

## THE EFFECTIVENESS OF IMPLEMENTING DIGITAL MOBILE AND PELNI SERVICES ON CUSTOMER PERSPECTIVE DURING THE NEW NORMAL PANDEMIC COVID-19 (CASE STUDY IN TANJUNG PRIOK PORT)

Franco<sup>1\*</sup>, Rohman<sup>2</sup>, Johannes Kurniawan.L<sup>3</sup>

<sup>1,2,3,4</sup> Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia

\*Corresponding Author: [francobetan98@gmail.com](mailto:francobetan98@gmail.com)

**Abstract.** This research was conducted by referring to the users of Digital Services to Purchase Tickets at PT. PELNI. This study aims to analyze the Effectiveness of Digital Services, Mobile-based Applications, that can facilitate interaction between stakeholders involved in passenger activities through sea transportation modes effectively and efficiently during the Covid-19 pandemic. The application was made based on the needs of users of the Sea Transportation Services. This study used the theory of the D&M information system success model by De Lone and Mc Lean in 2003. In this study, there are six indicators namely system quality, information quality, service quality, user intentions, user satisfaction, and net benefits. The method used in this research is descriptive quantitative. Data collection method was carried out by distributing 100 questionnaires to Pelni Mobile application users. To determine the sample, this research applied Slovin formula because the number of users of Pelni mobile application is 1,049 users. This research used a quantitative approach with descriptive research type. This type of descriptive research was chosen because the researcher only aims to describe the effectiveness of the Mobile Application Service (PELNI MOBILE) by testing the hypothesis.. The results showed that all hypotheses have positive and significant effects. Based on the descriptive analysis of the test results. It can be said that Pelni Mobile application is very effective with the average combination of each indicator generates a value of 3.63 which is in a very effective scale range.

**Keywords:** EFFECTIVENESS, APPS MOBILE, CUSTOMER PERSPECTIVE

### Introduction (Include Literature Review)

The growth of the community's need for technology encourages a change in the fabric of people's lives. The transportation industry which is currently confused by the presence of new technology-based challengers has offered convenience to the needs of the community. (Jokhu, 2019).

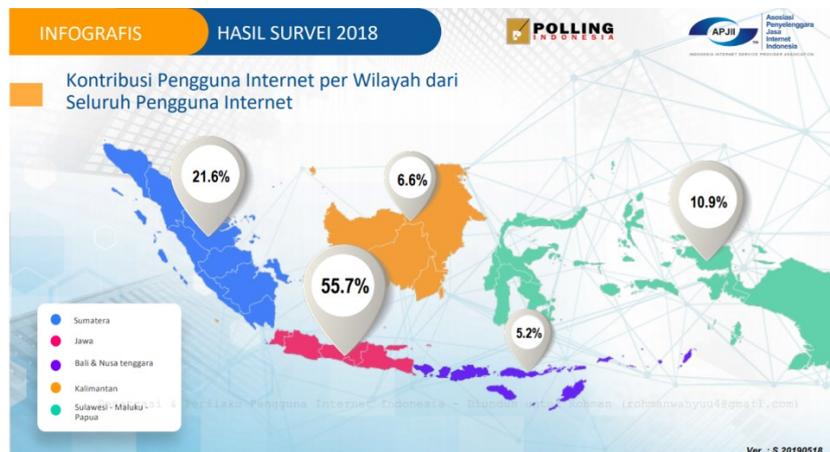


Figure 1. Internet User Contributions by Region 2018

Source: (APJII, 2019)

There is a surge in the use of information technology during and after the Covid-19 pandemic. It is estimated that these effects assumes that there had been a digital transformation before the pandemic occurred, and that it would take certain forms due to the impact of LockDown. (De, Pandey, & Pal, 2020)

PT Pelayaran Nasional Indonesia (Persero) or Pelni released a sea-ticket booking application namely Pelni Mobile to facilitate Passenger Activities Through Sea Transportation Modes effectively and efficiently during the Covid-19 pandemic. (PT. PELNI Persero). The purpose of this study is to analyze the Effectiveness of Digital Services, Mobile-based Applications, to facilitate the activities of Passengers Through Sea Transportation Modes effectively and efficiently during pandemic Covid-19. The application was made based on the needs of users of the Sea Transportation Services and Logistics Industry.

