

## Understanding Consumers' Mobile Banking Adoption through the Integrated Technology Readiness and Acceptance Model (TRAM) Perspective: A Comparative Investigation

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### Abstract

The study compared the differences and similarities in mobile banking adoption in developed and developing economies, specifically Australia and Kenya. Technology Readiness and Acceptance Models were used to examine the responses of 450 participants from each country through an online questionnaire. Results from structural equation modeling indicated that whereas Optimism and Innovativeness significantly influenced customers' perceived ease of use and usefulness of mobile banking in Kenya, they did not have the same effect in Australia. Insecurity and Discomfort have a significant negative influence on the perceived ease of use and usefulness of mobile banking in Australia, but discomfort did not affect perceived ease of use in Kenya. In terms of satisfaction and loyalty, only perceived usefulness failed to affect satisfaction of customers in Australia. These results strengthened conclusions drawn from previous studies, particularly in affirming knowledge that Discomfort had no negative effect on perceived ease of use in Kenya (developing economy), a result not yet stated by many existing studies. Business practitioners and policy-makers, especially in Kenya, could benefit from the findings of this study through sensitizing people to the significance of comfortability in handling technology and its applications, with clear emphasis on financial transactions.

**Keywords:** *Mobile banking, Technology Readiness and Acceptance Model, Technology Acceptance Model, Technology Readiness Index, customer satisfaction and loyalty*

### Introduction

Kenya and Australia have significant differences, both geographically and in development aspects, such as technology, financial infrastructure and demography. According to the Commonwealth Bank of Australia (2017, pp. 5, 7), Australian customers have access to world-leading financial service value propositions with high levels of choice, innovation, accessibility and service quality. Competition in the Australia's financial system is similar to that of other advanced economies, which has led to high satisfaction levels among customers. Australia has 29 bank branches for every 100,000 people; this puts it among the highest number of branches per capita in the world, with the USA having the highest number of 33 for every 100,000 people. Kenya pales in comparison, with five bank branches per 100,000 people (World Bank, 2017). The Bank posits that Australian consumers' use of online and mobile channels for banking transactions is in the top quartile of banks across the globe. It is ranked fifth in the world for smart phone banking. This confirmed Boston Consulting Group's (2016) statement that the share of transactions that were mobile and online was 71% for Australia's major banks, compared to the global median of 36% and the global best quartile of 54%. The Commonwealth Bank ranked sixth in Forrester's Global Mobile Banking Benchmark for functionality and usability (Commonwealth Bank, 2017). On the flipside, banking facilities in Kenya are not sufficient for the population (Dupas, Green, Keats, & Robinson, 2012).

The use of mobile phones in Africa has been increasing. In about a decade, more than 60% of Africans had mobile phones (Mbiti & Weil, 2011). This increase has been beneficial in addressing the lack of basic financial structures and other related needs. Most of these mobile money services, which provide service similar to banks, are not under strict regulations or require expensive mobile phone devices. One exception is M-Pesa, which just requires an ordinary phone for financial services and transactions. Such developments have allowed mobile money services to grow exponentially. Kenya, for example, has seen the introduction of mobile banking services by banks such as Hello Money Barclays Bank of Kenya, Kenya Commercial Bank's Mobi-bank, Co-operative Bank of Kenya's

M-Banking, Equity Bank's M-Kesho and Eazzy 247, Family Bank's Pesa Pap, National Bank's SIM-ple banking, and Commercial Bank of Africa's M-Shwari (Ngugi, Pelowski & Ogumbo, 2010; Odera, 2013). The general outlook for the current banking sector market situation in Africa is promising. The continent is on a fast lane in terms of growth and profitability, second only to Latin America (Chironga, Cunha, Grandis, & Kuyoro, 2018). Growth is projected to continue on an upward trajectory, since the continent's banks still have room for growth in digital sales. For instance, the share volume of transactions that were digital in 2016 was about 15%, as compared to Latin America's 55%, Asia Pacific and Europe's 80%, and America's 90% (Chironga et al., 2018).

