

THE INFLUENCE OF E-PARKING AND THE OPTIMIZATION OF PARKING AREA TOWARDS SERVICE AND CUSTOMER'S SATISFACTION AT SOEKARNO HATTA AIRPORT

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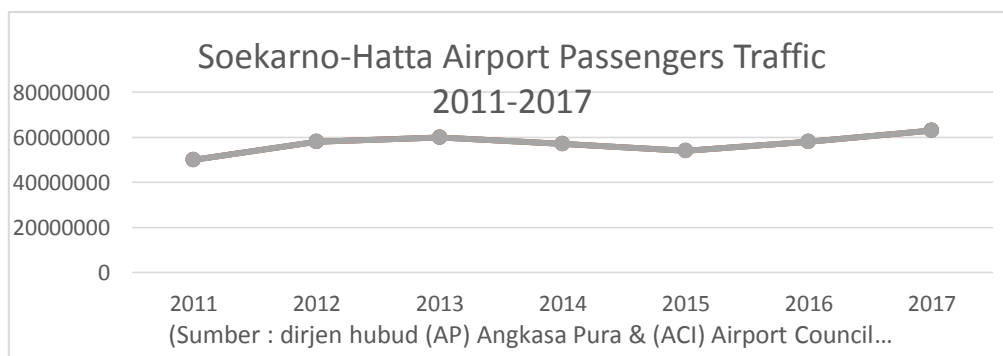
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Abstract. An integrated parking system at an airport and a clear information about the available parking spot for the customers will create customer's satisfaction. The purpose of this study is to analyze the influence of E-parking system and the optimization of parking area towards the service and customer's satisfaction at Soekarno Hatta Airport. The study used quantitative method. Furthermore, the data was analyzed using SEM PLS, a smart PLS 3 application. The population of the study was 100 people who had experienced visiting Soekarno Hatta airport by driving their private vehicles. The result of the study shows that there is a negative and not significant influence on E-parking towards the service. While the optimization of parking area has a positive and significant influence towards the service. Moreover, E-parking system itself has positive and significant influence towards customer's satisfaction. Optimization of parking area itself has negative but significant influence towards customer's satisfaction as Service also shows positive and significant influence towards customer's satisfaction.

Keyword : *E-parking, optimization of parking land, service, costumer satisfaction*

Introduction

Due to the high community activities in travelling, visiting tourism places both in Indonesia and in other countries, and doing some businesses using air transportation, this affects their needs towards a good and complete infrastructure facilities. There are some types of infrastructure facilities for air transportation in Indonesia, such as terminals, parking areas, and runways. The technology has been developed so much as it follows the modern age. One of the newest technologies used in airport is the E-parking system which can optimize the parking areas in the airport. The new system is used since the limited parking areas are not comparable with the high number of the vehicles and the tight mobility of the passengers at Soekarno Hatta airport. The E-parking system eases people to find the available parking spots in the airport. Furthermore, the E-parking system also helps the optimization of parking areas properly, and it will create customer's satisfaction and loyalty towards Soekarno Hatta airport. According to the data from Dirjen Hubud , Angkasa Pura (AP) & Airport Council International (ACI), the traffic of passengers at Soekarno Hatta airport is as follow:



There is a significant increase in the number of passengers in Soekarno Hatta airport each year. Therefore, the aim of the study is to analyze the influence of E-parking system and the

optimization of parking area towards the customer service and satisfaction at Soekarno Hatta Airport.

Literatur Review

E-Parking System

E-Parking system provides a solution for the web application which is based on CIA molecular basic data that is suggested for a web application (Channel, Integration, Application). The communication channels of WAP, WER, and Bluetooth help drivers get earlier information without additional room, make reservation, access the reserved spot and pay the cost easily. In order to reach the goals, innovative solutions accelerate all segments, optimize the parking sources, and simultaneously achieve the city transparency without congestion and pollution (Hodel-Widmer & Cong, 2004). Moreover, e-parking helps the customers find the available parking spot faster and more easily (Fernando, 2019). The system gives easy and fast information to the customers such as location (Oliver, 2019). It can be assumed that E-parking may increase the income and socialize people towards cashless payment that supports the government program of using cashless payment. The e-parking system focuses on the development of e-business which is secure, user friendly and efficient based on cellular access, and it even eases people in finding the available parking spot.

