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# An Empirical Study on the Factors Affecting Intention to Use 5G Technology

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**Abstract.** While 4G technology is still being developed, numerous investors are working to advance the next generation of Internet networks, also known as 5G. Over the past few years, the significance of 5G technology has been demonstrated, extending to various initiatives aimed at promoting technology adoption. The primary objective of this study is to evaluate the factors influencing the intention to use 5G. A new, integrated model (TAM) was created by incorporating the Trust and Concentration constructs from Flow Theory into the Technology Acceptance Model. This study employs structural equation modeling (SEM) as a quantitative research strategy. The empirical findings support the hypotheses regarding the significant effects of Perceived Ease of Use (PU) and Perceived Ease of Use (PEOU) on the intention to use 5G. These findings have implications for developing 5G technology to provide dependable and valuable services. It can maximize population benefits by gaining the trust and concentration of potential users, enhancing public engagement, and optimizing the implementation of such technologies. This study's findings can also be used as a resource by technology developers and as guidance in creating user-centric marketing strategies.

**Keywords:** 5G Technology, Information Systems, TAM, Flow Theory, Intention to use 5G.

# 1. Introduction

Since its initial invention, communication has undergone tremendous change and evolution. Most people now use intelligent, diverse, multi-functional mobile phones, replacing the few landline users. These mobile devices keep us connected to the rest of the world in various ways, serving multiple functions in our daily lives. Over the years, the telecommunications industry has experienced many remarkable advancements, from 1G to 2G to 3G, 4G, and now 5G, each with significantly improved performance. With 2G and next-generation mobile communications, users could access their electronic handheld devices with volume levels of calls and data transmission, but the level of control with 5G is even more promising. Large amounts of data can now be transmitted through VOIP-enabled devices thanks to 5G technology [1]. The development of the best and latest technology is a major and one of the most significant factors that drive mobile phone manufacturers into competition with other creative rivals. These opportunities are almost limitless with the introduction of 5G.

With the launch of 5G technology, a revolution in data transmission has just begun. It will also change how mobile services are provided globally. Global mobile phone connectivity is not just a dream. It is quickly becoming a reality. Data security has become one of the most crucial elements of running a business, and it will only get more crucial as cyber threats develop in the 5G era. Due to the ability of regions in Japan to call and use local phones in the UK, communication between people will be greatly improved. With the use of technology and the devices it supports, the world will experience improved and easily accessible connectivity on a global scale. Now, all you need is technology that resembles a Personal Digital Assistant (PDA) from the 21st century [2].

The state of 5G networks in Indonesia is only provided by two operators, Telkomsel (May 2021) and Indosat, which has now made 5G services commercially available officially (June 2021). Both Telkomsel and Indosat roll out 5G services using two different frequencies, respectively the N40 band (2,300 MHZ) and the N3 band (1,800 MHz). Other service providers, such as XL Axiata, have taken a Certificate of Operation (SKLO) from Kemkominfo to launch 5G in August 2021. However, XL Axiata has not yet introduced 5G services. The availability of 5G services in Indonesia is still minimal. According to available information, only nine cities had access to 5G networks at the end of last year. 5G networks have been accessible in the following cities: Jabodetabek, Bandung, Batam, Balikpapan, Makassar, Surakarta, Surabaya, Denpasar, and Medan. 277.7 million people were living in Indonesia in January 2022. In 2018, internet usage among Indonesians was only 50% of the total. This demonstrates how the country's internet penetration rate has significantly risen in recent years. Expanding internet access across the nation is anticipated to receive continued government support.

Most of the prior research focuses on the acceptance aspect of 5G technology for learning media, both in terms of formal and informal learning, with some research focusing on how the world will accept 5G technology, which is still under further development. Since only a few operators have offered Internet services in Indonesia using 5G connections, 5G technology is still not being used to its full potential in the current era of technological advancement. The Intention of using 5G technology to support learning in Indonesia is still poorly understood due to a lack of research on the topic.

This research aims to identify what factors can make someone have the Intention to use 5G technology. Previous research has shown that TAM is a distinct and reliable theory. TAM only uses two variables to explain behavioral intentions. In addition, although TAM provides a fundamental research framework for analyzing the Intention to use 5G, it does not tell what factors might influence consumers' Intention to use 5G. Flow Theory has previously been applied in IT to understand user behavior. It has been found that the states associated with Flow Theory are significant predictors of outcomes related to technology use and involve a person's subjective enjoyment of technology [3]. The main objective of this thesis research is to evaluate the variables that influence the Intention to use 5G technology. The relationship between Perceived

Ease of Use (PEOU), Perceived Usefulness (PU), and Intention to use 5G by adding Trust and Concentration, according to the authors' proposed integrated model, which is based on TAM [4] and Flow Theory [5].

