Analyzing Tourism Application Using Information Technology Governance Trust Model in COVID-19 Pandemic Situation

R Setyadi
Department of Information System, Faculty of Industrial Technology and Informatics Institut Teknologi Telkom Purwokerto, Indonesia: Jl DI Panjaitan no 128 Purwokerto, Banyumas, Central Java 53147
Email: resad@ittelkom-pwt.ac.id

Abstract. At the beginning of 2020, Indonesia was shocked by the COVID-19 pandemic. One of the areas affected by the COVID-19 outbreak is tourism. In the tourism sector, the Indonesian government is closing tourism activities to minimize the transmission of the COVID-19 virus. The tourism sector has been a mainstay of income for tourism village communities and supports its foreign exchange earnings. This study analyzes local government tourism applications using IT governance trust (ITGT) in the COVID-19 pandemic situation. The method used is by distributing questionnaires to application makers and government employees who use tourist applications. Data were analyzed inferentially using quantitative Smart-PLS analysis. The application of multiple regression techniques to analyze questionnaire data on mobile tourism applications' reliability and validity during the COVID-19 epidemic. This article used descriptive research to respond to the implementation of IT governance (ITG). The statistical results obtained indicate that the quality of information, system quality, and service quality of the tourism mobile application significantly affect user confidence in using tourism applications. Thus, this study contributes to recommendations for using the ITGT model to determine the extent to which tourism applications can prepare themselves to improve their tourism applications during the COVID-19 pandemic. This study provides direct information to practitioners about what to consider in enhancing tourist application features, especially in the COVID-19 pandemic situation, so there is a need for ITG in planning reliable tourism applications during the COVID-19 pandemic.

1. Introduction
Since the beginning of March 2020, the World Health Organization (WHO) declared the coronavirus (COVID-19), a global pandemic [1]. The Covid-19 epidemic experienced by countries in the world has had a considerable impact. Indonesia is one of the Asian countries affected by the COVID-19 outbreak even though it is in the final category after neighboring countries such as Malaysia, Singapore. This pandemic has a severe and massive impact on almost all aspects of life [2]. In the social part, society has been conducting intensive social interaction; now, for a while, they cannot interact directly and gather in large numbers, replaced by online-based interactions [3]. The tourism sector is essential in the regional economy's increasing income, creating jobs, developing business, and improving infrastructure [4]. Visitors used Tours almost every week, both domestic and foreign, are not as busy as usual.
At this time, the world condition is experiencing the COVID-19 epidemic, so the government's appeal stating that working from home, social distancing, and adjustments to the work system. It does not mean that public services are decreasing; on the contrary, information technology provides as much information to all activities. The use of information technology in the tourism sector through online applications' planning and use has attracted the researcher's attention. It means how the extent to which online tourism applications' implementation works efficiently and effectively during the COVID-19 pandemic. And the researcher also uses the Information Technology Governance trust (ITGT) model for analyses the online tourism applications work.

2. Information Technology Governance trust model
The ITG trust model (ITGT) defines an IT governance model to assess the organization's Governance to IT users to know the impact of user trust. This study object is a mobile tourism application. This research analyzes how far the mobile tourism application is already efficient and effective in the COVID-19 pandemic situation. Figure 1 shows the ITGT model with ten variables and 23 relational hypotheses.

2.1. Information Technology
Information Technology (IT) is a general term for any technology that helps humans transform, keep delivering, and record data. IT unifies high-speed enumerating and connection for data, sound, and video[6 7]. The expansion and basics of smart tourism require to merge ICT on the material infrastructure of tourist destinations visible, for instance, the fundamental for the complete favorable of e-Tourism to smartphone devices [8 9]. Without these facilities, tourism will remain traditional or ancient.

2.2. Information Technology Governance (ITG)
Not all IT management responsibilities are entirely on the unit/division/division. Units/divisions only handle IT, technically like conventional management approaches. IT management must be the responsibility of various management parties in an organization. The new concept and paradigm in
managing Information Technology from an organization's control are IT Governance (Information Technology Governance). ITG is an essential part of corporate Governance, leadership governance, organizational structure governance, and IT administrative supports and expands its strategy and objectives [10 11].