Parking areas optimization

Parking area is one of important facilities in an airport. A good parking areas is the one which can give the customers security and affordable cost. (Oleh & Ikhsan, 2014) Definition of Parking volume is the number of vehicles in a parking area in a certain time (usually in a day). The calculation of parking volume is used to analyze whether or not the available parking area can fulfill the needs of the vehicles to park. Based on the parking volume, it can be analyzed if a new parking areas need to be build or need to be planned (Vidiyanto et al., 2018). Thus, it can be concluded that the optimization of parking areas has a big effect towards the structure of parking area itself so that it can be used more optimally.

Service

Service quality is a model that defines the customer's condition in terms of expectation of the experience of using the service, mouth to mouth promotion, and advertisement by comparing what they expect, they achieve and feel (Haryanto, 2013). There are two factors that influence the service quality, namely the service expectation and the service perception. Service quality means the level of excellence that customers expect to achieve (Geisser, 1975). The measurement of service quality in the servqual model is based on the multiple items which are structured to measure the expectation and perception of customers. There are five dimensions of service quality based on the sequence of the level of interests. They are Tangibility, Assurance, Empathy, Responsive, dan Reliability. (Parasuraman, A., Zeithaml, V. A., Berry, 1988)

Customer's satisfaction

Customer's satisfaction is defined as customer's responses towards the result achieved between the level of previous needs and the actual performance felt after using the service. Customer's satisfaction will consider the types of services achieved by customers after using the services (Bagaskara & Suparto, 2019).

The influence of e-parking towards service

The needs of parking services and the facilities keeps growing. The increase requires some improvements to be noticed so that the problems, such as the rushed parking spots, the ineffective of parking ticket checking, and the lack of parking signs can be solved (Nugraha et al., 2019). The application of computerized technology towards the parking system aims at solving the problems. Apart from improving the service and security, the system also

encourages a more secure transaction (Adzni, 2015). It can be concluded that E-parking system influences services.

H1: E-parking system positively influences services.

The influence of parking optimization towards services

Based on Indonesian language Dictionary, Optimization derives from the word optimal which means the best, the highest, and the most profitable. While according to Hawati et al., (2017), optimization means effort, process, method, and action of using the available resources in order to achieve the best condition and the most profitable result in certain criteria.

Parking areas is defined as a large area that can be used to mobilize vehicles to park in and out. The influence of parking activities in the city transportation is in a multiple direction as an integrated components from all of the city facilities.

The problem is about the needs of affordable and comfortable parking lots in the areas where parking areas are quite difficult to find. In fact, the percentage of the needs is about 30% from the total city traffic flow with a high CO2 emission (Hodel-Widmer & Cong, 2004) Therefore, the optimization of parking areas hopefully can maximize the service given by the airport. Moreover, it can fulfill all the airport's customers' needs of parking. It can be assumed that the optimization of parking areas has an influence on service.

H2 : The optimization of parking areas has a positive influence on service.

The influence of E-parking towards customers

The fast development of technology nowadays has required the increased needs of ease in accessing and using the technology itself, especially for the technology of information as in the use of Internet media. Since it was first found in 1990s, the use of Internet has been widespread so fast because of its utilities. Customer's satisfaction can be defined as someone's feeling of happiness or disappointment towards the performance of the service or product they achieve compared to their expectation (Orientani & Jumhur, 2017). It can be assumed that e-parking influences customer's satisfaction.

H3: e-parking positively influences customer's satisfaction.

The influence of parking area optimization towards customer's satisfaction

A parking lot unit is defined as an area in which a vehicle can park in effectively including the space available for opening the vehicle's door (Pudjianto & Adi, 1996). Parking volume is the number of vehicles parking in a certain parking areas in a certain time (daily) (Vidiyanto et al., 2018). Customer's satisfaction is the response given by customers towards the result they achieve by the actual performance felt after using a product or service (Bagaskara & Suparto, 2019). It can be summed up that parking optimization influences customer's satisfaction.

H4: Parking optimization positively influences customer's satisfaction.