### Effectiveness

The term of effectiveness means the relationship between outputs and goals or objectives that must be achieved. Operational activities are said to be effective if the activity process reaches the final goals and objectives of the policy. (Sumenge et al., 2012)

According to DeLone and McLean in 2003 as the D&M Model Information System Success Model, there are six factor elements in the measurement of this model. It is called the Success Model of DeLone and Mclean's Information Technology System in research (Alifian Afrizal Akbar, 2019)

1. System Quality can measure system approval, ease of use, speed of access, system considerations and security.
2. Information quality measures the output of the information system. The quality of information must be relevant, complete and easy to understand.
3. Service Quality application is able to meet user needs.
4. Use a comprehensive system to search for information in the application.
5. User satisfaction in using the application.
6. Net benefits are combination of individual influences.

### Mobile Application

From a technological perspective, the COVID-19 pandemic has led to massive, direct, and unprecedented changes in the use of populations from digital technology and media according to Guitton in research (Beaunoyer & Dup, 2020).

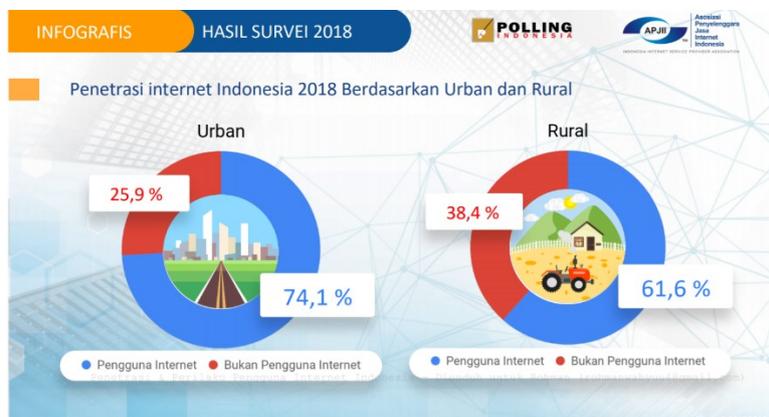


Figure 2. Internet penetration Indonesia 2018 based Urban and Rural Sumber : (APJII, 2019)

Venkatesh & Davis, in research (Hasan, Kahfi, & Alamsyah, 2019) described the Technology Acceptance Model (TAM) as a model that "explains perceptions of uses and intentions of use in terms of social influence and cognitive instrumental processes". This model states that behavioral intention to use individuals is based on two beliefs, namely perceived benefits and perceived ease of use Venkatesh & Davis in research (Hasan et al., 2019) both of which mediate the effects of external variables, such as the system.

Through TAM, the assumption is that when a user will use a new mobile application, there are 2 (two) factors that influence it, namely:

1. Ease of Use Perceived. This includes ease of use of information systems in accordance with the wishes of its users.
2. Usefulness Perceived This is intended that users believe that using the mobile application will improve its performance.

## CUSTOMER PERSPECTIVE

The COVID 19 pandemic (Corona virus) has affected almost all countries and made a significant effect on the contribution of health facilities and care systems. There are several requirements to introduce various advanced technologies to overcome various problems related to this pandemic virus. Industry 4.0 is also known as the fourth industrial revolution, which consists of advancing manufacturing and information technology, to meet special requirements from various fields in Indonesia. This technology provides wireless connectivity in the manufacturing sector and services to improve automation. (Javaid, Haleem, Vaishya, Bahl, & Suman, 2020)

The customer perspective supports how our customers and the company's target market are chosen based on competition. To determine the competitive target market is done by increasing customer satisfaction.(Christian, Aditama, & Kiswara, 2013)

1. The core measurement group has several measurement components, namely:
  - A. Market Share: Measured in terms of the number of customers, money spent or unit volume sold.
  - B. Customer Retention: Customer retention is a form of loyalty. Meanwhile, the loyalty itself is more decisive on the attitude requested on the basis of attitudes, beliefs, feelings, and interests to make purchases in the research (Esti, Lubis, & Wijayanto, 2013)
  - C. Customer Acquisition: Acquisitions are influenced by a number of prospects, the probability of prospect acquisition, and the cost of acquisition per prospect, Kotler and Keller in the study (Widyastuti, 2015).
  - D. Customer Satisfaction: It is the proportion of values used to measure the level of customer satisfaction.

