

Original Article

# Application of the TAM Model to Gen X Users of M-Banking Applications in Jabotabek

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**Abstract:** This research focuses on application of TAM in adoption of M-banking on Generation X in Jabotabek. The population in this research is Gen X (44-58 years), domiciled in Jabotabek, and at least have a bachelor's degree. The variables include intent to use mobile banking, trust, perceived usability and convenience of use, and a total sample of 287 Generation X respondents who use mobile banking. The objective of this study is to investigate the influence of M-banking intention on Generation X as well as the function of trust in mediating variables. The results of the SEM PLS approach show that all of the hypotheses are significant. The findings of this study reveal that, in order to increase the intention of Generation X in Jabotabek to use M-banking, the role of perceived usability, utility, and trust is critical. According to the findings of this study, these factors have a favourable impact on this intention. This study contends that trust serves as a mediating variable and that perceived ease of use and perceived utility of the application have a direct or indirect (partial mediation) impact on Generation X's inclination to utilise M-banking in Jabotabek.

**Keywords:** TAM, Trust, Intention, M-Banking, Gen X.

## I. INTRODUCTION

Information technology has become more and more sophisticated over time. The increasing sophistication of information technology is pushing every businessperson to develop technology products that can support human activities. Banks and other economic players are also trying to create products that make banking easier for their customers. This will enable banks to develop mobile banking further and enhance customer and transaction convenience. You only need an internet connection and a mobile phone to use mobile banking. The availability of mobile banking has enabled customers to transact anytime, anywhere (Chawla & Joshi, 2019). The use of M-banking (cashless) also helps the government program in GNNT to reduce the constraints of the cash payment system, such as money that has been damaged or has to carry large amounts of cash (bi.go.id). Therefore, the intention of using a non-cash payment system is essential to be examined in supporting the government in realizing a cashless society.

Each year, more and more people utilise mobile banking. Yet, in Indonesia, the trust issue is the main barrier to adopting mobile banking. Indonesian users of mobile banking continue to express reservations regarding these transactions. This gap serves as a catalyst for research into the variables affecting interest in mobile banking. The adoption of mobile banking by users as a banking application will determine how successful this venture is (S. Kumar & Yukita, 2021). A speculative Technology Adoption Model is used to support this (TAM). This is the fundamental principle for researching and comprehending how users interact with and use information systems (Sourabh Arora, 2016). Not every production method is appropriate. Many factors can lead to the acceptance or rejection of a manufacturing technology. According to (A. Kumar et al., 2018), perceived usefulness and simplicity of use have no appreciable impact on the level of trust among Indian m-wallet users. Nevertheless, trust has no discernible impact on behavioural intention to use an e-wallet in Denpasar, according to research by (Latupeirissa et al., 2020).

His TAM, first introduced by can be used to anticipate acceptance and rejection of technological adoption (Davis et al., 1989). According to this concept, a number of people or organisations will probably adopt a new technology. The Theory of Reasoned Action (TRA), which has its roots in social psychology and aims to explain why people participate in deliberately planned characteristics, provided input for the development of TAM.

Provide two arguments in favour or against the usage of information technology. The first is that people use technology. I can perform my job more effectively thanks to information technology. The Perceived Usefulness (PU) notation refers to this variable. Second, prospective users think that although information technology solutions are helpful, they are challenging to utilise. The name of this variable is Perceived Ease of Use (PEU). Researchers in information systems have discovered that



intentions to utilise information technology systems are influenced by perceived usefulness and perceived ease of use. First, whether they use it or not, individuals generally use technology. This variable is in Perceived Usefulness (PU) notation since information technology can make my job easier. The second factor, known as Perceived Ease of Use (PEU), indicates how beneficial but demanding potential users perceive the information technology system to be. Researchers studying information systems have discovered that PU and PEU affect users' intentions to use IT systems (Trinh et al., 2020).

Generation X are consumers born between 1965 and 1979 (Dolot, 2018). This generational group has specific experiences, values, attitudes and preferences that greatly influence their behavioral patterns. The use of M-banking in Gen X is generally still missing. This study seeks to identify the factors influencing Generation X's use of his m-banking application as an application for monitoring and executing banking operations using the TAM model approach.