The influence of service towards customer satisfaction

One of factors that considers the level of success of a company is the ability of the company in giving a good service quality to achieve customer's satisfaction. Service quality is the level of excellence given consistently to fulfil the customer's expectation. Haryanto (2013) states that a good service quality given by a company will create customer's satisfaction. Customer's satisfaction is a comparable result between customer's expectation and the actual experience they achieve from a company's service. Service quality is defined as all activities purposes in fulfilling customer's needs and expectation (Jatra, 2015). It can be inferred that service quality influences customer's satisfaction.

H5: Service quality influences customer's satisfaction positively.

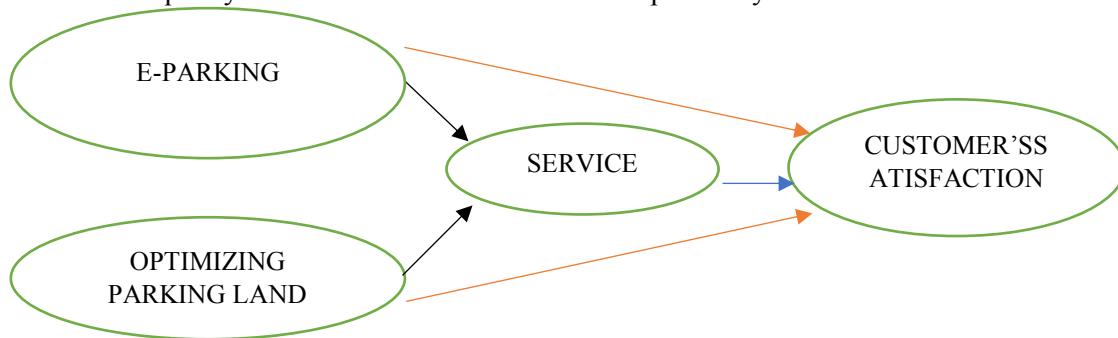


Fig 1. The Conceptual Framework

Methods

Methodology

The study used quantitative method. The data was taken by distributing questionnaires with non-probability sampling to the respondents who had the experience of visiting the airport and driving their own vehicles, and they also experienced the parking facilities. The data was analyzed using SEM PLS in path analysis. There are four variables used in this study, they are X1 is E-parking system service, X2 is parking area optimization, variable Y is customer's satisfaction, and Z is income as the control variable.

Tabel 1. Indicators

CONSTRUCT	ITEM
E-PARKING (Oliver, 2019)	X1.1 Fast and proper service
	X1.2 Conveying clear information
	X1.3 The equipment used is good
	X1.4 Free from the risk of physical harm and doubt
OPTIMIZATION OF PARKING LAND (Vidiyanto et al., 2018) (By & Ikhsan, 2014)	X2.1 Ability to accommodate according to capacity
	X2.2 Ability to clearly manage parking
	X2.3 Parking vehicle layout
	X2.4 Frequent out of parking areas because they do not get a parking space
	X2.5 Often circling around the parking area to find a parking space
SERVICE (Haryanto, 2013)	Y.1 Modernization of physical facilities owned
	Y.2 Friendliness of employees in providing services
	Y.3 Taking customer's needs seriously.
COSTUMER SATISFACTION (Bagaskara & Suparto, 2019) (Setiawan et al., 2020)	Z.1 Comfortable and safe while using the services provided
	Z.2 The services provided make me happy
	Z.3 I get a satisfying experience

RESULT

Evaluation of measurement models (other models) Evaluation of the measurement model comprises three steps, i.e., the convergent validity test, discriminant validity test and composite reliability test

Convergent validity and average variant extracted (AVE)

Tabel 2. Convergent validity and average variance extracted (AVE)

