E-Business, Airport Development and Its Impact on the Increasing of Information of Communication Development in Indonesia

MI Setiawan\textsuperscript{1,*}, C Hasyim\textsuperscript{2}, N Kurniasih\textsuperscript{3}, D Abdullah\textsuperscript{4}, D Napitupulu\textsuperscript{5}, R Rahim\textsuperscript{6}, A Sukoco\textsuperscript{7}, I Dhanianti\textsuperscript{8}, J Suyono\textsuperscript{7}, IN Sudapet\textsuperscript{7}, RD Nasihien\textsuperscript{1}, DAR Wulandari\textsuperscript{1}, Reswanda\textsuperscript{1}, SW Mudjanarko\textsuperscript{1}, Sugeng\textsuperscript{9}, MBN Wajdi\textsuperscript{10}

\textsuperscript{1}Narotama University, Department of Civil Engineering, Surabaya, Indonesia
\textsuperscript{2}Universitas Darul Ulum, Jombang, Indonesia
\textsuperscript{3}Universitas Padjadjaran, Faculty of Communication Science, Bandung, Indonesia
\textsuperscript{4}Universitas Malikussaleh, Department of Informatics, Aceh, Indonesia
\textsuperscript{5}Research Center for Quality System and Testing Technology, Indonesian Institute of Sciences, Indonesia
\textsuperscript{6}School of Computer and Communication Engineering, Universiti Malaysia Perlis, Malaysia
\textsuperscript{7}Narotama University, Department of Management, Surabaya, Indonesia
\textsuperscript{8}Narotama University, Department of Law, Surabaya, Indonesia
\textsuperscript{9}Universitas Islam “45”, Bekasi, Indonesia
\textsuperscript{10}STAI Miftahul ‘Ula, Nglawak Kertosono, Indonesia

E-mail: *ikhsan.setiawan@narotama.ac.id

Abstract. The increasing number of the internet usage by households have an effect on the tourism sector. On the other hand, the aviation industry is growing as one of the development centers. This study aims to analyze the impact of information and communication development to airport performance in Indonesia. This is a correlation research with 151 of airports in Indonesia as a population. The sampling technique was done by using total sampling. The results of correlation (R) indicates the Gross Regional Domestic Product (GRDP) of Information and Communication has a relatively strong relationship with the Airport Performance. Meanwhile the results of Adjusted R test shows that they are other factors in increasing GRDP of Information and Communication besides Airport Performance. It shows the low impact of Information and Communication GRDP to the Airport Performance.

1. Introduction
Currently Air transport has developed into an economic centre. It is supported by an increase in local travelers and foreign tourists reached 11.519 million tourists, with 2,387 five-star hotel accommodation, with a five-star hotel room occupancy rate reached 54.34%. Wherein, the share of foreign tourists to the total national tourists reached almost 23%, while the share of domestic tourists reached 16%. Increased tourism competitiveness is achieved through improved quality of public
facilities infrastructure, IT technology, promotion of tourism, conducive business climate, integration connectivity and accessibility. For example, there are many tourism objects in Lembang West Java, Indonesia, use websites and social media as their promotion. It shows how potential social media to spread information widely, including information regarding tourism objects[1]. Bank Indonesia estimate shows that any increase in the number of foreign and domestic tourists by 10% will be able to increase the regional growth of 0.31% and encourage increasing the number of workforce of around 0.68%[2].

Electronic era changing industry competition and regional development emphasizing on information management and supply chain network. To be able to compete in regional and global markets required speed and agility. Modern logistics technology and infrastructure based on low to be important for many companies in the new development era. Companies need to manage e-commerce strategy B2C (Business to Consumer) B2B (Business to Business) and B2B appropriately. Industry profits earned by companies that respond flexibly and quickly to their domestic and global customers by delivering products quickly and efficiently.

Flights, digitalization, globalization and competition time-based architecture interact to create new competition while positioning the airport as an international logistics gateway. Airports became the center of commercial activity concentration as a new urban form aero city[3]. The developmental advantages gained by countries that combine digital technology and trade of air through the logistics infrastructure to optimize their position in the global network of information flow and product.