1.1 According to (Soromi & Pelleng, 2019) the criteria for measuring customer satisfaction are Loyalty, Complaints (complaints), and Participation.

2. Customer Value Proportion which is the trigger of performance contained in the Core value proportion based on the following attributes:
  - A. Product/service attributes according to Fandy Tjiptono (Besar, Desa, & Maju, 2016), Product attributes include: Brand, Packaging, Labeling, Complementary Services.

- B. Customer relationship CRM ( Customer Relationship Management ), in research (Marketing, Aplikasi, Strategi, & Rapitasari, 2016) covers Technology-based relationship, Brand-based relationship dan Human-based relationship.
- C. Image and reputation. There are three things that measure variable brand image, They ar: Recognition, Reputation, dan Brand Loyalty.(Sumenge et al., 2012)

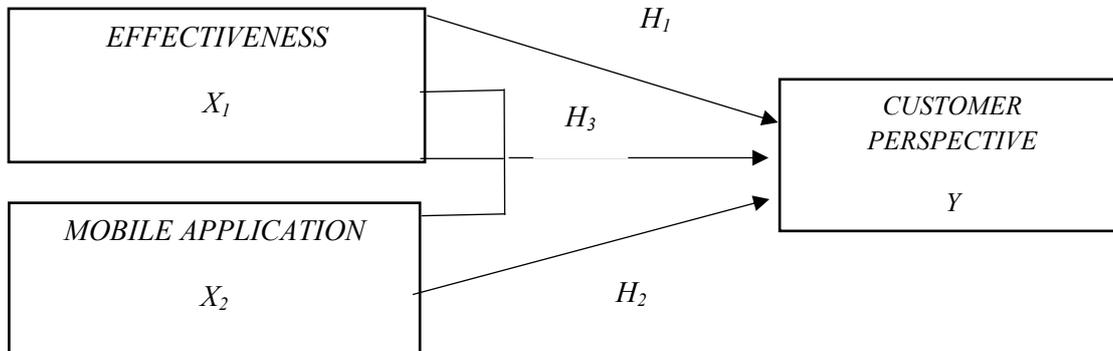


Figure 3. Hypotheses

H<sub>1</sub> = It is suspected that there is a significant influence between the effectiveness of the implementation of mobile application and the customer's perspective

H<sub>2</sub> = Allegedly There is a significant influence of Mobile Applications on Customer Perspective Services

H<sub>3</sub> = It is suspected that there is a significant effect between the effectiveness of implementation and the same Cellular Application on the Customer Perspective.

## Method

The research method of this study is quantitative method and the type of research used in this study is descriptive. Descriptive Research is a type of study that describes or depicts the character of a variable. This research was conducted at the Port of Tanjung Priok in May of 2020. The population of this study were the passengers of Pelni Ship who used Sea Transportation Services based on data obtained from the Indonesian Port (Company) in May 2020. The flight data show only 1049 passengers. The sample used in this study is a simple random sampling with sample size using the Slovin formula so that it gets 100 respondents. Data sources were Primary and Secondary data with data collection techniques using questionnaires. To measure each variable, this study used the ordinal scale and the instrument scale was the Likert Scale with a range of scores (1 = strongly disagree: 5 = strongly agree). The relationship between variables was determined by testing the validity, reliability, linear regression multiple, F test, t-test, and coefficient of determination.

## Discussion and Result

### 4.1 Test Validity and Reliability

The validity test used by researchers is SPSS version 26 for Windows. The validity is calculated by comparing the value of r count with the value of table at the error level of 5% for degrees of freedom (df) = n-2, with the provisions of the test results by the approved

questionnaire valid  $r_{count} > r_{table}$  (Ghozali,2013:53 in research Prastiwi, 2018) according to (Prof.Dr.Sugiyono, 2017) in research. The reliability calculation used is the Cronbach alpha method. The reliability test was carried out by fulfilling the Cronchbach alpha, the reliability level reaches 0.6.