CONSTRUCT	item	sample mean	loading factor	T statistic	AVE	Result
E-PARKING	EP1	0.856	0.855	26.328	0.619	Valid
	EP2	0.860	0.860	30.293		Valid
	EP3	0.657	0.685	5.103		Valid
	EP4	0.709	0.733	7.647		Valid
OPTIMIZATION OF PARKING LAND	OP1	0.708	0.713	11.566	0.570	Valid
	OP2	0.873	0.875	30.411		Valid
	OP3	0.837	0.841	23.966		Valid
	OP4	0.606	0.633	4.622		Valid
	OP5	0.660	0.685	6.500		Valid
SERVICE	SV1	0.820	0.828	20.171	0.749	Valid
	SV2	0.887	0.890	40.350		Valid
	SV3	0.873	0.876	30.617		Valid
CUSTOMER'S SATISFACTION	CS1	0.813	0.820	20.687	0.728	Valid
	CS2	0.874	0.876	34.916		Valid
	CS3	0.860	0.863	29.590		Valid

Source: Own Calculation 2020

Based on table 2, all variables have AVE which is higher than 0,5 so that the convergent validity is considered good. The value of AVE for e-parking is 0,619 that shows 61.9% of the information in the four indicators which are reflected by the e-parking. The AVE for parking area optimization is 0,570 that shows 57% of the information in the five indicators which are reflected by the variables. The value of AVE for service is 0,749, it shows 74,9% of the information in the three indicators which are reflected by a good service. Finally, the AVE of the customer's satisfaction is 0,728 that shows 72,8% of the information in the three indicators which are reflected by customer's satisfaction. The results show that each variable represents more than 50% of the information of the indicators.

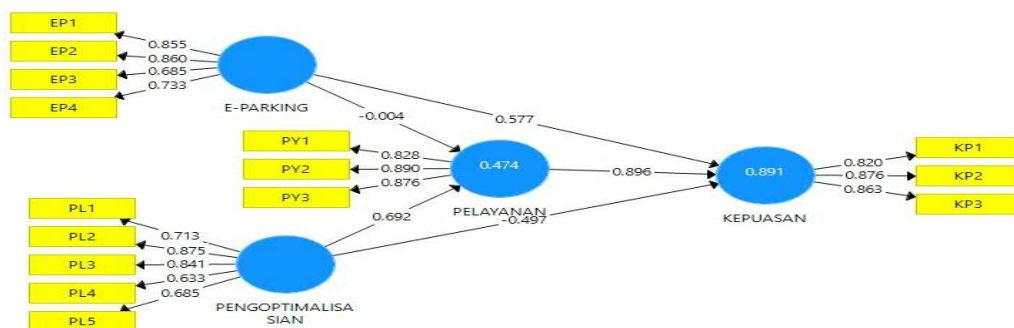


Fig.2.: Loading Factor

Table 3 Discriminant Validity

E-PARKING	OPTIMIZATION OF PARKING LAND	SERVICE	CUSTOMER'S SATISFACTION
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EP1	0.855	0.779	0.539	0.641
EP2	0.860	0.774	0.584	0.631
EP3	0.685	0.573	0.359	0.353
EP4	0.733	0.619	0.375	0.449
OP1	0.502	0.713	0.484	0.467
OP2	0.754	0.875	0.630	0.565
OP3	0.805	0.841	0.618	0.604
OP4	0.609	0.633	0.368	0.288
OP5	0.647	0.685	0.435	0.367
SV1	0.457	0.508	0.828	0.759
SV2	0.552	0.654	0.890	0.789
SV3	0.562	0.617	0.876	0.800
CS1	0.512	0.450	0.759	0.820
CS2	0.619	0.547	0.754	0.876
CS3	0.614	0.612	0.801	0.863

Source: Own Calculation 2020

Based on table 3, all indicators in the construct highly influence the other constructs, and it shows that the validity of the discriminant is good. The validity and reliability test used in this study is composite reliability (CR) and Alpha-Cronbach. Questionnaire is reliable if the CR value is higher than 0,7 and Alpha-Cronbach is more than 0,6. The following is the result of the reliability test:

Table 4 Realbility test

	Composite Reliability	Cronbach's Alpha	Decision
E-PARKING	0.866	0.799	Good
OPTIMIZATION OF PARKING LAND	0.867	0.811	Good
SERVICE	0.899	0.832	Good
CUSTOMER'S SATISFACTION	0.889	0.813	Good

Source: Own Calculation 2020

Table 4 shows that all latent variables measured in this study have Cronbach's Alpha dan Composite Reliability value more than 0,7. Therefore, it is concluded that all latent variables are reliable. In other words, all indicators have consistency in measuring their variables.