A majority of the unbanked in Kenya opt for alternatives like M-Pesa, which presents a challenge to traditional banks that must find a way to tap into the huge market presented by middle- and low-income earners who have embraced technology and have access to mobile phones. Banks have to invest in research, as there is relatively little scholarly research exploring the use of mobile banking/mobile payment systems (Donner & Tellez, 2008). Indeed, mobile banking systems are new and dynamic (Asongu & Odhiambo, 2017; Maurer, 2008), and so scholarly research on their adoption in the developing world, especially in the African context, is very scarce (Aker & Mbiti, 2010; Medhi, Ratan, & Toyama, 2009; Bongomin, Ntayi, Munene, & Malinga, 2018). This research study, therefore, investigated how mobile banking has been adopted among bank customers in a developing economy—Kenya in comparison to a developed economy—Australia. The study used the Technology Readiness and Acceptance Model (TRAM) to examine factors influencing mobile banking adoption, how people accept the use of mobile phones for their financial transactions, and the challenges experienced by both economies in the process of adopting mobile banking technology.

### **Research Objectives**

1. To investigate the effects of dimensions of the Technology Readiness Index or TRI (Optimism, Innovativeness, Insecurity and Discomfort) on perceived ease of use and perceived usefulness of mobile banking services in Australia and Kenya.
2. To evaluate the effects of dimensions of the Technology Acceptance Model or TAM (perceived ease of use and perceived usefulness) on satisfaction among consumers in Kenya and Australia?
3. To determine if there are significant differences between customer satisfaction and loyalty in Kenya and Australia.
4. To explore the differences and similarities in mobile banking adoption in developed and developing economies, specifically between Australia and Kenya.

### **Literature Review**

Mobile banking can be defined as financial transactions that are based on wireless handsets (Venable Telecommunications and Financial Services, 2008). Lately, it also has been defined as an application of M-commerce that enables customers to access bank accounts through mobile devices to conduct transactions such as checking accounts status, transferring money, making payments or selling stock (Asmar, 2017). The emphasis is on data communication, and in its strictest form, M-banking does not include telephone banking, either in its traditional form of voice dial-up, or through the form of dial-up to a service based on touch-tone phones (Barnes & Corbitt, 2003). Mobile banking entails the ability to access and provide banking and financial services through a mobile device with the help of mobile telecommunication gadgets (Odera, 2013). Mobile banking accords bank customers two ways in which they can access their accounts, namely, a web-based interface which requires mobile internet, and normal text messaging interface that most people operate through SMS. Mobile money was introduced in Kenya through M-Pesa at the time when the traditional banking sector could not operate profitably in rural areas (Ndirangu & Nyamongo, 2014). Many senior citizens, the poor, and unemployed young adults, who depended on employed relatives for financial support, were left without services. Therefore, there was need for a cheaper but reliable and convenient way to fill this gap (Manica & Vescovi, 2009).

In Australia, on the other hand, a KPMG report of 2010 indicated that people were uncomfortable using their mobile phones for financial transactions, mainly due to a lack of awareness about mobile banking offerings (KPMG report, cited in Talukder, Quazi & Sathye, 2014). Although banks have generally been at the forefront of adopting technology globally (Laforet & Li, 2005; Luarn & Lin, 2005), there seemed to be a lack of interest in consumers to exploit mobile banking for financial transactions, a phenomenon baffling many researchers and practitioners. The report further stated that mobile phone banking has potential for huge growth in Australia because it has vast regional and remote areas that have had limited access to banking services, and that Australia has one of the highest rates of mobile phone ownership in the world.

### **Technology Readiness and Acceptance Model (TRAM)**

TRAM is a combination of the Technology Acceptance Model and the Technology Readiness Index (TRI). This model was first proposed by Lin, Shih, Sher, and Wang (2005) and Godoe and Johansen, (2012). TRIs personality traits are directly connected with the variables of TAM resulting in a more detailed model (Walczuch, Lemmink, & Streukens, 2007). TRAM attempts to explain how people adopt new technologies. The adopting process is influenced by several factors including perceived usefulness, perceived relative advantage, perceived risk, social impact and perceived cost that specifically impact adoption of mobile banking in developing countries (Gandhi & Sheorey, 2017). Emerging studies, however, have found that technological adoption is not uniform among all customers. Koksal (2016) demonstrated that there are levels in mobile banking adoption, and factors such as trialability, perceived usefulness, ease of use, perceived credibility, and trust positively distinguishes high-mobile banking adopters from low adopters.