2.3. Information Technology Governance Trust (ITGT)
The adoption of the readiness model [12], the usability model [13], trust variables, and ITG variables produce the ITGT model [5]. When the user's benefits, efficiency, and effectiveness, it emerges trust from the IT use provided by the institution [5 14-16]. ITGT analyzes how far mobile tourism applications are efficient and effective during the COVID-19 pandemic. Several researchers are optimistic that adopting and adapting several previous IT development model concepts from several expert studies benefit from developing ITG.

3. Mobile Tourism Application
The relationship between tourism and technology is always related and intensive [17]. Concerning mobile technology, the tourism sector has influenced developments in the internet system of all applications and especially for tourism actors. Location-based services for tourist destinations become essential information and communication according to customer needs[18].

3.1. Google Maps API
Google Maps API is a Google service that proposes easy to use mapping technology and local business information - including business location, contact information, and travel directions and is integrated into the website through map modifications according to user needs [19].

3.2. Global Positioning Position (GPS)
Space-based satellite navigation systems provide the place and time information in all weather conditions, anywhere on the need that it does not obstruct the straight line of view of four or more satellites called GPS [20]. GPS uses a triangulation method to determine the location of the receiver. The receiver must know the place of one of the three satellites that can be accessed and the distance between the user and the GPS satellite [21].

3.3. Location-Based Service (LBS)
Location-Based Service (LBS) is a technology capable of providing a person's geographic location or object by delivering value to customers, primarily through GPS and mobile technology. Thus, advances in mobile communication take advantage of LBS developments [22]. LBS allows people to use location data with existing social media networks such as Facebook by commenting on or recording travel routes from the exact place the activity occurs.

4. Research Method
The research method is the specific ways or manner used to recognize, choose, technique, analyze information, and permits the reader to appraise a study's overall validity and reliability critically. Research Method answers two primary problems: How was the data congreigated or produced? How was it interpreted?

4.1. Research Procedure
This research procedure has three steps, including observation, model development, and operationalization. The goal is to prepare a theoretical model, continue developing and creating an ITGT research model [5], and finally do model validation. Accurately, previous research and the use of Smart PLS to validate the questionnaire thus recommend this study. Figure 2 explains the three steps of this research.
4.2. Data Collection

This research sample includes the local government's internal stakeholders in Purwokerto in tourism application planning and the tourism mobile application users. The sample determination of stakeholders in the tourism application planning sector. Besides mobile tourism applications, users refer to the technical information's accuracy that wanted to be obtained [23]. One hundred and thirty-five sample data from Purwokerto local government institutions' employees were obtained and sorted before being analyzed, applying a purposive sampling manner based on knowledge and experience using the tourism mobile application. The next step is to explore the sample data; namely, many 50 (50%) respondents who work as Purwokerto local government employees in tourism and technology development planning with employees' capacity have used the tourism mobile application. The majority of respondents (80%) are university graduates and have less than five years of experience in institutions. The highest percentage of their job positions are general tourism and planning staff (60%), and the rest are technical staff for tourism application technology development. In the data collection procedure, an electronic version of the questionnaire was sent to 50 employees through the WA group of tourism staff and information technology development staff at the Purwokerto agency with a response rate of about 70% (n = 35).

4.3. Research Instrument and data analysis

To examine and analyze the research instrument survey questionnaire need the Likert scale technique [24]: process validity and reliability of the questionnaire used in two ways. The first step to the validity process needs four academics who have excellent skills, knowledge, and experience in the ITG research field. Second, Smart PLS software analyzes the research questionnaire's validity and reliability [25]. Descriptive data analysis generates demographic information in response to the first research objectives and clarifies subsequent inferential findings. Besides, the inferential model was analyzed using SmartPLS to measure and obtain a valid and reliable questionnaire.
Statistical software is used for exploration and prediction to use models as measuring tools [26, 27]. The measurement model assessment evaluates indicator reliability, internal consistency reliability, convergent validity, and evaluation of discriminant validity to test the external model.

5. The Analysis Result

An analysis is a scientific manner of testing something to understand the process because of something conscientiously or utilizing statistical methods to comprehend, define, and include a description that results from considering something carefully. There are two statistical analyses: descriptive statistics and inferential statistics. In the descriptive statistics, one sum up and graphically reflects data of sampling or a totality occupant. In inferential statistics, one gathers numeral data as a sampling from a people and interprets it, and the fundamental on this analysis draws findings with approximation uncertainties.