Evaluation of structural models

Testing the inner model is the development of concept-based models and theories to analyze the relationship between exogenous and endogenous variables that have been described in the conceptual framework. It shows the results of the bootstrapping estimating each variable in the structural model in the following Fig. 3.

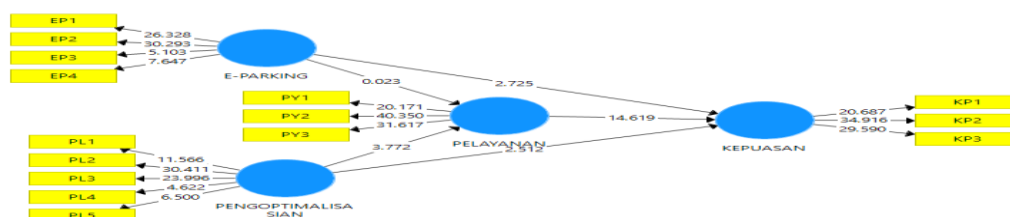


Fig.3.: structural model full bootstrapping

This study evaluates the structural model in SEM with PLS by using R-squared test and significance test using coefficient estimation line.

Table 5 R-square and Hypothesis Testing

Model	Path	Path Coefficient	T-statistics	P values	Decision	R-square
First	EP- SV	-0,004	0.023	0,982	H1:Not Support(-)	0.474
	OP-SV	0.692	3.772	0,000	H2:Support(+)	
Second	EP-CS	0.577	2.725	0,007	H3:Support(+)	0.891
	OP-CS	-0,497	2.512	0,012	H4:Support(-)	
	SV-CS	0,896	14,619	0,000	H5:Support(+)	

Source: Own Calculation 2020

Based on table 5, the first model has R-Square value of 0,474. It can be assumed that the variability construct of e-parking and parking area optimization is about 47,4%, and it explain the relation of the service construct. While in the second model, the value of R-Square is 0,891. It is inferred that the variability of e-parking construct, parking area optimization and the service influence the variability of customer's satisfaction about 89,1%. The first hypothesis is accepted in which e-parking negatively but not significantly influences the service of -0,004 with the value of significance of 0,983. This is in line with research from (Nurmawan et al., 2019) that the value of effectiveness of the electronic parking system obtained by consumers is different, because consumers' viewpoints on the effectiveness are different.. Second hypothesis is accepted in which parking area optimization positively and significantly influences the service of 0,692 with the value of significance of 0,000. The higher the optimization that is felt by the customers, the higher the quality of services is. Third hypothesis is that e-parking influencing customer's satisfaction is positively and significantly proven in the value of 0,577 with the value of significance of 0,006. The more customers perceive that e-parking is easy and helpful, the more customers will use the application. The fourth hypothesis is that optimization of parking land affecting customer's satisfaction is negatively but significantly proven in the value of -0,497 and significance value of 0,012. It is in line with the research from (Oleh & Ikhsan, 2014) that there are usually customers who come directly to find an empty parking space, also sometimes get help from field officers to find the parking space. Finally, the fifth hypothesis is accepted which service influences customer's satisfaction positively and significantly in the value of 0,896 with the value of significance of 0,000. The more customers feel satisfied, the higher the customer's satisfaction in using the e-parking service in airport is.

5. Conclusion

The result of the study shows that there is a significant correlation between the optimization of parking areas with the customer's satisfaction. Most of customers depend on the utility they felt after using the e-parking service. Based on this study, the airport management is supposed to focus on the optimization of the parking areas with the e-parking application. Furthermore, it is suggested that the airport management can develop their services integrated with product and web sites. Based on the hypothesiss, service is the main consideration that influence customers in using airport parking services. E-parking and services are the main keys in increasing customers' satisfaction. Moreover, it is suggested that the airport management maintains a good relationship with the customers. A simultaneous relationship between the airport management and the customers can only be achieved by a good service. The result of this study also shows that there is an important implication to plan e-parking sites for the airport visitors. It is very

important to develop the application of e-parking in the airport that may become the facility in promoting the airport services in the future. A well-modernized site used by airport will be a great value for customers, and it will create the customer's satisfaction.

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