## II. MATERIALS AND METHODS

### A) TAM

Davis created the TAM idea (Peña-García et al., 2020) in order to use theory as a foundation for analysing and researching user characteristics when receiving and utilising information technologies (Shukla & Sharma, 2018). This approach seeks to identify critical elements that influence an information technology user's readiness to adopt that technology (Camilleri & Falzon, 2021). In short, technology makes our jobs easier (Maia et al., 2018). TAM was developed to develop theories about how to use computer technology. TAM is based on the popular theory of social psychology Behavioral Reason Theory (TRA). This theory explains human nature by intention. His two structures then determine intention: Personal intentions about traits or social norms, or beliefs that specific individuals or groups disapprove or approve of those traits. TAM highlights common factors that influence the adoption of computers across various end-user computing technologies and user groups, in contrast to TRA, which is a theory that aims to explain general human tendencies. (Phong et al., 2018). The TAM is a framework for predicting and describing how technology users will embrace and apply technology in the context of their work. The TAM model was created using psychological theories that explain how information technology users behave in terms of their beliefs, intentions, and behaviour patterns. According to this idea, a person's qualities are modelled as a function of their aims.

### B) TPB

TPB is based on the perspective of beliefs that can affect a person to perform certain actions. A belief perspective arises from the combination of various properties, qualities, and attributes of a particular piece of information to shape the will to act. An intention is a deliberate or unintentional choice to behave in a particular way or a motivation to do so. The foundation of a person's character is their goal. Any planning-required behaviour can be explained by TPB (Han et al., 2018). Rational action theory has been improved by planned action theory. According to the rational action theory, behavioural attitudes and subjective norms influence our intentions to take certain actions (Trinh et al., 2020). Ajzen included the component of individual behavioural control a few years later. The theory of rational action becomes a theory of planned action when these conditions are present.

TPB assumes that humans are rational beings and use available information systematically. People think about their actions' implications before deciding whether to implement a particular trait. TPB is a theory that analyzes customer ATT (attitudes), SN (subjective norms), and the customer's PBC (perceived behavioral control). TPB explains that attitudes toward behavior are essential factors that can predict behavior, but one's attitude should be considered to test subjective norms and measure control over one's behavior. Intention to act is high when there is a positive ATT, support from others, and reassurance that there are no barriers to action (Han et al., 2018). People who are positive about stock investment gain the support of those around them, and since there are no barriers to stock investment, they feel secure and are more motivated to invest in stocks. Rational behavior theory is a model for predicting interests and traits. According to rational behavior theory, human behavior depends on one's own interests, but behavioral interests are highly dependent on ATT and SN of nature. Beliefs about natural outcomes, on the other hand, greatly influence attitudes and subjective norms. Individual internal and external factors (social environment) influence the customer's interests and behaviors. An individual's internal factors are reflected in a person's attitudes, and external factors are reflected in their influence on other people's characteristics (subjective norms). Analyzing subjective attitudes and norms requires models, one of which is Fishbein's multi-attribute model.

The theory of rational behavior posits that almost all traits depend on an individual's progress in performing a particular action. However, in reality, there are still many qualities that the person cannot fully control. Some of the functions in which deficiencies appear are, for example, skills, knowledge, good planning. Other traits could face external challenges, like opportunities, that could prevent them from realising their potential. The model switches from the theory of rational action to the theory of planned action to account for these inhibitors. Behavioral control known as Theory Rational Action (TRA) was created in 1967 (Peña-García et al., 2020). When there are no obstacles in the way of activity, someone is in total control. On the other hand, there is absolutely no means to manage the properties. Because there are no resources, opportunities, or abilities. The degree to which a person believes a trait is under control is referred to as PBC. Individuals tend not to have a

strong intention to demonstrate certain attributes unless the occasion occurs, but they do have a good outlook and believe that those who are significant to them will approve of them. When the human sense of control and the actual control over the trait match, there is a clear link between perceived behavioural control and desirable traits. Furthermore, TRA is constantly revised and expanded. In the 1980s this concept was applied to research on human behavior and other relevant interventions. (Ajzen, 1991), behavior control was added to the existing model of rational behavior and became known as Theory of Planned Behavior (TPB).

Accurate predictions of customer characteristics are made by various research experts. Theory of Planned Behavior is a development of intentional behavior theory aimed at solving problems that are not fully controlled by a person with an imperfect intentional behavior theory. Although the core of TPB remains the factor of BI (behavioral intention), the determinants of intention are not only ATT and SN, but also aspects of PBC. However, PBC is thought to have indirect and direct effects on predicting customer behavior.