5.1. Descriptive Statistics result

The descriptive analysis results categorize and describe information (Mean, frequency, and percentage). Researchers use comparisons between theoretical and empirical means. For frequency represents the number of tourism application users who fall into the high, medium and low categories. And the percentage rank each indicator of the adaptability of the tourism application, by comparing the total item score and the item total in each indicator.

| Table 1. Mobile tourism application user |
|------------------------------------------|
| Measures Item | Frequency | Percentage |
|----------------|-----------|------------|
| Tourism Application user high | 23 | 65.7% |
| moderate | 10 | 28.6% |
| low | 2 | 5.71% |
| Total N | 35 | 100% |

Based on Table 1, a total of 5.71% of participants were in the "low" category in use to tourism application, 28.6% in the "medium" category, and another 65.7% in the "high" category.

| Table 2. Descriptive Statistic |
|-------------------------------|
| Measures | N | Min | Max | λ (Empirical Mean) | μ (Theoretical Mean) |
| Total N | 35 | 9.00 | 21.00 | 91.2 | 72 |

Table 2., comparison between the two means shows that the empirical Mean (λ = 91.2) is higher than the theoretical Mean (μ = 72). The comparison result indicates that tourism applications among local government employees are excellent (high).

5.2. Inferential Statistics result

The following figures illustrate the inferential result based on Smart PLS analysis. Figure 3, Figure 4, Figure 5, and Figure 6 indicate inferential analysis based on Smart PLS. Figure 3 describes the reliability and validity of the mobile tourism application questionnaire. The reliability and validity of Figure 3 shows of Cronbach's Alpha content. The outcome value is more than the standard amount of 0.7. So, the data is reliable. Likewise, the AVE value outcomes in Figure 3 show value above the expected value of 0.5. Thus, the information is declared valid. Accurate and dependable showed in green at the displayed value. If the value is below 0.5, then the displayed color is turned in red.
Construct Reliability and Validity

|       | Matrix | Cronbach's Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|-------|--------|------------------|-------|-----------------------|----------------------------------|
| BTH   | 0.866  | 0.866            | 0.903 | 0.652                 |                                  |
| DSC   | 0.869  | 0.873            | 0.905 | 0.656                 |                                  |
| HOP   | 0.862  | 0.879            | 0.900 | 0.645                 |                                  |
| INS   | 0.833  | 0.839            | 0.882 | 0.600                 |                                  |
| ITG   | 0.943  | 0.943            | 0.957 | 0.815                 |                                  |
| QOI   | 0.799  | 0.804            | 0.861 | 0.553                 |                                  |
| QSV   | 0.885  | 0.889            | 0.916 | 0.687                 |                                  |
| QSY   | 0.888  | 0.896            | 0.919 | 0.694                 |                                  |
| SYT   | 0.876  | 0.879            | 0.915 | 0.728                 |                                  |

Figure 3. Construct reliability and validity

The multicollinearity outcome in Figure 4 describes the value below five. It means the test result is already the standard value of the collinearity statistical test. Data in this study are independent of the data's multi-linearity from the PLS analysis algorithm outcome. A correlation test between predictor variables (or independent variables) expresses a linear relationship in a regression model. The research tries to avoid some of the same variances in the dependent variable, which reduces their statistical significance.

Collinearity Statistics (VIF)

| VIF   | Outer VF Values | Inner VF Values | Copy to Clipboard |
|-------|-----------------|-----------------|-------------------|
| BTH1  | 2.151           | 1.899           | 1.899             | 1.937 |
| BTH2  | 1.668           | 1.933           | 1.933             | 1.933 |
| BTH3  | 2.301           | 2.626           | 2.626             | 2.626 |
| BTH4  | 2.814           | 2.597           | 2.597             | 2.597 |
| BTH5  | 2.911           | 1.688           | 1.688             | 1.688 |
| DSC1  | 1.971           | 1.593           | 1.593             | 1.593 |
| DSC2  | 2.337           | 1.921           | 1.921             | 1.921 |
| DSC3  | 2.003           | 2.233           | 2.233             | 2.233 |
| DSC4  | 2.290           | 2.023           | 2.023             | 2.023 |
| DSC5  | 1.697           | 3.477           | 3.477             | 3.477 |
| HOP1  | 1.903           | 3.696           | 3.696             | 3.696 |

