



THE EFFECT OF ICT ON TOURIST EXPERIENCE IN DKI JAKARTA AS "SMART CITY"

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ABSTRAK

Sebagai Ibu Kota, Jakarta adalah salah satu kota di Indonesia yang mengimplementasikan TIK dan mentransformasikannya menjadi kota yang cerdas. Beberapa kegiatan yang berkaitan dengan kebijakan publik telah menggunakan aplikasi TIK yang dikelola melalui pusat komando pemantauan dan evaluasi. Penelitian ini mencoba untuk mengetahui apakah aplikasi TIK yang telah diterapkan mempengaruhi kegiatan bepergian di DKI Jakarta, terutama yang berkaitan dengan pengalaman wisata. Penelitian ini menggunakan teknik analisis data kuantitatif dengan mengambil sampel wisatawan asing dan domestik dari 190 responden masing-masing. Penyebaran kuesioner dilakukan di beberapa tempat wisata utama di DKI Jakarta seperti Monas, Kota Tua, Taman Mini Indonesia Indah, Kebun Binatang Ragunan. Hasil penelitian menemukan bahwa TIK belum memiliki pengaruh yang signifikan terhadap pengalaman bepergian di DKI Jakarta. Tujuan penelitian ini adalah untuk menguji TIK untuk pengalaman wisatawan yang bepergian dalam kaitannya dengan Jakarta sebagai kota pintar yang mendukung pengembangan wisata cerdas tujuan.

Kata Kunci : Teknologi Informasi dan Komunikasi, Jakarta, Pengalaman Berwisata, *Smart City*

ABSTRACT

As the Capital City, Jakarta is one of the cities in Indonesia that implements ICT and transform into a smart city. Some activities related to public policies have used ICT applications that are managed through a monitoring and evaluation command center. This study tries to find out whether ICT applications that have been applied affect the activities of traveling in DKI Jakarta, especially related to the tourist experience. This study uses quantitative data analysis techniques by taking samples of foreign and domestic tourists of 190 respondents each. The distribution of questionnaires was carried out in several major tourist attractions in DKI Jakarta such as Monas, Old Town, Taman Mini Indonesia Indah, Ragunan Zoo. The results found that ICT has not had a significant influence on the experience of traveling in DKI Jakarta. The purpose of this study is to test ICT for the experience of traveling tourists in relation to Jakarta as a smart city that supports the development of smart tourist destinations.

Keywords: *DKI Jakarta , ICT, Smart City, Tourist Experience,*

INTRODUCTION

Smart has become a new keyword to describe technological, economic and social developments driven by technology that rely on sensors, big data, open data, new ways to connect and exchange information to make better operational decisions (Gretzel et al 2015). The word smart has also been embedded in the application of the development of a city, or commonly known as Smart City. Smart city management is inseparable from the use of Information and Communication Technology (ICT) as the basis for its management. The involvement of Information Technology in various aspects of daily life in cities, has led to the evolution of Smart Cities (JASROTIA, 2018). As stated by Lee (2013) in Jastoria (2018) shows that smart cities take advantage of emerging opportunities such as developing information and communication technology (ICT) innovations. The Smart City concept represents technology that is embedded in the city environment. Information and Communication Technology that is used in Smart City includes the use of the Internet of Things (Buhalis, 2014), Big data and also censorship in the aspects of its implementation.

DKI Jakarta is the capital of Indonesia as well as a province with a high population density. As the heart of the Indonesian economy, Jakarta is one of the provinces visited by tourists, both for business and leisure. Jakarta is also the 2nd largest entrance for foreign tourists to Indonesia (Central Statistics Agency 2016). Aside from being the center of state government, DKI Jakarta is also a popular destination among tourists. There are various tourist attractions that have been supported by the progress of information and communication.

By utilizing ICT advances, Jakarta Smart City (JSC) has had several applications launched to facilitate the public and tourists in exploring Jakarta. The main application provided is the Jakarta Smart City application, which has tourist

information information, the latest news about Transjakarta and a column for writing complaints. Liberato (2016), explains that ICT affects the development of a city that will become a tourism destination. Technological progress here is seen from a variety of supporting infrastructure, both in the form of platforms (applications, websites) and physical infrastructure.