**Table 1.Result Validity and Reliability**

No	Variabel	Item	$r_{hitung}$	Cronbach alpha	$r_{tabel}$	Cronbach alpha standard	Keterangan
1	Effectiveness (X <sub>1</sub> )	X <sub>1.1</sub>	0.312	0.602	0.1966	0.60	Valid
		X <sub>1.2</sub>	0.668		0.1966	0.60	Valid
		X <sub>1.3</sub>	0.256		0.1966	0.60	Valid
		X <sub>1.4</sub>	0.629		0.1966	0.60	Valid
		X <sub>1.5</sub>	0.300		0.1966	0.60	Valid
		X <sub>1.6</sub>	0.667		0.1966	0.60	Valid
		X <sub>1.7</sub>	0.585		0.1966	0.60	Valid
		X <sub>1.8</sub>	0.651		0.1966	0.60	Valid
2	Mobile Application (X <sub>2</sub> )	X <sub>2.1</sub>	0.664	0.619	0.1966	0.60	Valid
		X <sub>2.2</sub>	0.702		0.1966	0.60	Valid
		X <sub>2.3</sub>	0.606		0.1966	0.60	Valid
		X <sub>2.4</sub>	0.743		0.1966	0.60	Valid
	Customer Perspective (Y)	Y.1	0.273	0.619	0.1966	0.60	Valid
		Y.2	0.258		0.1966	0.60	Valid
		Y.3	0.530		0.1966	0.60	Valid
		Y.4	0.357		0.1966	0.60	Valid
		Y.5	0.452		0.1966	0.60	Valid
		Y.6	0.585		0.1966	0.60	Valid
		Y.7	0.408		0.1966	0.60	Valid
		Y.8	0.535		0.1966	0.60	Valid
		Y.9	0.587		0.1966	0.60	Valid
		Y.10	0.588		0.1966	0.60	Valid
		Y.11	0.435		0.1966	0.60	Valid

Source: Processed based on the results of questionnaire data, 2020

Researchers distributed aquestionnaires for 100 respondents,  $df = 100-2$  or  $df = 98$  with alpha (5% = 0.05) then the validity  $r_{table}$  is 0.1966. Based on the  $r_{table}$ , the criteria in this study, the instrument is declared valid if  $r_{count} > 0.1966$ , and the instrument is invalid if  $r_{count} < 0.1966$ . The reliability test results in table 2, then each variable produces a value alpha that exceeds Cronbach alpha value 0.60. So it can be determined that the indicators and the questionnaire can be questioned or consistent.

**4.2 Analysis of Multiple Linear Regression Equations**

According to (Pardede, R., & Manurung, 2017:27), It is known that in multiple regression, the dependent variable is dependent on two independent variables, the intermediate variable (Y) which is the customer's perspective, with the independent variable namely: Effectiveness (X<sub>1</sub>) and Mobile Application (X<sub>2</sub>).

**Table 2. Equation of Multiple Linear Regression and Test t Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	5.910	2.137		2.765	.007
	TOTALX <sub>1</sub>	.753	.071	.640	10.641	.000
	TOTALX <sub>2</sub>	.772	.130	.356	5.921	.000

a. Dependent Variable: TOTALY

Source: Processed based on the results of questionnaire data, 2020

Based on data analysis using SPSS 26, the following regression analysis results are obtained:

$$Y = 5.910 + 0.753 X_1 + 0,772 X_2$$

The result of multiple linear regression equations shows that the number of constants is 5,910, which means that when the effectiveness (X<sub>1</sub>) and the Mobile application (X<sub>2</sub>) value zero (0), then the Customer perspective Value (Y) of 5,910.