## 2. Literature Review

While previous research has focused on the importance of opinions in various contexts, such as the formation of attitudes, the process by which such opinions are formed has not been thoroughly investigated. Moreover, several recent studies show that various influences on the formation of opinions regarding Perceived Ease of Use and Perceived Usefulness on the Intention to Use an IT[6]. For instance, some factors include fun, perceived convenience, information and system quality, compatibility, self-efficacy, complexity, reliability, and a variety of personal and conditional impacts [7]. It is necessary to conduct more research on the factors that affect people's beliefs about the target IT.

The concept of instrumentality has received the most attention in studies of user behavior in the IT field. For instance, the TAM showed that instrumentality and sophisticated cognitive beliefs stimulate utilization behavior. A different line of research, however, suggests that a person's behavior toward new IT is influenced by their overall experiences with the technology and has its theoretical foundation in psychology [3]. In this stream, it has been established empirically that concepts like the state of flow are a significant predictor of technology use. Furthermore, several studies indicate that Trust is crucial for the adoption of technology, including e-context or people's intention to use a technology.

The intention to accept may also be influenced by one's level of Concentration. Concentration is defined as a single-minded focus on the user's experiences, which induces a separate mental state in which the user is unaware of events occurring outside of the experience. One of the key elements of the Flow Theory is Concentration. Prospective customers should focus on their actions in order to enter a "flow" state [5]. For instance, the impact of flow experience on online shoppers' intention to return was investigated in a study of online shopper behavior. Potential clients cannot experience the flow if they perform multiple tasks at once and are unable to concentrate on a small area. Understanding the motivation behind the adoption of new technologies is thus made possible by looking at Concentration [8].

There are numerous studies available right now that look at the impact of focus on mindset and intent to use an IT. According to Ghani and Deshpande (1994), flow, which results from extreme Concentration and enjoyment, has a significant impact on subsequent behavior [9]. Concentration significantly affects spending intentions, according to Chen and Chen (2011) [10]. Furthermore, Koufaris (2002) discovered that attention has a big impact on a user's intention to visit a website again [11].

### 2.1. Perceived Ease of Use

According to Davis [4], Perceived Ease of Use is the extent to which a person believes that using a particular system will not require effort. According to consumer behavior research [12], consumers behavioral intentions towards the system are influenced by how they feel about the benefits and convenience of the system. The extent to which potential users anticipate the target system requiring little effort is defined as ease of use. Perceived Ease of Use, also known as Perceived Usefulness, is the idea that a technology can be used and understood by a person without much difficulty. In other words, Perceived Usefulness refers to the level of assurance in the simplicity of using an application to perform its functions. Numerous studies have found that Perceived Ease of Use impacts attitudes towards technology use and is largely determined by the type or specification of the technology and the situation at hand. Perceived Ease of Use is defined as the user's perception of how easy it is to use technology [13]. In contrast, Perceived Usefulness has been shown to influence attitudes towards technology use in almost all studies.

## 2.2. Perceived Usefulness

The extent to which someone thinks using a particular system will improve their ability to do their job is known as perceived [4]. Consumers' perceptions of a system's usefulness and ease of use can influence their behavioral intentions towards it, according to previous research on consumer behavior [12]. The extent to which a person believes that using technology will increase their level of productivity is another definition of Perceived Usefulness. The extent to which users find an information technology useful is referred to as Perceived Usefulness. People base their behavioral decisions on their desire for usability and evaluate the effects of their actions in terms of their perceived benefits [14]. The perceptions of mobile phone users have a major impact on their purchase intentions thanks to Perceived Usefulness, which is defined as the ability to be used profitably. Reliable predictions for the prediction of the usage-decision prediction model itself are provided by Perceived Usefulness [13]. These findings support the idea that Perceived Usefulness and the likelihood that a person will use a system are highly correlated.

