The Influence of Pikobar Application in Suppressing the Rate of Coronavirus Spread

Bagus Dwi Wicaksono¹, Dwin Indrawan², Dwiza Riana³*, Andi Taufik⁴, Yamin Nuryamin⁵ and Dian Ambar Wasesha⁶
Program Studi Ilmu Komputer STMIK Nusa Mandiri¹−³
Program Studi Sistem Informasi STMIK Nusa Mandiri⁴−⁶
E-mail: dwiza@nusamandiri.ac.id

Abstract. Coronavirus has developed massively in Indonesia, in the face of Coronavirus, Indonesian people are required to be able to survive the outbreak, by not interacting directly between people. Pikobar is one of the applications on a smartphone (android), which can provide up-to-date information about the development of the coronavirus in Indonesia (especially in West Java), which allows people to receive that information without having to do physical interaction between communities. To find out the level of customer satisfaction in using the pikobar application, the TAM method is used. The data collected was obtained from the results of a survey of the Indonesian population. The survey results were processed using smartPLS. From the results of the study showed if perceived ease of use of the application greatly influenced the community to use the pikobar application, so that the public could use the application in accordance with the application's purpose, namely to reduce the rate of coronavirus spread.

1. Introduction
Coronavirus (Covid-19) has developed massively in Indonesia, there were 34316 cases that occurred in Indonesia on June 10, 2020, which 12129 recovered, and 1959 died [1]. since it was officially announced on March 2, 2020, 2 cases of the coronavirus have spread rapidly, this is shown from a graph that has continued to increase since the first reported case [2].

In dealing with the coronavirus, Indonesian people are required to be able to survive the outbreak, by not interacting directly between people. By using a smartphone, the community can still interact, without having to have a physical meeting (in person). With a smartphone that can minimize the community in physical interaction, the use of applications on smartphones to provide the latest updates about the coronavirus and its handling will be one effective way of suppressing the spread of this coronavirus. With the number of internet users in Indonesia as many as 175.4 million in 2020 which 94% of smartphone users (age range 16 - 64 years) [3], of course using applications in smartphone to meet the information needs of the community amid the increasing number of virus infections, is a very good way.

Pikobar is one of the applications on the smartphone (android), which can provide up-to-date information about the development of the coronavirus in Indonesia (especially in West Java), which allows people to receive that information without having to carry out physical interaction between communities, and in a way that easy and fast. Pusat Informasi dan Koordinasi Covid-19 Jawa Barat (Pikobar) provides information services to the public to find out the distribution
of the coronavirus with interactive and accurate visualization, in which daily information related to the coronavirus is presented with official government data sources [4].

Customer satisfaction is certainly an important factor, to find out which pikobar applications can be accepted by customers so that the purpose of the application to suppress the spread of the coronavirus can be achieved. Therefore, to determine the level of customer satisfaction in using the pikobar application, the TAM method is used to determine the effect of the application to the community. TAM was developed to describe user behavior about the use of technology (applications) based on the perception of the benefits and ease of user use of the technology [5].

2. Method

2.1. Pikobar
Pikobar is Your Information and Coordination Centre for Disease and Disaster in West Java [6]. Users may find a simple means to get the most recent information about disaster management from the authorities, in control.

Figure 1. Display of the Pikobar Application.

Some of the features found in the pikobar application as in figure 1 are:

- Nomor Darurat, to get referral clinic and call centre based in city/districts of West Java.
- Data Jabar, to get the Most Recent variety of cases impacted by the tragedy or an epidemic.
- Periksa Mandiri, to get a particular identification of your health state through Prixa.
- Logistik, to apply for the Requirements and logistics throughout the pandemic/disaster crisis.
- Saber Hoax, report or see the clarification of hoax you discovered online.
- Daftar Relawan, to participated as a volunteer throughout the tragedy and pandemic.
- Tanya Jawab, to join a forum (Q&A Forum) to know more about the catastrophe.

2.2. Technology Acceptance Model (TAM)
The Technology Acceptance Model (TAM) was introduced by Davis in 1989. TAM was developed based on the Theory of Reasoned Action (TRA). this model predicts technology acceptance through Perceived usefulness and Perceived Ease of use [7]. For more details can be seen in the Figure 2 and Table 1.