**t test results ( parsial )**

According to (Pardede, R., & Manurung, 2017:35) Tcount value is used to partially test the Effectiveness (X<sub>1</sub>) and Mobile Application (X<sub>2</sub>) on the dependent variable. Whether the variable have a significant effect on the Customer Perspective variable (Y) or not with an error rate of 5%. This test is carried out by looking at the significance column in each independent variable with a significant level <0.05. The t test performed can be seen in table 2. then it can be seen t<sub>count</sub> 5.921 > t<sub>table</sub> 1.98472 and the significance value 0,000 <0.05. So the hypothesis shows that there is a positive and significant effect between the effectiveness of implementation of Mobile Application and the customer perspective

then it can be seen t<sub>count</sub> > t<sub>table</sub> 1.98472 and the significance value 0,000 <0.05. So that the hypothesis shows that there is a positive and significant effect between Mobile Applications and Customer Perspective Services

**F test results (simultaneous)**

This test is done by comparing the significance of F<sub>count</sub> > F<sub>table</sub> According to (Pardede, R., & Manurung, 2017:35), the formulated model is correct, by looking at the value of F<sub>table</sub> = f(k; nk), F = (2; 100-2), F<sub>table</sub> = (2; 98) with an error rate of 5% F Test can seen in the table below:

**Table 3. F Test results (simultaneous)**

Model	ANOVA <sup>a</sup>				
	Sum of Squares	df	Mean Square	F	Sig.

1	Regression	1038.526	2	519.263	107.691	.000 <sup>b</sup>
	Residual	467.714	97	4.822		
	Total	1506.240	99			

a. Dependent Variable: TOTALY

b. Predictors: (Constant), TOTALX<sub>2</sub>, TOTALX<sub>1</sub>

Source : Processed based on the results of questionnaire data, 2020

Based on the results of the test table above, it can be seen that the  $F_{count}$  value is 107.691 with a  $F_{table}$  value of 3.09. After the value of  $F_{count} > F_{table}$  and a significant level of  $0.000^b < 0.05$  then  $H_0$  is rejected and  $H_3$  is accepted, it can be concluded that the effectiveness ( $X_1$ ) and Mobile Application ( $X_2$ ) have a significant effect on the Customer Perspective of Pelni Mobile Application users.

### Coefficient of Determination

According to (Pardede, R., & Manurung, 2017:38) The coefficient of determination (Goodness Of Fit) is denoted by  $R^2$ . The coefficient of determination ( $R^2$ ) measures how far the model's ability to explain variations in the dependent variable.

**Table 4. Coefficient of Determination Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.830 <sup>a</sup>	.689	.683	2.196

a. Predictors: (Constant), TOTALX<sub>2</sub>, TOTALX<sub>1</sub>

Source : Processed based on the results of questionnaire data, 2020

Based on the table above it can be seen that the coefficient of determination is found in the Adjusted R Square value of 0.683 which means the independent effect (X) on the dependent variable (Y) of 68,3 % while the remaining 31,7 % is caused by other variables not identified into the model.

### Descriptive Analysis

Quantitative method is the collection of research data in the form of numbers and analysis of statistics with the aim to test a predetermined hypothesis (Prof. Dr. Sugiyono, 2017:). From the effectiveness variable, the means of information retrieval of electronic information consists of 6 indicators according to (De Lone., McLean, 2003; 24 in research (Alifian Afrizal Akbar, 2019). From this table, it can be seen that all the sums of the mean (statement) statements in the questionnaire have Effective Results Details as follows; Measurement of System Quality Indicators (System Quality) obtains an average score of 3.63 which is included in the very effective scale range, then results from the measurement of Information Quality indicators obtained an average score of 3.61 which is also included in the very effective scale range. The results of measuring Service Quality indicators obtained an average score of 3.62 which is included in the very effective scale range, results from the measurement of the User indicator (Use) obtained an average score of 3.65. Then the Customer Satisfaction indicator (User Satisfaction) obtained an average score of 3.68 included in the very effective scale range and the last measurement of the Net Benefit indicator with an average 3.32 in the effective scale range.

### Conclusion

Based on the analysis of the results of the research in the previous chapter, it can be concluded that the Pelni Mobile application as a Digital service Mobile-based application can facilitate interaction between stakeholders involved in Passenger Activities Through the Sea

Transportation Modes surveyed as a whole. Therefore, the final result of calculating the Pelni Mobile application which is the average of the merging of each indicator produces a value of 3.63 which is in the very effective range. The results show that the respondents of Pelni Mobile Application approve Pelni Mobile application as a very effective application used to facilitate interaction between stakeholders involved in Passenger Activities Through Sea Transportation Modes.