## 2.3. Trust

Consumer intention or intention to adopt 5G technology is also strongly influenced by their level of Trust. Trust in technology refers to specific assumptions about how technology functions in the workplace. It is characterized as people's assessment or expectation of the usefulness, dependability, and functionality of a particular technology. It has been found that Trust plays an important role in motivating behavioral intentions and actions. It is noteworthy that travelers' intention to use new technology can be influenced by subjective norms in addition to Trust [15]. To define the propensity to Trust and place it at the center of any type of relationship, experts use various key variables. Unlike offline Trust, which is built through physical interaction, online Trust is built through digital interaction. According to Warkentin [16], customers' belief in the truthfulness, goodness, and competence of others can be operationalized as their Trust in technology, which can then increase their willingness to rely on the latest technology.

## 2.4. Concentration

The definition of Concentration is a state in which one's attention is focused on an action. In this state, a person is fully engaged in a task, loses self-awareness, and is aware of psychic processes. The process of concentration is typically viewed as an exclusive one that isolates the user from the outside world, focuses their attention solely on an experience, and induces a detached mental state. Above all, it has been found that Concentration is another important indicator of intention [3].

## 2.5. Technology Acceptance Model (TAM)

TAM was used to see how university students have used TAM to adopt 5G services to investigate their adoption. TAM is one of the most frequently used models to study the adoption of new IT [4]. He asserted that, like the Theory of Reasoned Action (TRA) created by Firms and Seaman in 1977 [17], by eliminating subjective norms in TRA, PU and PEOU are views about novel things that influence a person's attitude toward accepting that technology [18]. In this study, the authors investigated students' perceptions of how easy and effort-free 5G technology is to learn and use. The extent to which students believe that utilizing 5G technology will be beneficial and can improve their performance and effectiveness in the classroom is also explained by Perceived Usefulness.

## 2.6. Flow Theory

Recently, Flow Theory has been used in the IT field, and has been praised as an effective tool for identifying user behavior. The term "Flow" was first used by Csíkszentmihályi in 1975 to describe a state of play characterized by complete control, focus, absorption, and enjoyment [5]. People who are in a state of flow are completely absorbed in what they are doing. They are focused on a single task, they are no longer self-

conscious, and they believe that they have control over their environment. Flow Theory, which has been studied extensively in the field of psychology, has thus been used as a guide to create the best possible user experience. The Flow experience is an intrinsic motivation, in contrast to Perceived Usefulness, which addresses the extrinsic motivation of users [3].

## 2.7. Hypothesis Development

### Perceived Ease of Use, Perceived Usefulness, and Intention to use 5G

In TAM, Perceived Usefulness directly affects users' behavioral intention towards adoption, while Perceived Ease of Use affects customers' intention to use both directly and indirectly [18]. In some cases, Perceived Usefulness has an indirect effect on intention due to Perceived Ease of Use. For example, research findings by Verma and Sinha (2018) show that Perceived Ease of Use predicts Perceived Usefulness. Perceived Usefulness is a driver of intention to use mobile agricultural extension services [19]. Similar to this, a meta-analysis on people's acceptance of e-participation found that Perceived Usefulness directly affects users' behavioral intentions, while Perceived Ease of Use has an indirect impact through Perceived Usefulness on intentions. According to previous research [20], Perceived Ease of Use has a considerable impact on Perceived Usefulness. According to a study by Chen et al. [21] on e-magazine acceptance, Perceived Ease of Use significantly affects Perceived Usefulness. Wallace and Sheetz (2014) found evidence that Perceived Usefulness and Perceived Ease of Use significantly influence intention [22]. Therefore, it is hypothesized that:

**H1.** Perceived Ease of Use has a positive impact on Intention to use 5G.

**H2.** Perceived Ease of Use has a positive impact on Perceived Usefulness.

### Perceived Ease of Use and Trust

Perceived Ease of Use should also increase Trust by giving the impression that the e-vendor is investing in the relationship and, in doing so, signaling a commitment to the relationship. One way to convey such a commitment in a web environment, where the user's primary interaction with the e-seller occurs through the website, is through the personality of the website [3]. A study by Roca et al. (2009) found that e-investors are more likely to use these online services if they find financial information useful for their purposes [23]. Security, privacy, and usability of websites concepts that are similar to Perceived Ease of Use and Perceived Usefulness have a significant impact on trust, claim Casaló et al. (2007) [24]. Trust is a key factor in the adoption of new technologies, as shown by the strong correlation between Perceived Ease of Use and Trust. It is hypothesized that Perceived Ease of Use has a significant effect on Trust as it can increase customer satisfaction with e-sellers during their initial use of online services. Thus, it encourages customers to voluntarily enter into a buyer-seller relationship and commit to certain actions [3]. Therefore, it is hypothesized that:

**H3.** Perceived Ease of Use has a significant effect on Trust to use 5G technology.

### Perceived Ease of Use, Perceived Usefulness, and Concentration

Another important component of the flow experience is Concentration. It is closely related to the perceived behavioral control of the TPB model [21]. It was found that users' exploratory behavior, which served as an antecedent of computer use behavior, was meaningfully related to flow, which is associated with Concentration and enjoyment. Users must focus primarily on their actions to be in a state of "flow". Users cannot achieve a state of flow if they cannot concentrate on one area while performing multiple tasks [3]. Koufaris combined TAM and Flow Theory in an online shopping environment to investigate the effect of Concentration on visitors' intention to return to the website. The study's findings show that although there were other factors that could be used to predict whether customers would return items to online retailers,

Concentration was strongly correlated with web skills, product involvement, and positive challenges [11]. According to a study by Moon and Kim [25] Perceived Ease of Use is significantly correlated with both Concentration and Perceived Usefulness. Therefore, it is hypothesized that:

**H4.** Perceived Ease of Use has a positive impact on 5G Concentration.

**H5.** Perceived Usefulness has a positive impact on 5G Concentration.

**Perceived Usefulness, Trust, and Intention to use 5G**

According to academic research, Perceived Usefulness and intention to accept and use new technology are significantly correlated [26]. In this case, system complexity will act as a barrier to the adoption of an innovation [27]. In both the early and late stages of consumer adoption of online healthcare, Mou, Shin, and Cohen (2016) propose that Perceived Usefulness and Trust are important factors. Previous studies have shown the important role of Perceived Usefulness in the development of Trust [28]. As a predictor of TAM Trust like Perceived Usefulness and Perceived Ease of Use, Trust was also introduced [4]. As a result of the inclusion of Trust in the TAM model, it became clear how important Trust is for predicting customers' intention to use new technologies [29]. Therefore, it is hypothesized that:

**H6.** Perceived Usefulness has a positive impact on Intention to use 5G.

**H7.** Perceived Usefulness has a positive impact on Trust in 5G technology.

**Concentration and Intention to use 5G**

According to a number of studies, users' attention spans have a major impact on how they interact with the internet in general. For example, the findings of Lin and Sun's (2010) study suggest that playing online games is significantly affected by Concentration [30]. Similar to this, a 2009 study by Liu et al. suggested that users' ability to focus affects how they use streaming media for e-learning [31]. According to this study, another study [32] showed that Concentration has a favorable effect on Chinese users' acceptance of instant messaging. The authors argue that users' Concentration is likely to be related to their adoption or Intention to use 5G services, based on Flow Theory [5] and previous research [25]. Therefore, it is hypothesized that:

**H8.** Concentration positively affects Intention to use 5G.

**Trust and Intention to use 5G**

Trust in the context of technology refers to a person's belief that a given technology will function as intended in a professional setting. Specifically, it refers to people's perceptions of the usefulness, dependability, and functionality of a particular technology as it relates to their expectations and judgments about how well it will serve their needs [33]. It is undeniably an important factor in deciding to use a technology that is not widely used because it eliminates perceived risk and skepticism in the early stages of new technology adoption. According to studies by Gefen et al. [34] and McKnight et al. [33], the authors define Trust as agreement on the satisfactory features of 5G technology.

Previous studies have extensively examined the importance of Trust. For example, Tams et al. [35] argue that Trust is a key factor in electronic usage. Customers who have a high level of Trust also indicated that they plan to make more online purchases [8]. Customers' decisions to engage in transactions are significantly influenced by the level of Trust of e-level vendors in an environment of high uncertainty. The level of Customer Trust in service providers significantly affects their revenue. On the other hand, a lack of Trust is one of the most prevalent reasons for not purchasing from online sellers [8]. Ineffective communication can be hampered by a lack of Trust, which can lead to defensive actions and a stifling of information exchange [15]. Therefore, it is hypothesized that:

**H9.** Trust has a positive impact on Intention to use 5G.

# 3. Methodology

## 3.1. Research Model

In the context of 5G technology, the model shown in Figure 3 describes the key factors that influence users' intention to use. The model shows that Perceived Ease of Use and Perceived Usefulness have an impact on Concentration and Trust of potential users, which in turn affects their willingness to have Intention to use 5G. Perceived Usefulness and Perceived Ease of Use of 5G services are two direct determinants of intention that have been incorporated into the Authors' proposed/combined model in accordance with TAM. In addition, there are four detours that can be taken to achieve behavioral intentions. The suggested relationships between the variables have been discussed in the hypothesis development section.