In the development of Smart City, there is a component of smart living that forms it, smart tourism is included in the Smart Living component, as stated by Igor and Buhalis (2017), explaining that Smart Tourism can be interpreted, “..... Smart tourism emerges as a concept that enables destinations to build their competitiveness based on the interoperability of systems and co-creation of tourism products between all stakeholders. This is based on emergent smart cities and smart living developments and take cities principles to urban or rural areas and not only consider residents but also tourists in their efforts to support mobility, resource availability and allocation, sustainability and quality of life/visits. ”

Smart Tourism and Smart City are interrelated. Smart Tourism emerges from the concept of smart cities, smart tourism relies on smart city infrastructure, and strengthens the relationship of each smart city subsystem thereby increasing the linkages of smart cities (Liu, 2016). Zhang, Li, & Liu. (2012) explained that Smart Tourism can be interpreted, “..... It is defined as an ICT-integrated tourism platform, which integrates tourism sources and ICT, such as artificial intelligence, cloud computing and the internet of things (IoT), to provide explicit information and satisfactory services to tourists based on the development of innovative mobile communication technology.

According to Júnior (2017) “..... ICT has become a key innovation to enable the tourism sector to achieve sustainable competitive advantage in the world market, mainly because of their capacity to manage information and knowledge ...” According to

Buhalis (2003) in Júnior (2017) ICT includes a variety of electronic tools that facilitate the operational and strategic management of organizations for managing information, operations, and processes and for interactive communication with stakeholder groups. This is supported by research from Le, 2014 which states that "ICT has changed the Tourist Experience drastically and gave birth to what is called technology to improve the tourist experience where the sophistication of ICT can enhance the tourist experience / tourist experience throughout the travel process". From a tourism perspective, ICT can contribute in terms of generating value-added experiences for tourists, while also increasing efficiency and supporting process automation for related organizations (Werthner, 2003). Thus, the development of Smart City can also encourage the formation of Smart Tourism Destinations. With technology embedded in the destination environment, it can enrich tourist experiences and enhance the competitiveness of destinations (Buhalis, 2014).

The purpose of this study is to test ICT for the experience of traveling tourists in relation to Jakarta as a smart city that supports the development of smart tourist destinations.

LITERATURE REVIEW

Smart City

Caragliu, A. (2009) states that “A city is smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance”. This is the initial foundation of the formation of a Smart City. Harrison (2010) further explained that a smart city / Smart City must combine their infrastructure both physical infrastructure, IT, social in order to increase the intelligence of a city.

ICT in Smart City is described as a supportive infrastructure. But Buhalis & Amaranggana (2014) stated that smart cities

are supported by ICT in the form of internet of things, cloud computing and focus on improving tourist experience. Due to the novelty of the ICT dimension that supports Smart City, researchers took the dimension of "Cloud Computing and the Internet of Things". This technology connects physical infrastructure, information infrastructure, social infrastructure and commercial tourism infrastructure, and supplies smart tourism value to many stakeholders.

ICT

Asabre (2012) "Information and Communication Technology (ICT) can be broadly defined as the tools, facilities, processes, and equipment that provide the required environment with the physical infrastructure and the services for the generation, transmission, processing, storing and disseminating of information in all forms including voice, text, data, graphics and video ". Zhang, Aikman and Sun (2012) "technologies used by people and organizations for their information processing and communication purposes".

Liu (2012) states that ICT can be seen from Artificial Intelligence, the Internet of Things, Cloud Computing to display information straightforwardly and to provide services that can satisfy tourists. This statement was also reinforced by Buhalis & Amaranggana (2014) stating that the Internet of Things and cloud computing is focused on improving the tourist experience ". Therefore the components taken in this study are Internet of Things and Cloud Computing, Internet of things and cloud computing are used to realize the acquisition and adjustment of tourism information in real time through mobile internet devices (Guo, et al 2014). In this research, Internet of Things and Cloud Computing are seen from applications and websites that work with Jakarta Smart City and other supporting infrastructures in tourist destinations.