### **C) Perceived Ease of Use**

The degree to which potential users anticipate a technology or system target to be simple to use is known as PEU type. This means that users do not expect problems or limitations in learning and implementing the use of technology (Sourabh Arora, 2016). Another importance of PEOU is demonstrated in confidence in the use of IT. This underlines the degree of assurance that the technology's implementation doesn't demand a lot of work for its usage or application, or from the user (Phong et al., 2018).

Some existing technologies pose an acceptable level of risk, while others do not expose users to risk. Acceptance and use of new technologies are governed by personal perceptions of technology usability (Bae et al., 2020). Every software or technology developer is reluctant to use new technology because even many applications are created that are difficult to use. (Chauhan et al., 2019).

In connection with the issue or case raised Mobile Banking users can easily learn and use the application he can become a community (Hubert et al., 2019). The placement of menus and navigation is also considered so that the flow of the application is easy to understand. Consumers will desire to use technology if they find it simple to use. People won't want to use a technology though if they find it challenging to use. According to a study by Talukder et al. (2014), client interest in mobile banking is influenced by how simple it is to use. Research by (Chin & Ahmad, 2015) also shows that perceptions of ease of use influence consumer interest in using electronic payment systems.

### **D) Perceived Usefulness**

Since Davis first proposed them, researchers have evaluated the assumptions and claims made by users (Camilleri & Falzon, 2021). This presumption is presented as being useful. Also, according to this perception, adopting a system or technology can enhance performance (Peña-García et al., 2020). There are numerous parameters that can be employed as PU indicators. For instance, you'll work more efficiently and perform better overall. Technology can be seen as a benefit, but evaluations of its usability also give insight into how technology affects how much technology is really used.

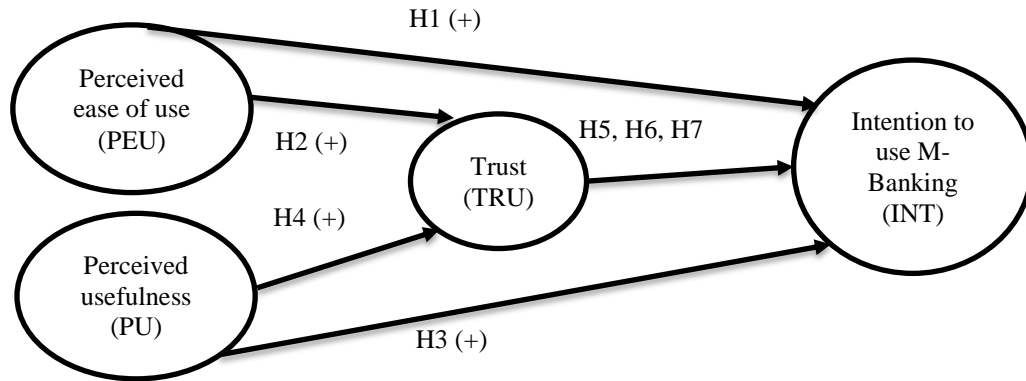
Users can be rewarded on social media applications such as FB (Facebook), Twit (Twitter), and WA (WhatsApp). Nowadays, a lot of programmes operate on mobile devices. Users can access mobile media applications in two different ways. First, she can use her current web browser to immediately visit the application. Second, the application can be used after being downloaded. Nevertheless, when consumers share information and files with coworkers, they sense a dominating presence. This function will make your task go more quickly.

### **E) Trust**

Trust is defined as the belief that other parties will act responsibly and meet the expectations of those who trust them (Gefen, 2000). Regardless of his power to influence the other party, (Mayer et al., 1995) define trust as a person's anticipation of completing his responsibilities and willingness to tolerate the chance of loss in a transaction. According to (Al-Jabri, 2015), user trust in the mobile banking service itself is defined as trust in the mobile banking environment. Also, it was demonstrated by (Alalwan et al., 2017) that trust influences readiness to use mobile banking positively. The findings of this study agree with those of a study conducted in Thailand in 2016 (Chuchuen). In Thailand, Chuchuen (2016) looked into how trust affected customers' interest in utilising mobile banking. The results of this study show that trust has a positive impact on interest in using mobile banking. (Chuchuen, 2016) argues that customers who feel confident and secure in mobile banking are more interested in adopting mobile banking.