Figure 4. Collinearity Statistics

Based on Figure 5, the usability and system trust variables' effect on the ITG variable is 72.9%. The readiness variable's result to the QOI variable is 41.7%; the readiness variable's influence on the QSV variable is 25.3%. The effect of the readiness variable to the QSY variable is 53.9%. It means trust variables, information quality variables, service quality variables, and quality system variables influenced IT governance for mobile tourism applications during the COVID 19 pandemic.
6. Discussion

This article shows experienced human objects' opinions create to validate a study model through an inductive qualitative. From tracing previous researchers [28 29], this study indicates that research questions using the development of exploratory themes. First, Qualitative validation can describe and explain the context and conditions for implementing the research to be carried out[30].

Second, the group and participant specifications represent the findings' accuracy and quality [31]. Preliminary experimental data analysis, stating the results of using tourism applications based on Smart PLS analysis through the ITGT model, requires good quality service support to provide complete and updated information. However, tourism applications' performance has decreased in maintenance, feature services, and information completeness, especially in the COVID-19 pandemic.
situation. The tourism application sector needs to improve in adjusting to the problem of adapting to new technologies.

Third, Theoretically, our findings provide information on the decline in the quality of services offered by tourism applications. The results in reduced user confidence in using IT systems through tourism applications, so that targeted IT governance can maximize its implementation in the end, is very ineffective and efficient.

7. Conclusion
This study explains how to measure information technology governance in the object mobile tourism application carried out in the Purwokerto tourism area with an efficiency and effectiveness value for society. Tourism mobile applications in the COVID-19 pandemic situation in tourism areas must update information, systems, and services. The system trust variable informs that during the Covid-19 pandemic shows a decreasing value from the impact of tourism information services, which has decreased. The tourism mobile application service has reduced due to updating features and information on the mobile tourism application during the COVID-19 pandemic conditions. Therefore, updating the components and data of the mobile tourism application needs to be done. The factor influences the mobile tourism application's service to what extent the efficient and effective application system services felt useful for the desired information. To determine the efficiency and effectiveness of the tourism mobile application, the ITGT model as a medium of analysis. The ITGT model is based on previous research models and goes through a model integration process. Hopefully, this research can contribute to education, especially in new research fields related to modeling, readiness, analysis, usability, information analysis, systems, and services of mobile tourism applications. For the continuation of the next research, the authors suggest taking samples in other location areas limited in terms of technology, affordability of tourist sites from residents, and local cultural influences. The author estimates that these influencing factors affect mobile tourism applications' performance, identifying and becoming a reference for further research. For this research, there are limitations to the authors on studying other tourist sites and their supporting instruments. The author's suggestions can be a benchmark for proceeding to the next stage of inspection and analysis.

References
[1] Ducharme J. World Health Organization Declares COVID-19 a "Pandemic." Here's What That Means. Time Magazine, 2020.
[2] Nicola M, Alsafi Z, Sohrabi C, et al. The socio-economic implications of the coronavirus and COVID-19 pandemic: a review. International Journal of Surgery 2020
[3] Gössling S, Scott D, Hall CM. Pandemics, tourism, and global change: a rapid assessment of COVID-19. Journal of Sustainable Tourism 2020;1747-7646 (Online) DOI: 10.1080/09669582.2020.1758708 [published Online First: Epub Date].
[4] Yang Y, Zhang H, Chen X. Coronavirus pandemic and tourism: Dynamic stochastic general equilibrium modeling of an infectious disease outbreak. Annals of Tourism Research 2020
[5] Setyadi R, Subiyakto A, Rahman A. Assessing the Information Technology Governance Trust Using Readiness and Usability Models: A Model Development Study. International Conference on ICT for rural development; 2018; Denpasar Bali. IEEE.
[6] Cepeda J, Arias-Pérez J. Information technology capabilities and organizational agility. Multinational Business Review 2019
[7] Lloyd I. Information technology law: Oxford University Press, 2020.
[8] Gretzel U, Zhong L, Koo C. Application of smart tourism to cities. International Journal of Tourism Cities 2016
[9] Shafiee S, Ghatari AR, Hasanzadeh A, et al. Developing a model for sustainable smart tourism destinations: A systematic review. Tourism Management Perspectives 2019;31:287-300
[10] Joshi A, Bollen L, Hassink H, et al. Explaining IT governance disclosure through the constructs of IT governance maturity and IT strategic role. Information & Management
[11]. Wiedenhöft GC, Luciano EM, Porto JB. Impacts of the spirit of initiative and identification with the organization on IT governance effectiveness perception in public organizations. Revista de Gestão 2019