ICT can help make cities more accessible and attractive, both for residents and visitors, because they contribute to the

development of interactive services that connect local organizations, enabling users to quickly access services and data. Liberato (2016), explains that ICT affects the development of a city that will become a tourism destination. Technological progress here is seen from a variety of supporting infrastructure, both in the form of platforms (applications, websites) and physical infrastructure.

Lee, 2014, stated that "ICT has changed the Tourist Experience drastically and gave birth to what is called technology to enhance the tourist experience where the sophistication of ICT can enhance the tourist experience / tourist experience throughout the travel process". From a tourism perspective, ICT can contribute in generating value-added experiences for tourists, while also increasing efficiency and supporting process automation for related organizations (Werthner, 2003).

In the process of co-creation experiences, ICT acts as a mediated factor (McCabe – Sharples – Foster 2012) and supports tourists during their travels and enhances their overall tourism experience (Neuhofer-Buhalis 2012). The impact of ICT on the tourist experience is huge. In fact, ICT has not only fundamentally changed and revolutionized the tourism experience but also led to the emergence of a new type of tourism experience namely technology to enhance the tourist experience (Neuhofer-Buhalis-Ladkin 2013a, 1).

METHOD

The research design in this study uses a quantitative approach with an associative explanatory research method which is research that explains the causal relationship between the variables that influence the hypothesis. Researchers used explanatory research methods to determine the causality relationship between the Effects of ICT on the Tourist Experience

The sample in this study is domestic and foreign tourists who are users of the application provided by Jakarta Smart City

and also applications that work with Jakarta Smart City. The sampling technique used is accidental sampling. The questionnaire was used to find respondents' demographic data, Tourist Experience in DKI Jakarta, and the influence of ICT on tourist experience distributed to tourists coming to DKI Jakarta. The number of respondents for foreign and domestic tourists was set at 190 people.

In this study there are two types of hypotheses:

1. Hipotesis statistik (Uji T)

H₀ = Internet of things has no significant effect on tourist experience

H_a = Internet of things has a significant effect on tourist experience

H₀ = Cloud of computing has no significant effect towards tourist experience

H_a = Cloud of computing has a significant effect on tourist experience

2. Hipotesis statistik (Uji F)

H₀ = ICT has no significant effect on TOURISTEXPERIENCE

H_a = ICT has a significant effect on TOURISTEXPERIENCE

RESULT AND DISCUSSION

1.2.1. Internet of Things

In the Internet of things variable, the total value of foreign tourists is 2,043 and the archipelago tourists are 2,254 and occupy a GOOD position in the continuum. This shows that the condition of the Internet of Things in DKI Jakarta has been good and has been used by tourists as well. One example of the Internet of Things is Qlue and Zomato. According to the Jakarta Smart City Command Center monitoring and evaluation coordinator the two applications have collaborated with JSC to jointly advance the new Jakarta. Internet of things is really needed in a Smart city, as one of the supporters of smart city, the internet of things functions to provide information, analyze the environment automatically.

1.2.2. Cloud Computing

Cloud Computing on foreign tourists has a good value of 2,262 and on the

domestic tourists rated good with a value of 2223. On foreign tourists the application can be used on smartphones to get the highest value. While the archipelago tourists the ability to be able to set their own location get the highest value.

In cloud computing, there are 3 main components underlying it, namely on demand self-services, broad network access and resource pooling. In applications that work with JSC, cloud computing implementation will be very pronounced in the applications Zomato, Waze and Qlue. Based on the use of the application in graph 9. Wisatawan archipelago more use the waze application as a pointer to the destination and see the intensity of traffic jams. This can make it easier for tourists to travel in DKI Jakarta. As for foreign tourists, cloud computing-based applications commonly used are Google and Google Maps. This is because foreign tourists are more familiar using the application while they are in their area of origin.

The condition of ICT in DKI Jakarta for foreign tourists is 4,305 and domestic tourists are 4,477. Both are categorized GOOD. In the cloud computing tourists, the highest value is in the archipelago, while the internet of things aspect has the highest value.

1.2.3. Conditions of Tourist Experience in DKI Jakarta

The results of tourist experience on foreign tourists have a value of 20,106 which occupies a neutral / sufficient position. This means that foreign tourists who use ICT applications in DI Jakarta feel quite helped by the application to enhance their traveling experience. This is different from archipelago tourists with a value of 20,857 with GOOD position in the continuum area. This shows that archipelago tourists who use the application during the tour are greatly helped and can improve their experience while traveling in DKI Jakarta.