**F) Hypothesis**

The research model is as follows:



**Fig. 1 Research Framework**

According to (Trinh et al., 2020) and (Eze et al., 2008), the perceived ease of use has an effect on one's intention to use mobile banking. The M-banking application's simplicity of use may immediately spur more interest in using it. An application will be used with greater interest if it is simpler to use. Research hypothesis:

H1: PEU had a positive impact on INT

(Chawla & Joshi, 2019), (Wilson, 2019) concluded that perceived ease of use of the application has an impact on trust in using the application. (Widiar et al., 2023) concluded that an easy application increases the trust of users who think they understand all the features of the application. Research hypothesis:

H2: PEU had a positive impact on TRU

(Ha, 2020), (LAI, 2016), (Taufan & Yuwono, 2019) concluded that useful applications have an impact on interest in using applications. The more useful the application, the higher the interest in its use. Research by (S. Kumar & Yukita, 2021), (Shukla & Sharma, 2018), concluded that there is a significant impact between PU on INT. Research hypothesis:

H3: PU had a positive impact on INT

(Amin et al., 2014), (Chinomona, 2013), (Chawla & Joshi, 2019) found that there is a significant effect of perceived usefulness on trust. (Ventre & Kolbe, 2020) concludes that highly useful applications will be trusted by users. Research hypothesis:

H4: PU had a positive impact on TRU

The impact of trust on intention has been studied by (Tran & Nguyen, 2022) and (Phong et al., 2018). According to the study's findings, trust has a substantial impact on a user's intention to utilise an application. Researchers (Sarmah et al., 2020), (Widiar et al., 2023) and (Ventre & Kolbe, 2020) came to the conclusion that TRU affects INT. Research hypothesis:

H5: TRU had a positive impact on INT

According to research by (Widiar et al., 2023) trust is a mediating variable that may be utilised to examine the relationship between perceived application usability and intention to use it. Research hypothesis:

H6: PEU had a positive impact on INT to use through by TRU

According to research by Iqbal et al. (2018), trust can be utilised as a mediating variable to examine how PU affects INT. Research hypothesis:

H7: PU had a positive impact on INT to use through by TRU

There are three tests in this study, namely: outer model, inner model, hypothesis test, here is the data on the operationalization of variables in this study:

**Table 1: Operationalization of variables**

Variables	Indicators	Sources
Perceived ease of use	<ol style="list-style-type: none"> <li>1. M-banking easy to understand</li> <li>2. Require minimum effort</li> <li>3. Overall, M-banking easy to use</li> </ol>	Adapted from (Sarmah et al., 2020); (Chawla & Joshi, 2019); (A. Kumar et al., 2018)
Perceived usefulness	<ol style="list-style-type: none"> <li>1. Improves my payment performance</li> <li>2. Easier to transfer money</li> <li>3. Accomplish transaction quickly</li> </ol>	Adapted from (Sarmah et al., 2020); (Chawla & Joshi, 2019); (Chinomona, 2013)
Trust	<ol style="list-style-type: none"> <li>1. Trust transaction happening through M-banking</li> <li>2. In case of any issue the service provider will help me</li> <li>3. M-banking service provides follow consumer laws</li> </ol>	Adapted from (Chawla & Joshi, 2019); (Sarmah et al., 2020)
Intention to use M-banking	<ol style="list-style-type: none"> <li>1. Do next transactions using M-banking in near future</li> <li>2. Frequently use M-banking in future</li> <li>3. Intend to recommend others to use M-banking</li> </ol>	Adapted from (Ventre & Kolbe, 2020); (Chinomona, 2013); (Venkatesh et al., 2012)

### III. RESULTS AND DISCUSSION

#### A. Characteristics of Respondents

The population in this study are all M-banking users in Jabotabek (Jakarta, Bogor, Tangerang, Bekasi). Using a purposive sampling technique, namely respondents who have transacted using M-banking for transfer and payment purposes, Gen-X (44-58 years), domiciled in Jabotabek and at least have a bachelor's degree. With a total sample of 287 respondents. There were 186 men, and 101 women. A total of 156 people from Jakarta, 37 people from Bogor, 63 from Tangerang, 31 people from Bekasi. And as many as 215 respondents aged 44-48 years, as many as 52 respondents aged 49-53 years, and as many as 20 respondents aged 54 to 58 years. 282 respondents in total had bachelor's degrees, 5 had master's degrees, and none had a doctorate.