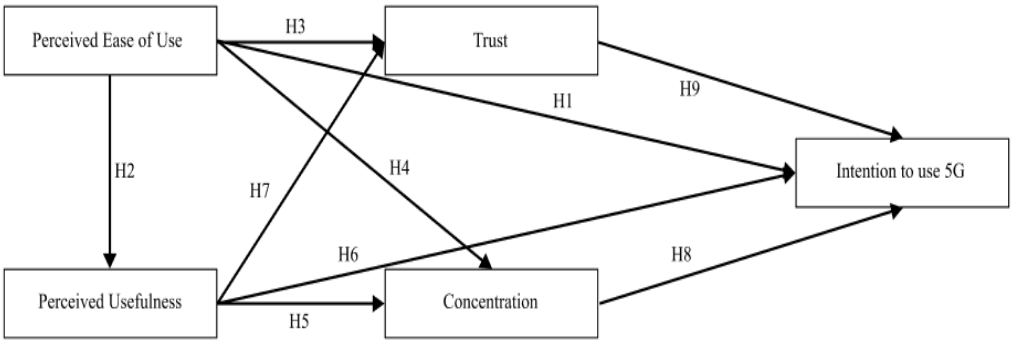


Fig.1: Proposed/Combined Model

## 3.2. Samples and Data Collection

In order to collect the necessary experiential data to validate the proposed model and test my research hypotheses, 300 self-administered questionnaires were collected from the Indonesian population. The survey was created in Indonesian and then made available online via Google Form. The obtained data is then processed using the SmartPLS with PLS-SEM algorithm. In order to test the relationship between variables in a model, both between indicators and their constructs and the relationship between constructs, PLS-SEM is a multivariate analysis technique that combines factor analysis and regression analysis (correlation). A sample of respondents was gathered using the random sampling technique. Gender, Age, Residence, Provider, and 5G Smartphone are among the respondent's demographic details in this study. Table 7 below makes it clear to see.

Table 1. Frequency Distribution of Respondent Demographic Data

| No | Category | Frequency (f) | Percentage (%) |
|---|---|---|---|
| 1. | Gender | | |
| | 1. Male | 158 | 52,7 |
| | 2. Female | 142 | 47,3 |
| Total | | 300 | 100,0 |
| 2. | Age | | |
| | 1. 17-22 | 74 | 24,7 |
| | 2. 23-28 | 50 | 16,7 |
| | 3. 29-34 | 47 | 15,6 |
| | 4. 35-40 | 63 | 21,0 |
| | 5. 41-46 | 66 | 22,0 |
| Total | | 300 | 100,0 |
| 3. | Residence | | |
| | 1. Nangroe Aceh Darussalam | 9 | 3,0 |

| | | | |
|---|---|---|---|
| | 2. Sumatera Utara | 6 | 2,0 |
| | 3. Sumatera Barat | 8 | 2,7 |
| | 4. Riau | 6 | 2,0 |
| | 5. Kepulauan Riau | 6 | 2,0 |
| | 6. Jambi | 6 | 2,0 |
| | 7. Sumatera Selatan | 6 | 2,0 |
| | 8. Bangka Belitung | 6 | 2,0 |
| | 9. Bengkulu | 6 | 2,0 |
| | 10. Lampung | 9 | 3,0 |
| | 11. DKI Jakarta | 39 | 13,0 |
| | 12. Jawa Barat | 21 | 7,0 |
| | 13. Banten | 31 | 10,3 |
| | 14. Jawa Tengah | 6 | 2,0 |
| | 15. Daerah Istimewa Yogyakarta | 7 | 2,3 |
| | 16. Jawa Timur | 6 | 2,0 |
| | 17. Bali | 7 | 2,3 |
| | 18. NTB | 8 | 2,7 |
| | 19. NTT | 8 | 2,7 |
| | 20. Kalimantan Barat | 9 | 3,0 |
| | 21. Kalimantan Tengah | 9 | 3,0 |
| | 22. Kalimantan Selatan | 9 | 3,0 |
| | 23. Kalimantan Timur | 8 | 2,7 |
| | 24. Kalimantan Utara | 8 | 2,7 |
| | 25. Sulawesi Barat | 7 | 2,3 |
| | 26. Sulawesi Tenggara | 9 | 3,0 |
| | 27. Sulawesi Selatan | 1 | 0,3 |
| | 28. Sulawesi Timur | 6 | 2,0 |
| | 29. Sulawesi Utara | 1 | 0,3 |
| | 30. Gorontalo | 6 | 2,0 |
| | 31. Maluku | 8 | 2,7 |
| | 32. Maluku Utara | 6 | 2,0 |
| | 33. Papua | 3 | 1,0 |
| | 34. Papua Barat | 9 | 3,0 |
| Total | | 300 | 100,0 |
| 4. | Provider | | |
| | 1. Tri | 51 | 17,0 |
| | 2. XL | 56 | 18,6 |
| | 3. Indosat | 46 | 15,3 |
| | 4. Ceria | 29 | 9,7 |
| | 5. Telkomsel | 51 | 17,0 |
| | 6. Smartfren | 38 | 12,7 |
| | 7. Bakrie Telecom | 29 | 9,7 |
| Total | | 300 | 100,0 |
| 5. | 5G Smartphone | | |
| | 1. Yes | 111 | 37,0 |
| | 2. No | 189 | 63,0 |
| Total | | 300 | 100,0 |