### References

- Alifian Afrizal Akbar. (2019). *ANALISA APLIKASI OVO MENGGUNAKAN MODEL DELONE & MCLEAN DI KALANGAN MAHASISWA UNIVERSITAS AIRLANGGA*.
- APJII. (2019). Penetrasi & Profil Perilaku Pengguna Internet Indonesia Tahun 2018. *Apjii*, 51. Retrieved from [www.apjii.or.id](http://www.apjii.or.id)
- Beaunoyer, E., & Dup, S. (2020). *Computers in Human Behavior COVID-19 and digital inequalities : Reciprocal impacts and mitigation strategies*. 111(May). <https://doi.org/10.1016/j.chb.2020.106424>
- Besar, H., Desa, D. I., & Maju, S. (2016). *Pengaruh atribut produk terhadap keputusan pembelian kecap manis abc (studi ud. toko harapan besar di desa suka maju dk 4d)*.
- Christian, A., Aditama, R., & Kiswara, E. (2013). *ANALISIS KINERJA KOMPREHENSIF DENGAN BALANCED SCORECARD PADA PT. KERETA API INDONESIA ( Studi Kasus Pada PT. KAI DAOP IV Semarang )*. 2, 1–10.
- De, R., Pandey, N., & Pal, A. (2020). International Journal of Information Management Impact of digital surge during Covid-19 pandemic : A viewpoint on research and practice. *International Journal of Information Management*, (June), 102171. <https://doi.org/10.1016/j.ijinfomgt.2020.102171>
- Esti, W., Lubis, N., & Wijayanto, A. (2013). *MELALUI KEPUASAN ( Studi Pada Mahasiswa Jurusan Administrasi Bisnis Universitas Diponegoro Angkatan 2009 – 2012 Pengguna Layanan Data Smartfren ) serba moderen , ditandai dengan terus berkembangnya ilmu pengetahuan dan teknologi , tak membuat Indonesia sa*. 1–10.
- Hasan, M., Kahfi, A. H., & Alamsyah, D. P. (2019). Analisa Pengaruh Mobile Application Dalam Menunjang Keberhasilan Wirausaha Di Kota Bekasi. *Jurnal Informatika*, 6(1), 47–52. <https://doi.org/10.31311/ji.v6i1.4989>
- Javid, M., Haleem, A., Vaishya, R., Bahl, S., & Suman, R. (2020). Diabetes & Metabolic Syndrome : Clinical Research & Reviews Industry 4 . 0 technologies and their applications in fi ghting COVID-19 pandemic. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 14(4), 419–422. <https://doi.org/10.1016/j.dsx.2020.04.032>
- Jokhu, J. R. (2019). *Perspektif Baru dalam Teori Kualitas Pelayanan : Pentingnya Intensi Studi pada Perusahaan Fintech di Indonesia*. (January).
- Marketing, D., Aplikasi, B., Strategi, S., & Ralitasari, D. (2016). *Digital marketing*. 10(2), 107–112.
- Pardede, R., & Manurung, R. (2014). *Analisis Jalur* (Edisi 1). Rineka Cipta.
- Prof.Dr.Sugiyono. (2017). *METODE PENELITIAN KUANTITATIF,KUALITATIF,DAN R&D*.

Soromi, R. K., & Pelleng, F. A. O. (2019). *Pengaruh Kualitas Pelayanan Terhadap Kepuasan Pelanggan Transportasi Online GrabBike Pada Mahasiswa Fakultas Ilmu Sosial Dan Politik Universitas Sam Ratulangi*. 9(1), 19–27.

Sumenge, A. S., Efektivitas, A., Efektifitas, A., Efisiensi, D. A. N., Anggaran, P., & Sumenge, A. S. (2012). *value for money*. 1(3), 74–81.

Widyastuti, S. (2015). *Pengaruh kualitas produk dan jasa pada ekuitas pelanggan di coffee toffee indonesia*.