#### B. Outer Model

To verify the accuracy and dependability of the data, outer model analysis was carried out. The factor loadings value of each item should be higher than 0.70, and the AVE value should be higher than 0.5, according to convergent validity (Hair et al, 2011).

**Table 2: Outer loadings test results**

	Intention to use M-banking	Perceived ease of use	Perceived usefulness	Trust
IU1	0,885			
IU2	0,850			
IU3	0,835			
PEU1		0,840		
PEU2		0,845		
PEU3		0,852		
PU Item 1			0,811	
PU2			0,838	
PU3			0,824	
T1				0,870
T2				0,814
T3				0,834

**Table 3: AVE Test results**

	AVE
Intention to use M-banking	0,717
PEU	0,715
PU	0,680
Trust	0,705

The AVE value can be used to verify the convergent validity as well. According to table 3, the AVE value for each variable in this study is valid (greater than 0.5). Using Alpha Cronbach analysis, instrument reliability testing was evaluated. Cronbach's Alpha (CA), which may emerge from various methods of dividing the scale items, is the average of all portions of the coefficients (Hair et al., 2011).

**Table 4: CA test results**

	CA
Intention to use M-banking	0,803
PEU	0,801
PU	0,764
Trust	0,791

Based on table 4, the Cronbach's Alpha value for each variable are (greater than 0.7) reliable, (Hair et al., 2011).

**C. Inner model**

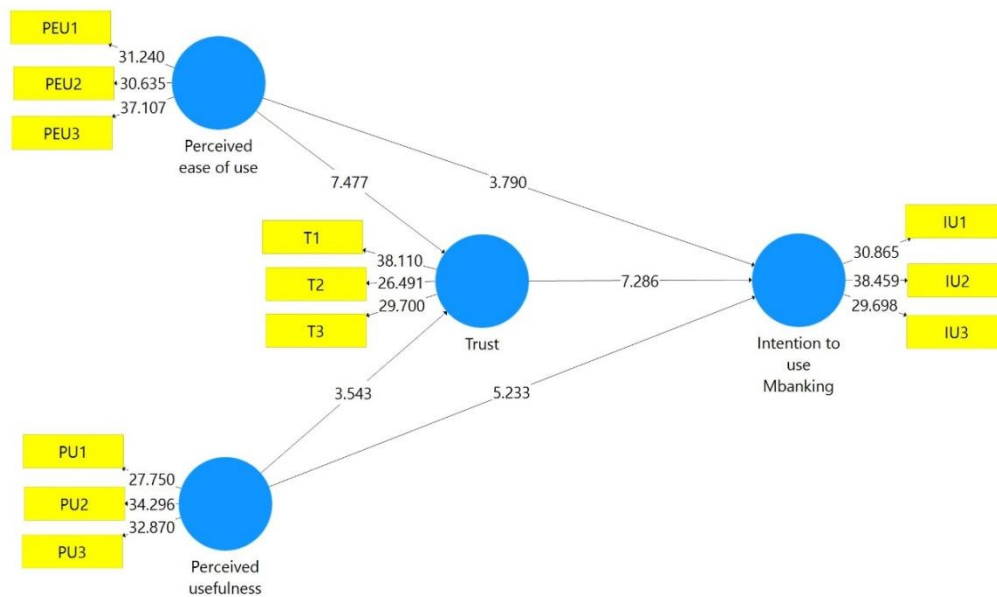
**Table 5: R-Square test results**

	R Square
Intention to use M-banking	0,890
Trust	0,717

Based on table 5, R-square for intention to use M-banking is 0.96 (substantial), and R-square for trust is 0.881 (substantial), refers to (Hair et al., 2011).