## 3.3. Validity and Reliability

Since a questionnaire was used to collect data for this study, a measuring instrument was required to ascertain validity and reliability. A questionnaire must meet two requirements to be valid and reliable,

which are both crucial requirements. The validity test is a type of quality control check for primary data with the objective of assessing the reliability of a research question. When an instrument is said to be valid, it can be used to measure what needs to be measured. The validity test is divided into two categories, the convergent validity test, which can be performed in several different ways, such as by examining the loading factor value on each indicator, whose value must fall between 0.4 and 0.7, or the Average Variance Extracted (AVE) value on each variable, whose value must be greater than 0.5 [36]. The Fornell Larcker Criterion test and the Cross Loading test are two methods for conducting the discriminant validity test, which is the second test. A questionnaire used to measure the validity of a variable or construct is called a reliability test. A questionnaire is deemed reliable if a respondent's response remains constant or stable over time. Calculating Cronbach's Alpha value can be used to perform the reliability test, with the requirement that if the value is greater than 0.7, the method is reliable. Additionally, the Composite Reliability value can be used to perform the reliability test with the restriction that the test is reliable if the value is greater than 0.7. As stated by the Fornell-Larcker criterion, latent constructs in the structural model are said to be more correlated with their assigned indicators than with other latent variables. According to statistics, each latent construct's AVE ought to be higher than its highest squared correlation with the other latent constructs [36].

Table 2. Validity and Reliability

| Research Variable | Indicator | Outer Loadings | Cronbach's Alpha | Composite Reliability | Average Variance Extracted |
|---|---|---|---|---|---|
| PEOU | PEOU1 | 0.521 | 0.038 | 0.661 | 0.509 |
| | PEOU2 | 0.863 | | | |
| PU | PU1 | 0.597 | 0.220 | 0.708 | 0.557 |
| | PU2 | 0.870 | | | |
| C | C | 1.000 | 1.000 | 1.000 | 1.000 |
| T | T1 | 0.875 | 0.073 | 0.667 | 0.516 |
| | T2 | 0.516 | | | |
| ITU | ITU1 | 0.502 | 0.084 | 0.667 | 0.519 |
| | ITU2 | 0.886 | | | |

Table 3. Fornell-Larcker

| Research Variable | C | ITU | PEOU | PU | T |
|---|---|---|---|---|---|
| **C** | | | | | |
| **ITU** | 0.174 | | | | |
| **PEOU** | 0.837 | 3.015 | | | |
| **PU** | 0.145 | 1.429 | 2.105 | | |
| **T** | 0.137 | 3.446 | 2.691 | 1.449 | |

# 4. Result

Convergent validity is a component of the measurement model, also known as the outer model in SEM-PLS and confirmatory factor analysis (CFA) in covariance-based SEM. The measurement model's outer model must meet two criteria for reflective constructs to be considered convergently valid: (1) loading must be greater than 0.7, and (2) significant p value (0.05). However, in some circumstances, especially for recently developed questionnaires, loading requirements above 0.7 are frequently not met. As a result, loading in the range of 0.40 to 0.70 should still be regarded as maintained [36]. The model should not contain any indicators with a loading of less than 0.40. We should examine the effects of the decision to exclude these indicators on the average variance extracted (AVE) and composite reliability for indicators with loadings between 0.40 and 0.70. Data distribution is not assumed to be normal in PLS-SEM. Therefore, PLS uses nonparametric bootstrapping, which entails repeated random sampling with replacement from the original sample to create a bootstrap sample, to acquire standard errors for hypothesis testing.