The model used is the TAM model. The population in this study is the population / Indonesian society. The method used for sampling is using random sampling techniques. This technique determines samples to be taken randomly.
Figure 2. TAM Model.

Table 1. TAM Variables.

| Variables                        | Definition                                                                 |
|----------------------------------|---------------------------------------------------------------------------|
| Perceived Usefulness (PEU)       | A person’s level of trust that using the system can improve performance [7]|
| Perceived Ease of use (POU)      | One’s level of trust that using the system will be free of effort [7]     |
| Attitude Toward Using (ATU)      | The construct is explained by two variables about what is felt from usefulness and ease of use [8] |
| Behavioral Intention to Use (BIU)| The behavior of a person to intend to use the system based on usefulness and ease of use |
| Actual Use (ACU)                 | Indicates that the system will be used                                    |

The data collected is obtained from survey results, surveys in the form of questionnaires made using Google Form and distributed online using Social Media.

This study uses construct variables or variables that are reflected by the relationship between indicators or estimation of characters. The instrument used uses a Likert scale where a score of 1 for strongly disagrees up to a score of 5 strongly agrees, with a total of 14 question items, then the results of the survey will be processed using SmartPLS.

3. Result and Discussion
3.1. Result
This research was conducted on April 11, 2020, until May 08, 2020, obtained as many as 117 respondents, but there are only 114 respondents results that can be used. Details of the characteristics of the respondents are as in the following table. For more details can be seen in the Table 2. Then for the average responses of respondents in each indicator or descriptive statistics for each variable, it can be seen in Table 3. To test the validity and reliability, calculations are performed using the ‘PLS algorithm’, then values will be obtained as in Table 4.
Table 2. Characteristics of the Respondents.

| Following COVID-19 News | Total | %   | Category Variable | Total | %   |
|-------------------------|-------|-----|-------------------|-------|-----|
| Yes                     | 102   | 89.5| Education SLTA    | 22    | 19.3|
| No                      | 12    | 10.5| D1/D2/D3          | 45    | 39.5|
| Age                     |       |     |                   |       |     |
| <18 years               | 0     | 0   | D4/S1             | 37    | 32.5|
| 18-25 years             | 68    | 59.6| S2                | 10    | 8.8 |
| 26-45 years             | 32    | 28  | S3                | 0     | 0   |
| 34-45 years             | 13    | 11.4|                   |       |     |
| > 45 years              | 1     | 0.9 |                   |       |     |

Table 3. TAM Variables

| Variables                  | Indicator | Mean | Std.Dev |
|----------------------------|-----------|------|---------|
| Perceived Usefulness       | PEU1      | 4.167| 0.898   |
|                           | PEU2      | 3.772| 0.918   |
|                           | PEU3      | 3.789| 0.863   |
|                           | PEU4      | 3.877| 0.818   |
| Perceived Ease of use      | POU1      | 4.026| 0.932   |
|                           | POU2      | 3.825| 0.851   |
|                           | POU3      | 3.772| 0.928   |
| Attitude Toward Using      | ATU1      | 3.684| 0.872   |
|                           | ATU2      | 3.833| 0.816   |
| Behavioral Intention to Use| BIU1      | 3.947| 0.846   |
|                           | BIU2      | 3.649| 0.838   |
|                           | BIU3      | 3.763| 0.872   |
| Actual Use                 | ACU1      | 3.316| 0.851   |
|                           | ACU2      | 3.316| 0.851   |

Table 4. Construct Reliability and Validity.

| Construct                  | Cronbach's Alpha | rho A | Composite Reliability | (AVE) | Result           |
|----------------------------|------------------|-------|------------------------|-------|------------------|
| Actual Use                 | 0.942            | 0.943 | 0.972                  | 0.946 | Valid & Reliable |
| Attitude Toward Using      | 0.898            | 0.899 | 0.951                  | 0.907 | Valid & Reliable |
| Behavioral Intention to Use| 0.863            | 0.870 | 0.916                  | 0.785 | Valid & Reliable |
| Perceived Easy of Use      | 0.866            | 0.872 | 0.911                  | 0.720 | Valid & Reliable |
| Perceived Usefulness       | 0.862            | 0.865 | 0.916                  | 0.784 | Valid & Reliable |