Indonesia has 296 official airports that most ASEAN, covering 13 airports managed by PT Angkasa Pura I, 13 airports managed by PT Angkasa Pura II, 53 airports managed by TNI, 178 airports managed by the Ministry of Transportation Unit Operator Airport and 39 airports managed by the Local Government Unit[4]. The use of the airport consists of an international airport and the domestic airport. International Airport is the airport that serves the domestic flights and routes from and to foreign countries. Determination international airport is to consider: (a) The master plan of the national airport; (B) defense and security; (C) The growth and development of tourism; (D) Interest and ability of national air transport; (E) The development of national economy and foreign trade. Determination airports inernasional determined by the Minister after coordination with the minister duties and responsibilities in the field of immigration, customs, and kekarantinaan in the framework of work units and personnel placement. Meanwhile, the domestic airport is an airport that serves the domestic flights[5].

Other air transport role in supporting development growth not only in serving the passengers but also cargo services. There are three factors that can increase the positive impact of air cargo, namely liberalization of air services, improve the quality of customs, and reduce corruption[6]. This study aims at analyzing the development effects of information and communication on airport performance in Indonesia.

2. Methodology
This is a quantitative research with correlational approach. Correlational research is used to describe the relationship between two or more variables that occur naturally among these variables[7][8]. In this study, Airport Performance is X variable and information and communication development is Y variable. The population of this research include 151 of airports in Indonesia. By using a total sampling, there are 151 of airports as sample. The data of 151 of airports was analyzed by using Person Correlations, R test and multiple linear regression equations.

3. Result and Discussion
The increasing number of internet usage by households has an effect on tourism. The role of information technology in an area can be seen in the increasing investment realization at home and abroad in 2016, where transportation, storage and communication reach Rp. 27.5 trillion[9]. The impact of increasing internet usage is to facilitate the public to access information so that the impact on the growth of development.
Analysis of the impact of GRDP of information and communication to the airport development Performance used multiple linear regression formula. The data include 151 of districts/cities in Indonesia with research variables and sub-variables as follows:

Two variables in this study are Y variable (the GRDP of information and communication) and X variable (airport performance). Sub-variable X consists of:

| X1 = Aircraft Arrival |
| X2 = Aircraft Departure |
| X3 = Passenger Departure |
| X4 = Passenger Arrival |
| X5 = Baggage Unloaded |
| X6 = Baggage Loaded |
| X7 = Cargo Unloaded |
| X8 = Cargo Loaded |

The results of the analysis of 151 regions using Pearson Correlations, R test and multiple linear regression equations can be seen in Table 1, Table 2 and Table 3 below:

**Table 1. Pearson Correlation.**

| No | Variable | Value |
|----|----------|-------|
| 1  | Aircraft Arrival (X1) | 0.401 |
| 2  | Aircraft Departure (X2) | 0.405 |
| 3  | Passenger Departure (X3) | 0.379 |
| 4  | Passenger Arrival (X4) | 0.375 |
| 5  | Baggage Unloaded (X5) | 0.378 |
| 6  | Baggage Loaded (X6) | 0.365 |
| 7  | Unloaded Cargo (X7) | 0.217 |
| 8  | Cargo Loaded (X8) | 0.211 |

Table 1 shows a sub-variable of Departure Arrival Aircraft and Aircraft have the highest impact to increase of Information and Communication GRDP in Indonesia, while sub-variables of Cargo Loaded and cargo unloaded do not have a significant impact to increase of Information and Communication GRDP in Indonesia.

**Table 2. Model Summary.**

| Model | R | R Square Adjusted | R Square | Std. Error of the Estimate |
|-------|---|-------------------|----------|---------------------------|
| 1     | 0.572a | 0.327 | 0.288 | 1989.21673 |

Predictors: (Constant), Cargo Loaded, Unloaded Cargo, Baggage Unloaded, Aircraft Departure, Passenger Arrival, Baggage Loaded, Passenger Departure, Arrival Aircraft.

Dependent Variable: GRDP of Information and Communication.

