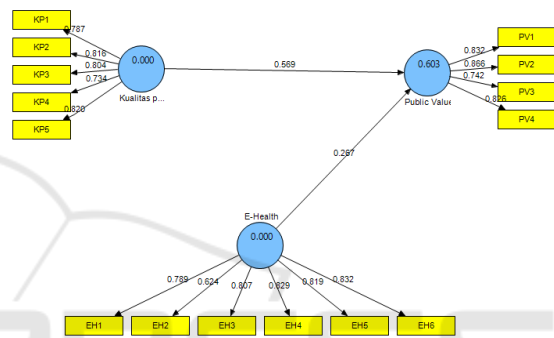

Figure 4.1: Model of Construct Research Structure.

4   RESULT

The results of data processing by using Smart PLS software tools, obtained the output of the model of *loading factor* construction structure that would explain the relationship between construct service quality, E-Health, and public value which was shown in Figure 4. 1 following:

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4.1 The results of Validitas dan Reliabilitas

Table 4.1 Test Results Validity and Reliability.

VARIABEL	No	UJI VALIDITAS			UJI RELIABILITAS	
		r hitung	P	Ket	Alpha cronbach (>0,70)	Ket
KUALITAS PELAYANAN	KP1_1	0.750	0.000	valid		
	KP1_2	0.740	0.000	valid		
	KP2_1	0.763	0.000	valid		
	KP2_2	0.822	0.000	valid		
	KP3_1	0.803	0.000	valid	0.924	Reliabel
	KP3_2	0.803	0.000	valid		
	KP4_1	0.728	0.000	valid		
	KP4_2	0.723	0.000	valid		
	KP5_1	0.801	0.000	valid		
	KP5_2	0.788	0.000	valid		
E-HEALTH	EH1_1	0.669	0.000	valid		
	EH1_2	0.753	0.000	valid		
	EH2_1	0.629	0.000	valid		
	EH2_2	0.609	0.000	valid		
	EH3_1	0.815	0.000	valid		
	EH3_2	0.815	0.000	Valid	0.933	Reliabel
	EH4_1	0.822	0.000	Valid		
	EH4_2	0.827	0.000	Valid		
	EH5_1	0.788	0.000	Valid		
	EH5_2	0.770	0.000	Valid		
	EH6_1	0.827	0.000	Valid		
PUBLIC VALUE	PV1_1	0.785	0.000	Valid		
	PV1_2	0.778	0.000	Valid		
	PV2_1	0.690	0.000	Valid		
	PV2_2	0.820	0.000	Valid		
	PV3_1	0.750	0.000	Valid	0.900	Reliabel
	PV3_2	0.769	0.000	Valid		
	PV4_1	0.789	0.000	Valid		
	PV4_2	0.771	0.000	Valid		

Based on Table 4.1, it was known that all queries in the questionnaire had r counts greater than r table and the probability value was less than 0.05 ($p < 0.05$). Thus all questions were declared valid. The result of reliability test in Table 4.1 stated that the four variables were reliable. This is evidenced by the value of Cronbach Alpha was greater than 0.7.

4.2 Discriminant Validity

In testing discriminant validity could be in two ways, among others:

1. The root of AVE was to know the correlation between constructs

Testing the validity of the indicator of the Average Variance Extract (AVE) root value was compared with the correlation between constructs with other constructs. The following values of AVE and correlation between constructs could be seen in Table 4.2 below.

Table 4.2: AVE Values & Correlations between Constructs.

	E-Health	Kualitas pelayanan	Public Value
E-Health	**0.787**		
Kualitas pelayanan	0.686	**0.793**	
Public Value	0.657	0.752	**0.818**

Description: The value in bold is the root value of AVE.
Source: Primary data processed, 2018

The result of the test was satisfied, if the AVE root was greater than the correlation between constructs with other constructs. From Table 4.9, shows that the AVE root value was higher than the value of correlation among other constructs. More details can be explained as follows:

a. AVE roots value ($\sqrt{\text{AVE}}$) E-Health construct equal to 0,787 higher than correlation between E-Health with service quality 0,686, and Public value 0,657.

b. AVE roots value ($\sqrt{\text{AVE}}$) service quality construct equal to 0,793 higher than correlation between service quality with E-Health 0,686, and Public value 0,752.

c. AVE roots value ($\sqrt{\text{AVE}}$) Public value construct equal to 0,818 higher than correlation between Public value with E-Health 0,657, and service quality 0,752.