The value of AVE (Average Variance Extracted) is at least 0.5 if fulfilled means that one latent variable can explain more than half the variant of the average indicator [9], in this study all the variables have a value of AVE > 0.5 so that it can be declared valid. Then if the composite reliability > 0.63 then it can be declared reliable [9], wherein this study all the
composite reliability values > 0.63 which means reliable. After being declared valid and reliable, then testing the hypotheses or influences between variables that occur following Bootstrapping SmartPLS calculations. For more details can be seen in the Table 5.

Table 5. Hypothesis Measurement.

| Hypothesis | Path       | Original sample (O) | Sample mean (M) | STDEV | T Statistics | Result |
|------------|------------|---------------------|-----------------|-------|--------------|--------|
| H1 ATU → ACU | 0.315      | 0.317               | 0.084           | 3.758 | Support      |
| H2 ATU → BIU | 0.477      | 0.479               | 0.115           | 4.161 | Support      |
| H3 BIU → ACU | 0.661      | 0.664               | 0.088           | 7.503 | Support      |
| H4 PEU → ACU | 0.443      | 0.451               | 0.094           | 4.712 | Support      |
| H5 PEU → ATU | 0.757      | 0.757               | 0.051           | 14.800 | Support    |
| H6 PEU → BIU | 0.669      | 0.673               | 0.067           | 9.982 | Support      |
| H7 PEU → POU | 0.783      | 0.782               | 0.053           | 14.695 | Support    |
| H8 POU → ACU | 0.392      | 0.395               | 0.105           | 3.751 | Support      |
| H9 POU → ATU | 0.418      | 0.409               | 0.101           | 4.141 | Support      |
| H10 POU → BIU | 0.593      | 0.588               | 0.107           | 5.569 | Support      |

3.2. Discussion
Attitude Toward Using affects Actual Use with T statistics = 3.758 > t table (1.98) and has an original sample of 0.315. which means Attitude toward using a significant positive effect on Actual Use. Related research [10]. That the research highlights if the circumstances, facilities, and trust encourage the effect of acceptance of the application, the same Attitude Toward Using affects Behavior Intention to Use with T statistics = 4.161 and has an original sample of 0.477. Related research [11]. That in using cellular health applications, user attitudes, beliefs, and attitudes have a positive effect on interest in use. the user’s attitude when using the application will certainly generate interest from the user.

Behavior Intention to Use affects Actual Use with T statistics = 7.503 and has an original sample of 0.661. Related research [12]. The increasing number of health applications on mobile devices side by side with the increasing number of mobile devices, so that more users will use this device. So the more people interest, the users will increase too.

Perceived Ease of Use affects Actual Use with T statistics = 4.712 and has an original sample of 0.443. Related research [13]. Application users show customer satisfaction after using the application experience. Related research [14]. Risk factors and health awareness have a significant influence on the intention to use e-health, the perceived risk of health has a direct effect on the perceived benefits to individuals of e-health. Perceived Ease of Use affects Attitude Toward Using with T statistics = 14.800 and has an original sample of 0.757. Related research [15]. When going to make policies in the application of health information technology, the perception of benefits and ease of perception are things that must be considered. Perceived Ease of Use influences Behavior Intention to Use with T statistics = 9.982 and has an original sample of 0.669. Perceived Ease of Use affects Perceived Usefulness with T statistics = 14.695 and has an original sample of 0.783. Related research [16]. e-health similar applications have significantly changed the way in health services in Indonesia, in providing medical information e-health provides medical information quickly, accurately, integrated, and easily accessible at all times. Can be interpreted as ease of use of the application greatly affects the achievement of the benefits of the application. Related research [17]. The perception of ease and benefits of using IT applications has a more prominent role in its acceptance.