The procedure is predicated on the notion that the sample distribution is a fair representation of the intended population distribution. In PLS-SEM, the estimated coefficients can be tested for significance using the bootstrap sample. In contrast to the competing hypothesis that the coefficient does not equal zero, the bootstrapping analysis enables the statistical testing of the null hypothesis, which holds that a coefficient equals zero (two-tailed test). Depending on how representative the sample is of the intended population, the bootstrap's performance will vary [36]. In this study, a significant variable is produced by using a significance level of 10% rather than 5% because if a significant variable is not found by using a significance level of 5% because the p value is greater than 0.05, the results are not significant. There are six hypotheses out of a total of nine hypotheses that can be accepted after data processing. This hypothesis can be said to be accepted because the results of the P values> 0.10. The accepted hypothesis is H1, H2, H3, H4, H7, and H9. The results of the effect significance test are shown in Table 4.

Table 4. Table 4. Path Coefficient Test & Significance of Influence

| Hypothesis | Path | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistic (IO/STDEV) | P values |
|---|---|---|---|---|---|---|
| H1 | PEOU -> ITU | 0.183 | 0.162 | 0.102 | 1.794 | 0.073 |
| H2 | PEOU -> PU | 0.190 | 0.194 | 0.076 | 2.519 | 0.012 |
| H3 | PEOU -> T | 0.155 | 0.147 | 0.079 | 1.963 | 0.050 |
| H4 | PEOU -> C | 0.165 | 0.163 | 0.059 | 2.783 | 0.005 |
| H5 | PU -> C | 0.034 | 0.035 | 0.061 | 0.562 | 0.574 |
| H6 | PU -> ITU | 0.049 | 0.044 | 0.136 | 0.362 | 0.717 |
| H7 | PU -> T | 0.158 | 0.146 | 0.084 | 1.883 | 0.060 |
| H8 | C -> ITU | 0.039 | 0.035 | 0.071 | 0.544 | 0.586 |
| H9 | T -> ITU | 0.217 | 0.237 | 0.097 | 2.228 | 0.026 |

# 5. Discussion And Implications

## 5.1. Discussion

Due to the uneven deployment of 5G technology in Indonesia, my research sheds light on the factors that influence 5G adoption, which hasn't been fully implemented there. Because it focuses on 5G as an innovation and urges further research into other crucial aspects, this study contributes to theory and practice. In addition to determining the percentage of Indonesians who intend to use 5G technology, the aim of this study is to pinpoint the variables that influence a person's decision to do so. According to the study's findings, although the Intention to use 5G technology is significantly correlated with user Trust and Concentration [35], it is difficult to fully explain this correlation because of its complexity. With discussions of Intention to use from the viewpoint of potential users have only occasionally been conducted by researchers, most analyses have been done from the perspectives of performance [37], cost, coverage, rollout implications [38], and challenges in networking the technology [39]. By investigating the factors that influence Indonesians' Intention to use 5G then proposing and testing a model in which Perceived Ease of Use, Perceived Usefulness, Trust, and Concentration affect their intention, this research significantly adds to the body of existing literature.

The study's findings provide compelling evidence for using TAM by including additional constructs in anticipation of the adoption of 5G (Concentration and Trust). The efficacy of our model in explaining data demonstrates this. The study's findings shed lighter on how Perceived Ease of Use, Perceived Usefulness, Trust, Concentration, and Intention to use 5G are all positively correlated. Examining the relationships more closely and supporting previous research [19], our results point to a connection between Perceived Ease of Use, Perceived Usefulness, and Intention to use 5G. Five of nine hypotheses in this study have been found to be valid after testing. Because many Indonesians had not yet adopted 5G technology at the time of data collection, the set of rejected hypotheses may have arisen. People who are interested in using 5G technology are more likely to do so if they think it will increase performance and efficiency. Perceived Ease of Use has

the strongest correlation with Intention to use 5G ($\beta = 0.009$, P values < 0.10). This offers empirical data on how intentions to use innovations and new technologies in general are affected by Perceived Ease of Use, Perceived Usefulness, and Intentions to use innovations [22]. The study's findings also advance the Flow Theory by illustrating the critical significance of Concentration regarding the Intention to use 5G technology. The focus of earlier research has been on how Concentration affects the desire to accept new technologies [32].