[12]. Parasuraman, Ananthanarayanan, Colby. An updated and streamlined technology readiness index: TRI 2.0. Journal of service research 2015;18(1):59-74

[13]. Nielsen J, Berger J, Gilutz S, et al. Return on investment (ROI) for usability. 2019

[14]. Lee GM. Trust in ICT. Geneva Switzerland International Telecommunication Union, 2017.

[15]. Zhang T, Tao D, Qu X, et al. The roles of initial trust and perceived risk in the public's acceptance of automated vehicles. Transportation research part C: emerging technologies 2019;98:207-20

[16]. Setyadi R. Assessing Trust Variable Impact on the Information Technology Governance Using Business-IT Alignment Models: A Model Development Study. International Conference on Sustainable Engineering and Creative Computing (ICSECC). Bandung, Indonesia: IEEE, 2019.

[17]. Navio-Marco J, Ruiz-Gómez LM, Sevilla-Sevilla C. Progress in information technology and tourism management: 30 years on and 20 years after the internet-Revisiting Buhalis & Law's landmark study about eTourism. Tourism Management 2018;69:460-70

[18]. Meng B, Choi K. Tourists’ intention to use location-based services (LBS). International Journal of Contemporary Hospitality Management 2019

[19]. Liu A, Kelobonye K, Zhou Z, et al. School Commuting Mode Shift: A Scenario Analysis for Active School Commuting Using GIS and Online Map API. ISPRS International Journal of Geo-Information 2020;9(9):520

[20]. Nyo MTH, Hein WZ. Design and Construction of Navigation Based Auto Self-Driving Vehicle using Google Map API with GPS. Int J Trend Sci Res Dev 2019;3:65-68

[21]. Trogh J, Plets D, Surewaard E, et al. Outdoor location tracking of mobile devices in cellular networks. EURASIP Journal on Wireless Communications and Networking 2019;2019(1):115

[22]. Abbas R, Michael K, Michael M. Location-based privacy, protection, safety, and security. Privacy in a Digital, Networked World: Springer, 2015:391-414.

[23]. Homburg C, Klarmann M, Reimann M, et al. What drives essential informant accuracy? Journal of Marketing Research 2012;49(4):594-608

[24]. Adeniran A. Application of Likert Scale's Type and Cronbach's Alpha Analysis in an Airport Perception Study. Sch J Appl Sci Res 2019;2:01-05

[25]. do Nascimento JCHB, da Silva Macedo MA. Structural Equation Models using Partial Least Squares: An Example of the Application of SmartPLS® in Accounting Research. Revista de Educação e Pesquisa em Contabilidade 2016;10(3)

[26]. Henseler J. Partial least squares path modeling. Advanced methods for modeling markets: Springer, 2017:361-81.

[27]. Klesel M, Schuberth F, Henseler J, et al. A test for multigroup comparison using partial least squares path modeling. Internet research 2019

[28]. Cassell C, Bishop V. Qualitative data analysis: Exploring themes, metaphors, and stories. European Management Review 2019;16(1):195-207

[29]. Connelly LM, Peltzer JN. Underdeveloped themes in qualitative research: Relationship with interviews and analysis. Clinical nurse specialist 2016;30(1):52-57

[30]. Weis D, Willems H. Aggregation, validation, and generalization of qualitative data-methodological and practical research strategies illustrated by the research process of an empirically based typology. Integrative Psychological and Behavioral Science 2017;51(2):223-43

[31]. Dalrymple KA, Manner MD, Harmelink KA, et al. Examine recording accuracy and precision from eye-tracking data from toddlerhood to adulthood. Frontiers in psychology 2018;9:803