### **Satisfaction and Loyalty**

Related to the notion of readiness and acceptance is customer satisfaction, which consists of cognitive and affective reactions to a service incident or to a long-term service relationship (Kitapci, Doryol, Yaman & Gulmez, 2013). Another related notion is loyalty, which is a deeply held commitment for consistent re-purchase or re-patronize of a preferable product/service that repeatedly leads to purchase of the same brand despite any situational influence on marketing efforts (Oliver, 1999). In this study, satisfaction and loyalty were integrated to observe the performance of mobile banking services and its influence on behavior of mobile banking adopters in Kenya and Australia.

Previous studies indicated that optimism and innovativeness apparently led to higher perceived usefulness and ease of use of a given technology, whereas insecurity and discomfort were suggested as inhibiting these dimensions of TAM (Godoe & Johansen, 2012; Parasuraman & Colby, 2015; Tsikriktsis, 2004). Based on these findings, the following hypotheses were generated:

*H<sub>1</sub>: Optimism has a positive influence on perceived usefulness and perceived ease of use of mobile banking service among consumers in Australia and Kenya.*

*H<sub>2</sub>: Innovativeness has a positive influence on perceived usefulness and perceived ease of use of mobile banking service among consumers in Australia and Kenya.*

*H<sub>3</sub>: Insecurity has a negative influence on perceived usefulness and perceived ease of use of mobile banking service among consumers in Australia and Kenya.*

*H<sub>4</sub>: Discomfort has a negative influence on perceived usefulness perceived ease of use of mobile banking service among consumers in Australia and Kenya.*

TAM has been considered by many empirical studies, especially in information management. These mostly have supported the assertion that perceived ease of use directly and/or indirectly affected behavioral intention through perceived usefulness in mobile banking (Gu, Lee, & Suh, 2009; Karahanna & Straub, 1999; Liao, Tsou, & Huang, 2007; Lin & Lu, 2000; Moon & Kim, 2001). Hence, it was hypothesized that:

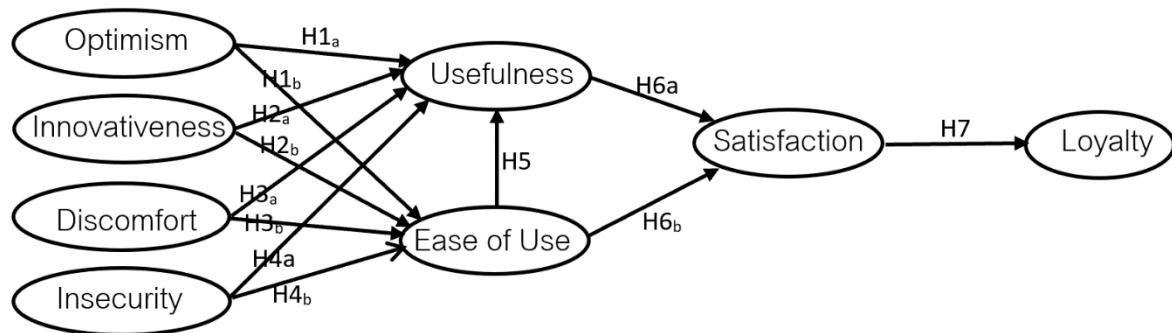
*H<sub>5</sub>: Perceived ease of use has a positive influence on perceived usefulness of mobile banking service among consumers in Australia and Kenya.*

The same empirical studies tend to agree generally that there exists a relationship between TAM constructs and satisfaction (Amin, Rezaei, & Abolghasemi, 2014; Chen, Chen, & Chen, 2009; George & Kumar, 2013). Hence, it was hypothesized that:

*H<sub>6</sub>: Perceived usefulness and perceived ease of use have positive influence on satisfaction among mobile banking consumers in Australia and Kenya.*

Previous researchers agree, generally, that if customers were satisfied with previous services and products offered by a company, they are likely to go back to the same company for repeated purchases, which may lead to loyalty (Bloemer, De Ruyter, & Peeters, 1998; Casaló, Flavián, & Guinalíu, 2008; Yang & Peterson, 2004). Hence, it was hypothesized that:

*H<sub>7</sub>: Satisfaction among mobile banking users in Australia and Kenya has a positive influence on loyalty.*