**D. Hypothesis test**

Here are the results of the PLS SEM analysis:



**Fig. 2 SmartPLS Output**

**Table 6: Hypotheses test**

	<b>Ori. Sample</b>	<b>T Stat</b>	<b>P Values</b>	<b>Results</b>
PEU -> Intention to use M-banking (H1)	0,265	3,790	<b>0,000</b>	Supported
PEU -> Trust (H2)	0,588	7,477	<b>0,000</b>	Supported
PU -> Intention to use M-banking (H3)	0,328	5,233	<b>0,000</b>	Supported
PU -> Trust (H4)	0,276	3,543	<b>0,001</b>	Supported
Trust -> Intention to use M-banking (H5)	0,403	7,286	<b>0,000</b>	Supported
PEU -> Trust -> Intention to use M-banking (H6)	0,237	5,847	<b>0,000</b>	Supported (Partial mediation)
PU -> Trust -> Intention to use M-banking (H7)	0,111	2,899	<b>0,004</b>	Supported (Partial mediation)

The p-value for hypothesis 1 is  $0.000 < 0.05$  based on table 6, indicating that PEU had a favourable effect on intention to use. The  $0.000 < 0.05$  p-value for hypothesis 2 indicates that PEU had a beneficial effect on trust. The intention to utilise was positively impacted by perceived usefulness, as indicated by the p-value of  $0.000 < 0.05$  for hypothesis 3. Hypothesis 4's p-value is  $0.001 < 0.005$ , indicating that perceived usefulness had a beneficial effect on trust. The intention to utilise was positively impacted by trust, as indicated by the p-value of  $0.000 < 0.005$  for hypothesis 5. The p-value for hypothesis 6 is  $0.000 < 0.005$ , indicating that trust had a positive influence on perceived ease of use's impact on usage intention. The desire to utilise through by trust was positively impacted by PU, as indicated by the p-value of  $0.004 < 0.005$  for hypothesis 7.

#### IV. CONCLUSION

PEOU has a favourable effect on Jabodetabek's intention to use M-banking. These findings are consistent with (Trinh et al., 2020) studies (Eze et al., 2008). The M-banking application's simplicity of use may immediately spur more interest in using it. An application will be used with greater interest if it is simpler to use.

Perceived usability has a beneficial effect on trust. This study supports the findings of (Chawla & Joshi, 2019) and (Wilson, 2019) studies showing the perceived usability of programmes affects users' trust in utilising them. (Widiar et al., 2023) also concluded that an easy application increases the trust of users who think they understand all the features of the application.

There is a positive impact of PU on the intention to use M-banking. These results are in accordance with the conclusions of (Ha, 2020), (LAI, 2016), (Taufan & Yuwono, 2019) that useful applications have an impact on interest in using applications. The more useful the application, the higher the interest in its use. According to research by Shukla & Sharma (2018) and S. Kumar & Yukita (2021), perceived utility has a substantial impact on people's intentions to use mobile banking.

Perceived usefulness has a favourable effect on trust. This finding is consistent with studies by Amin et al. (2014), Chinomona (2013), and Chawla & Joshi (2019), which discovered a substantial relationship between perceived usefulness and trust. According to studies (Ventre & Kolbe, 2020), consumers will trust programmes that are extremely helpful.

TRU has a favourable effect on the intention to utilise M-banking. These findings are consistent with studies on the influence of belief on intention by (Tran & Nguyen, 2022) and (Phong et al., 2018). According to the study's findings, trust has a substantial impact on a user's intention to utilise an application. In keeping with studies by Sarmah et al. (2020), Widiar et al. (2023) and Ventre & Kolbe (2020) that found a relationship between trust and the intention to utilise an application.

PEOU has a favourable effect on the intention to utilise M-banking due to confidence. These findings support the study of Widiar et al. (2023) which found that trust is a mediating variable that may be utilised to examine the relationship between perceived ease of use and intention to use the programme.

Trust has a positive influence on perceived usefulness and propensity to utilise mobile banking. These findings support study by Iqbal et al. (2018), which came to the conclusion that perceived utility significantly influences one's inclination to utilise an application.

The study's findings lead to the conclusion that banking companies must maintain perceived ease of use in terms of ease of understanding and perceived usefulness in terms of its usefulness in completing transactions quickly and its usefulness in money transfers, as well as trust variables by assisting customers to maintain their trust if something goes wrong when using M-banking, as these three variables have a significant direct influence on the intention to use. Because trust mediates use

intention, it also plays a crucial part in the indirect effects that variables PEOU and PU experience. As a result, trust must be preserved if there is to be a demand for sustainable usage.

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