Based on the above results, it appeared that the AVE root value was higher than the value of correlation among other constructs. This showed that the constructs in the estimated model meet the criteria of high discriminant validity, meaning that the data analysis results were acceptable. It was because the values that describe the relationship between constructs develop and the AVE root value had a value greater than the correlation value between constructs.

2. Correlation construct with indicator itself

Discriminant validity testing in this way was said to be valid if the construct correlation value with its own indicator was greater than that of other constructs and all construct correlation values with its own indicator and other constructs indicates a positive value. From the results of processing

data presented on the table cross loading could be seen that the requirements have been met so that all constructs in the model were estimated to meet the criteria discriminant validity was good meaning the results of data analysis can be accepted.

The result of an analysis of the correlation of the construct with its own indicator or construct correlation with other indicators could be presented in Table 4.3 parts of the following cross loading.

Table 4.3: Correlation Value of Constructs with Indicator (Cross Loading).

	E-Health	Kualitas pelayanan	Public Value
EH1	0.789270	0.710862	0.615870
EH2	0.624429	0.555830	0.472093
EH3	0.806568	0.467480	0.443613
EH4	0.829135	0.545987	0.530974
EH5	0.819196	0.493357	0.513899
EH6	0.832073	0.405920	0.483721
KP1	0.530113	0.787383	0.563196
KP2	0.617196	0.816407	0.621434
KP3	0.550528	0.804144	0.609161
KP4	0.533360	0.733794	0.543835
KP5	0.490278	0.820190	0.637626
PV1	0.526121	0.584229	0.832071
PV2	0.613903	0.662945	0.865701
PV3	0.464584	0.454291	0.742178
PV4	0.532410	0.717013	0.825596

Description: EH = E-Health;
KP = Quality of service;
PV = Public Value
Data Source: Primary data processed, 2018

4.3 Direct Effect Analysis

The results of testing the direct effects of each of these research variables could be seen in Tabe 4.4.

Table 4.4: Hypothesis Test Influence.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)
E-Health -> Public Value	0.267231	0.264236	0.088009	0.088009	3.036410
Kualitas pelayanan -> Public Value	0.568768	0.570478	0.077652	0.077652	7.324562

Data Source: Primary data processed, 2018

The results of hypothesis testing could be summarized briefly in Table 4.5 following.

Table 4.5: Hypothesis Testing Results.

	Hipotesis	Kesimpulan
H1	Kualitas pelayanan berpengaruh positif dan signifikan terhadap *public value*	Diterima t = 7.324> 1,96
H2	*E-health* berpengaruh positif dan signifikan terhadap *public value*	Diterima t = 3.036> 1,96

Source: Primary data processed, 2018

Results if the data above could be known in the test of each hypothesis that had been proposed, namely:

1. Hypothesis Testing 1:
H1: Service quality had positive and significant effect to Public Value

In test of hypothesis 1 obtained by original value sample estimate equal to 0,568 value proves service quality had positive effect to Public Value which result also reinforced from result of t test which obtained by t-count value (7,324) > t-tabel (1.96)., So, it could be said that was significant influence service quality against Public Value.

So, it could be concluded that was the service quality had a positive and significant effect on Public Value, meaning if the quality of service was better, then the Public Value was increasing. Thus, the first hypothesis was acceptable.

2. Hypothesis Testing 2:
H2: E-health had a positive and significant effect on Public Value

In test of hypothesis 2 obtained original value sample estimate equal to 0,267 value prove E-health had positive effect to Public Value which result also reinforced from t test result obtained by tcount (3.036) > t-table (1.96), so it could be said there was significant influence E-health to Public Value.

So, it could be concluded that E-Health had a positive and significant effect on Public Value, meaning that if the E-health was better, then the Public Value was increasing. Thus, the second hypothesis was acceptable.

5 CONCLUSION

Based on the results of the research and discussion above, the conclusion of this study was the service quality had a positive and significant effect on the Public Value with the original sample estimate value of 0.568. Then, the result of t-test obtained t-count (7,324) > t-table (1.96). This means that if the service quality was better, then the Public Value was increasing. E-Health had a positive and significant effect on Public Value with original value sample estimate of 0.267 and t-test result obtained by t-count (3.036) > t-table (1.96). It means that if E -*Health* is better, then the Public Value is increasing. Recommendations of research results indicate that there is an improvement in the system by building or adding a service and system criticism survey system and suggestions on the online registration application of the Surabaya City PMR Hospital. This study only identifies the factors that influence the quality of service in terms of the use of E-Commerce, namely E-Health in increasing public value. It is expected that in further research to better identify other factors that has not been explored yet in the study.

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