Perceived Usefulness affects Actual Use with T statistics = 3.751 and has an original sample
of 0.392. Related research [18]. Shows that perceived usefulness can increase user usage of the health system through mobile devices. Perceived Usefulness affects Attitude Toward Using with T statistics = 4.141 and has an original sample of 0.418. The majority of users of health applications are based on benefits and attitudes. Perceived Usefulness affects Behavior Intention to Use with T statistics = 5.569 and has an original sample of 0.593. Related research [20]. Technology acceptance models have contributed to increasing behavioral intentions to use the health system.

4. Conclusion
This study aims to analyze the effect of the application of pikobar in suppressing the spread of the coronavirus, the model used is the TAM while the method for analyzing the influence between constructs is PLS or using SmartPLS software.

Based on the results of the study, showed that the perceived ease of use of the application will greatly affect the community to use the pikobar application, so that people can use the application in accordance with the application’s purpose, namely to reduce the rate of coronavirus spread, the role of the central government is expected to support the publication of the pikobar application so that it is better known to the public so that the public can easily access information about the spread and how to deal with the coronavirus more easily.

Future research is expected to be able to add constructs and indicators in each construct, as well as a greater number of respondents, for more accurate research results.

References
[1] 2020, Kasus Positif COVID-19 Melesat Naik 1.241, Total 34.316, covid19.go.id. [Online]. Available: https://covid19.go.id/p/berita/kasus-positif-covid-19-melesat-naik-1241-total-34316. [Accessed: 11-Jun-2020].
[2] Pranita E, 2020, Diumumkan Awal Maret, Ahli: Virus Corona Masuk Indonesia dari Januari, kompas.com. [Online]. Available: https://www.kompas.com/sains/read/2020/05/11/130600623/diumumkan-awal-maret-ahli-virus-corona-masuk-indonesia-dari-januari. [Accessed: 11-Jun-2020].
[3] Haryanto A T, 2020, Riset: Ada 175,2 Juta Pengguna Internet di Indonesia, detik.com. [Online]. Available: https://inet.detik.com/cyberlife/d-4907674/riset-ada-1752-juta-pengguna-internet-di-indonesia. [Accessed: 11-Jun-2020].
[4] 2020, Aplikasi Pikobar Bisa Pantau Pasien Corona di Jawa Barat, CNN Indonesia. [Online]. Available: https://www.cnnindonesia.com/teknologi/20200320153608-185-485399/aplikasi-pikobar-bisa-pantau-pasien-corona-di-jawa-barat. [Accessed: 11-Jun-2020].
[5] Zhao J Fang S and Jin P 2018 Sustainability 1–26.
[6] Pikobar - Pusat Informasi dan Koordinasi COVID-19 Jawa Barat. [Online]. Available: https://pikobar.jabarprov.go.id/.
[7] Davis F D 1989 MIS Q. 13, 3 319–40.
[8] Muñoz-Leiva F Climent-Climent S and Liébana-Cabanillas F 2017 Spanish J. Mark. - ESIC 21, 1 p. 25–38.
[9] Unhelkar B 2008 Handbook of Research in Mobile Business, Second Edition: Technical, Methodological and Social Perspectives: Technical, Methodological and Social Perspectives Information Science Reference.
[10] Ayesha S Shafiq M and Kakria P 2020 Technol. Soc. 60, March 2019 101212.
[11] Mangunegara C N Azzahro F and Handayani P W 2018 ICACSI 87–92.
[12] Lai Y 2017 iCAST 50–4.
[13] Muhammad H 2019 Int. Conf. Inf. Manag. Technol. 1, August 592–5.
[14] Wahnun R and Nurbojatmiko 2017 5th CITSM 1–7.
[15] Garavand A et al., 2016 Physican August 2713–8.
[16] Arviani H 2020 Metacommunication 5, 1.
[17] Alipour J Lafi S S Majdabadi H A Yazliyani A and Valvejady A 2016 J. Multidisciplinary Science. Tech 7 119–23.
[18] Garavand A Samadbeik M Kafashi M and Abhari S Dec 2017 J. Biomed. Phys. Eng. 7, 4. 403–8.
[19] Seth A Coffie A J Richard A and Stephen S A 2019 Am. J. Public Heal. Res. 7, 1 21–6.
[20] Shahbaz M Gao C Zhai L Shahzad F and Hu Y 2019 J. Big Data.