The highest value for foreign tourists is in the influential realm on the statement, the

application can help access information about transportation with a total response of 76%, in the personal realm the quality of the transportation application provider gets the second largest value, in the first rank that is able to know the culture in DKI Jakarta through the application with a total of 84%. In the highest influential realm archipelago tourists is the Application can access the availability of accommodation in DKI Jakarta by 75%, while in the personal realm the aspect of using language that is easily understood gets the highest value of 76%.

1.2.4. Effects of ICT on Tourist Experience

Based on the normality test, the variable cloud computing, internet of things and tourist experience on foreign tourists is above 0.05, which means the variable is normally distributed. But the data that is processed for normality test on the three variables in the foreign tourists above is logarithmic transformation data from data that has been converted into intervals. This is because the data interval is not normally distributed. In the archipelago tourists, the variable cloud computing, internet of things and also the tourist experience are above 0.05, which means the variable is normally distributed.

Based on the multicollinearity test table of foreign tourists and archipelago tourists, it is known that the Tolerance value in the two variables approaches the value of 1 and in VIF nothing exceeds the value of 10. Then it is stated that there is no Multicollinearity and can be continued on further testing. Heterokedastitas test results on foreign tourists and domestic tourists was found that the data did not occur heterokedastitas.

After processing the data, an analysis is carried out to look for the influence of ICT on the Tourist Experience, with the Internet of Things as X1, Cloud Computing as X2, and Tourist Experience as Y. In this analysis the researcher divides into 2 analyzes based on the type of tourists, foreign tourists and domestic tourists. . Following are the results

of the t-test and f-test analysis assisted with the SPSS 20 application:

1.2.4.1. International Tourist

T test was conducted to determine the significance of each independent variable on the dependent variable. To see partial significance. Sig. alpha α range 5% or 0.05 and t table 1.972.

In the t test on the Internet of Things variable, tsig of 0,000 <0.05 and tcount of 6.310 is greater than t table (1.972) which means that Internet of Things influences Tourist Experience while in DKI Jakarta, or H0 is rejected Ha is accepted. In the Cloud Computing variable, tsig is 0.178>. 0.05 and the tcount of 1.352 is smaller than the table (1,972) which means that the Cloud Computing variable has no effect on tourist experience in DKI Jakarta or H0 is accepted and Ha is rejected. Then the F test is performed to see the effect of the independent variables on the dependent variable together. f table 3.09. Based on the analysis it was found that the value of fsig 0,000 was smaller than 0.05 on and the fcount greater than f table was 33,510> 3.09. Then this has the meaning that the condition of ICT has an influence on tourist experience for foreign tourists. Then for the F test the hypothesis H0 is rejected, Ha is accepted.

1.2.4.2. Domestic Tourist

Sig test t. alpha α in the range of 5%, t table 1,972. In the internet of things variable it can be seen that tsig of 0,000 <0.05 with a t value of 5.045 which is greater than t table (1.972) this means that the internet of things variable has an influence on tourist experience or H0 is rejected, Ha is accepted. And the cloud computing variable tsig value 0,000 <0.05 with t count 3.703 is greater than t table (1.972) which means that the cloud computing variable has a significant effect on the tourist experience variable or H0 is rejected, Ha is accepted.

F test to see the effect of independent variables on the dependent variable together. F table 3.09. Based on the analysis it was found that the value of fsig

0,000 was smaller than 0.05 and the fcount greater than f table was 30.887> 3.09. Then this has the meaning that the condition of ICT has an influence on tourist experience for domestic tourists. Then for the F test the hypothesis H0 is rejected, Ha is accepted.

1.2.4.3. Multiple Linear Regression Analysis

On foreign tourists Based on the results of static testing that the regression coefficient constant is 1.790, the internet of things (X1) variable is 0.550 which means that the internet of things variable has a positive influence of 57% on tourist experience, Cloud computing (X2) of 0.002 has a negative effect by 0.2% of the tourist experience. In the regression equation that is obtained there are meanings as follows:

- If the internet of things condition on ICT increases, the tourist experience to DKI Jakarta will be increased 1 time, and there will be an increase in tourist experience of 0.550 or 55%
- If the cloud computing condition on ICT increases once, there will be a decrease in Tourist Experience by 0.002 or 0.2%.
- Based on the coefficient of determination (R2) of 26.4% which means that the contribution of ICT Conditions to tourist experience is 26.4%.