### 5.2. Theoretical Contribution and Practical Implication

There are several ways my study adds to the literature on Information Systems and Information Technology. First, research targets are still mainly using 4G technology, which makes 5G technology an emerging technology. Most researchers have studied these networks from the perspectives of performance analysis [37], cost, implications for coverage and rollout [38], and challenges [39], but they haven't gone into enough detail about users' intentions to use networks. Second, my results show that TAM with additional variables is useful for forecasting 5G usage. This study's main strength is the well-researched extension of TAM theory using Concentration and Trust.

This is demonstrated by my proposed model's explanatory solid power. According to several studies, Trust is among the most crucial characteristics to adopt in an online setting [40]. However, studies examining the connection in the context of 5G technology are rare. The Intention to use 5G increases in circumstances requiring high Concentration and Trust, further corroborating earlier research [8]. The focus, Trust, and Intention to use 5G technology have been linked, so 5G technology should be well-designed. The creation of 5G technology should focus on providing dependable and valuable services that can raise the Concentration and level of Trust of potential users in light of the relationships between Concentration, Trust, and Intention to Use 5G Technology asserted. Technology developers must consider the perceived Ease of Use and Perceived Usefulness of 5G technology. Finally, this study contributes to the body of literature by looking at factors that predict users' Intentions to Use 5G in Indonesia, a country that is still developing.

Based on the findings of this research, there are three benefits of 5G technology in the industrial sector, namely:

1. Productivity (do more with the same)

With 5G, companies can increase productivity by using the same materials. You can even increase production capacity and machine utilization by up to 20%.

2. Efficiency (do the same with less)

Efficiency is often something that industry players crave. With the sophistication of 5G and smart manufacturing, companies can use less material to produce the same amount of output.

3. Safety & Sustainability (do no harm)

Running an industry must also be accompanied by concern for the environment and work safety. Through the implementation of 5G, companies can reduce the risk of work accidents by 25% and transportation accidents by 18%.

## 6. Conclusion

This study identifies the variables that affect Indonesians' desire to use 5G technology. This research was carried out by creating the Technology Acceptance Model (TAM) model. Researchers use SmartPLS, a tool that simplifies data analysis, and the PLS-SEM algorithm is used to test the model. Three hundred participants in this study used a random sampling methodology. The result showed that Perceived Ease of Use has a positive impact on Intention to use 5G, Perceived Ease of Use has a positive impact on Perceived

Usefulness, Perceived Ease of Use has a significant effect on Trust to use 5G technology, Perceived Ease of Use has a positive effect on 5G Concentration, Perceived Usefulness has a positive effect on Trust in 5G technology, and Trust has a positive effect on Intention to use 5G. According to Table 1, the respondents are primarily male, numbering 158, with a percentage of 52.7%, between the ages of 17 and 22, numbering 74, with a rate of 24.7%, and living primarily in DKI Jakarta, numbering 39, with a rate of 13.0%. The average number of respondents who choose XL as their provider is 56, or 18.6%. With the data obtained, which included 189 respondents and a percentage of 63.0%, more respondents have not used 5G smartphones. It can be concluded that there are still many Indonesians who have not used 5G technology, but they have a considerable intention to use 5G technology in the future.

### 6.1 Limitations

This study has some limitations that should be considered, as with all research. First, the scope of this study is restricted to Indonesians who were chosen randomly for the survey using the random sampling technique. Therefore, it is essential to exercise caution when extrapolating the findings to other organizations and consumer populations. I discovered a discrepancy between the results and the theory, indicating that many Indonesians still haven't used 5G technology. This could occur for several reasons, including the fact that I used random sampling as the goal of my data collection and the sizeable Indonesian population.

Therefore, I advise future research to test the Intention to use 5G technology in various nations by including cultural variables. Second, 5G technology is still relatively new and is a global trend. Future research will be necessary to ascertain whether the variables used in the current study will change over time and how well 5G technology is received in different geographies. This study is cross-sectional in design, which is the third factor. Thus, it is feasible to carry out additional longitudinal studies and multi- or mixed-method research to forecast prospective users' Intention to use over time. Fourth, it may also be crucial to consider the sociodemographic characteristics of potential users, which were not considered when determining the sample size. TRA, TPB, and IDT, among other psychological and technological theories, can be used to examine potential users' Intention to use the technology because my research is based on a variety of different variables.

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