Table 2 shows that the correlation coefficient (R) is 0.327, which means that the GRDP of Information and Communication variable has relatively strong correlation with variable of Airport Performance. Adjusted R Square is 28.8%, which means the impact of Airport Performance variable in increasing GRDP of Information and Communication, The increased of 71.2% in the GRDP of Information and Communication influenced by others factors aside from Airport Performance variable. It shows the low impact of Information and Communication GRDP to the Airport Performance.
Table 3. Regression Equations

|                          |        |
|--------------------------|--------|
| (Constant)               | 84.159 |
| Aircraft Arrival ($X_1$) | -0.888 |
| Aircraft Departure ($X_2$) | 1.199  |
| Passenger Departure ($X_3$) | 0.005  |
| Passenger Arrival ($X_4$) | -0.003 |
| Baggage Unloaded ($X_5$)  | 2.563E-05 |
| Baggage Loaded ($X_6$)    | 0.000  |
| Unloaded Cargo ($X_7$)    | -5.661E-05 |
| Cargo Loaded ($X_8$)      | -4.724E-05 |

a. Dependent Variable: PDRB of Information and Communication

Table 3 shows the Multiple Linear Regression Equations with the following details:

\[ Y = 84.159 - 0.888X_1 + 1.199X_2 + 0.005X_3 - 0.003X_4 + 2.563E-05X_5 - 5.661E-05X_7 - 4.724E-05X_8 \]

with:

- $Y$ = the GRDP of Information and Communication
- $X_1$ = Aircraft Arrival
- $X_2$ = Aircraft Departure
- $X_3$ = Passenger Departure
- $X_4$ = Passenger Arrival
- $X_5$ = Baggage Unloaded
- $X_6$ = Baggage Loaded
- $X_7$ = Cargo Unloaded
- $X_8$ = Cargo Loaded

Based on the multiple linear regression equation above, it appears that the $X_2$, $X_3$, $X_5$, $X_6$ (aircraft departure, passenger departure, unloaded baggage, baggage loaded) have a positive impact in increasing GRDP of Information and Communication. Meanwhile, the variable $X_1$, $X_4$, $X_7$ and $X_8$ (aircraft arrival, passenger arrival, cargo unloaded and cargo loaded) have a negative impact to the GRDP of Information and Communication.
4. Conclusion
The results of correlation (R) indicates the Gross Regional Domestic Product (GRDP) of Information and Communication has a relatively strong relationship with the Airport Performance. Meanwhile the results of Adjusted R test shows that they are other factors in increasing GRDP of Information and Communication besides Airport Performance. It shows the low impact of Information and Communication GRDP to the Airport Performance.

References
[1] Nuning Kurniasih and Pawit M Yusup, “Social Media Utilization to Promote Tourism Industry In Lembang: A Content Analysis Study Of Social Media Used By Management of Tourism Objects In Lembang, Indonesia,” in The 2016 International Conference on Media: Mass Media at Crossroads, 2016, pp. 489–500.
[2] Bank Indonesia, “Report of the Archipelago in May 2017, Regional Economic and Financial Study,” 2017.
[3] J. D. Kasarda, “New Logistics Technologies and Infrastructure for the Digitized Economy.”
[4] K. P. R. Indonesia, “Airport Indonesia.” [Online]. Available: http://hubud.dephub.go.id/?id/bandara/index.
[5] M. of Transportation, “regulations PM 69 in 2013 on the order of the national airport affairs,” 2013.
[6] J. D. Kasarda and J. D. Green, “Air Cargo as an Economic Development Engine: A Note on Opportunities and Constraints,” J. Air Transp. Manag., vol. 11, no. 6, pp. 459–462, 2005.
[7] B. E. W. Jr and Mary E. Kite, Principles of Research in Behavioral Science: Third Edition 3rd Edition. Routledge, 2012.
[8] J. Suyono, A. Sukoco, M. I. Setiawan, S. Suherman, and R. Rahim, “Impact of GDP Information Technology in Developing of Regional Central Business (Case 50 Airports IT City Development in Indonesia),” J. Phys. Conf. Ser., vol. 954, no. 1, p. 12045, Dec. 2017.
[9] B. P. Statistik, “Statistical Yearbook of Indonesia,” 2017.

Acknowledgment
This paper is a part of a PhD Dissertation titled “Business Centre Development Model of Airport Area in Indonesia” with Prof. Ir. Surjono Surjokusumo, M.Sc.F, Ph.D., Ir. Dadang M. Ma’soem, MSCE, Ph.D. and Dr. Ir. Johny Johan, M.Eng, MM as the counselors.