On domestic tourists based on the results of static testing that the regression coefficient constant is 50.122, the internet of things (X1) variable is 2.687 which means that the internet of things variable has a positive influence of 268.7% on tourist experience, Cloud computing (X2) of 1.674 positive effect of 167.4% on tourist experience. In the regression equation that is obtained there are meanings as follows:

- If the internet of things condition in ICT increases, the tourist experience to DKI Jakarta will be increased 1 time, and there will be an increase in tourist experience of 2,687
- If the condition of cloud computing on ICT increases once, there will be an increase in Tourist Experience of 1,674

- Based on the coefficient of determination (R²) of 24.8% which means that the contribution of ICT Conditions to tourist experience is 24.8%.

Internet of things (providing information, automation control) on foreign tourist respondents has an influence on tourist experience where $t_{count} (6,310) > t_{table} (1,972)$, meaning that the Internet of things for foreign tourists is considered to play an important role in improving the experience of foreign tourists visiting Jakarta. Even this is in accordance with the tourist attractions of the archipelago where $t_{count} (5,045) > t_{table} (1,972)$ which means that there is an internet role of things to increase tourist experience for archipelago tourists while traveling in Jakarta. This is because tourists now do more through their devices.

In Cloud Computing (on demand services, broad network access, pooling resources) on foreign tourist respondents did not affect the tourist experience with $t_{count} (1,357) < t_{table} (1,972)$ with a significance of 0.178 which means cloud computing for foreign tourists is considered not to play an important role in enhancing the experience of traveling in DKI Jakarta. This turned around with archipelago tourists where $t_{count} (3,703) > t_{table} (1,972)$ which means cloud computing for archipelago tourists has a role in improving the experience of traveling in DKI Jakarta.

It because cloud computing uses internet based services to support business processes. Usually cloud computing is used for companies and governments to share data, and for tourists it is used to track public vehicles provided by tourists while traveling in DKI Jakarta, one of the applications used is Traffi and Transjakarta. However, foreign tourists do not use the application, so according to foreign tourists this does not affect the experience of traveling in DKI Jakarta. Another case with archipelago tourists, where the use of the application is useful both for tourists to and while in Jakarta.

The simultaneous influence of ICT conditions on tourist experience where $F_{sig} (0,000) < 0.05$, ICT conditions have a simultaneous influence on tourist experience for foreign and domestic tourists. This means that ICT conditions have a role in increasing tourist experience where the effect is seen from the use of applications used by tourists while traveling in DKI Jakarta. Jakarta's smart city has provided the ease of achieving information about tourism, this can be seen on the Jakarta Smart City website, and also on the DKI Jakarta Culture and Tourism Office website (DISPARBUD). Both the JSC and DISPARBUD worked together to create a convenient facility for tourists during their visit, while buses around Jakarta or Jakarta City tour which became one of the means of transportation with good interpretation were presented to pamper tourists while in DKI Jakarta. In addition, tourist experience can increase if there is ICT progress before tourists visit, during tourists visit and after tourists visit.

CONCLUSION

Based on the hypothesis test, it was found that both according to foreign tourists and domestic tourists the condition is GOOD. But when viewed from the experience of traveling obtained by foreign tourists only say ENOUGH with the highest rating points on information about culture, while for the archipelago tourists assessing the condition of ICT in Jakarta is GOOD with the highest rating points on applications that can help access the accommodation that most helps the traveling experience .

Overall the value of ICT in DKI Jakarta is still low because it only affects 26.4% of foreign tourists and 24.8% for domestic tourists. Based on this, ICT has not had a significant influence on the experience of traveling in DKI Jakarta because the tourist experience gained by tourists is still influenced by other factors outside of ICT.

Even though DKI Jakarta has compared its city as a smart city, it has not been able to make it a smart tourism

destination because there are still many factors contained in ICT that need to be improved.

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