**Figure 1.** The Conceptual Framework

## Methodology

In this study, data were collected in both Kenya and Australia. The target population was the actual mobile banking adopters in the two economies. A single questionnaire was developed for both countries with scale items for Optimism, Innovativeness, Discomfort and Insecurity adapted from Parasuraman (2000); Usefulness and Ease of Use was adapted from Davis (1989) and Satisfaction and Loyalty was adapted from Oliver (1981). The adapted scale items were subjected to an Item Objective Congruence test and then revised according to the experts' recommendations and tested in a pilot study of 60 participants, 30 from each country. The last modification was done through a validity and reliability test, with the following Cronbach's alpha scores for Australia and Kenya, respectively: Optimism (.803, .844), Innovativeness (.806, .700), Discomfort (.700, .831), Insecurity (.742, .823), Perceived Ease of Use (.702, .700), Perceived Usefulness (.710, .854), Satisfaction (.870, .823), and Loyalty (.734, .700). The refined questionnaire was then distributed online through the snowball method, a non-probability sampling technique used when it is not possible to obtain the population framework due to its wide geographical spread (Littell, Henry & Ammerman, 1998; Schutt, 2018). The targeted sample was 450 respondents from each country. Data were analyzed through using descriptive and inferential methods.

## Analysis Results

For Australia, a majority of the respondents were male, aged between 19 and 30 years old, holders of a bachelor's degree and users of mobile banking for more than one year. These demographics were the same for Kenya, except for the gender variable, where the majority of

respondents were females. Of note, however, was the fact that 67.1% of all male respondents were Australians and 60.0% of all female respondents were Kenyans. Almost half of the total number of respondents was between the ages of 19 and 30 years (41.1%). Fifty-seven respondents (6.3% of the total) were below 18 years old, and the majority of them (78.9%) were Kenyans. By contrast, only 22.2% of those above 65 years old were Kenyans. In terms of education, about two thirds of the total number of respondents held a bachelor's degree, with Kenya having a slightly higher percentage of respondents in this category. Of interest is also the fact that 81% of the overall respondents had used Mobile Banking for more than one year, which is a clear majority, indicating that the respondents were indeed Mobile Banking adopters.

The independent variables were Optimism, Innovativeness, Discomfort and Insecurity. Mediating variables were Usefulness and Ease of Use, and dependent variables included Satisfaction and Loyalty. In model fitting, a range of fit indices are required, as individual indices have their own limitations, and therefore to overcome such limitations, most researchers use indices from different classes as well (Marsh, Bella & Hau, 1996). Generally, a model fit is considered using the following indices: Normed Fit Index (NFI) of .90 and above (Byrne, 1994) or .95 (Lomax & Schumacker, 2004), a Goodness of Fit Index (GFI) that exceeds .90 (Byrne, 1994), a Comparative Fit Index (CFI) that exceeds .93 (Byrne, 1994), the Root Mean Square (RMS) less than .08 (Browne & Cudeck, 1993), or less than .05 ideally but does not exceed .08 (Hu & Bentler, 1998), and a Chi-Square value of less than two or three (Ullman & Bentler, 2003).

In this study, the following fit indices were obtained; GFI (.901), CFI (.952), NFI (.912) for the Australian model, and GFI (.903), CFI (.974), NFI (.903) for the Kenyan model. The researchers, therefore, considered both models fit for the study. A summary of the descriptive statistical analysis is shown in Table 1, that of hypotheses testing in Table 2, and the final testing result in Table 3.

**Table 1.** Summary of the Descriptive Analysis

Construct	Pilot Study		Actual Study		CR>0.7A		AVE>0.5		MSV	
	Cronbach's Alpha (n=30)		Cronbach's Alpha (n=450)		Australia	Kenya	Australia	Kenya	Australia	Kenya
	Australia	Kenya	Australia	Kenya						
Optimism	.803	.844	.882	.827	.801	.771	.50	.50	.35	.38
Innovation	.806	.70	.820	.930	.759	.920	.51	.66	.35	.19
Discomfort	.70	.831	.937	.864	.952	.705	.78	.50	.96	.93
Insecurity	.742	.823	.943	.87	.94	.74	.79	.50	.96	.93
Perceived Ease of Use	.702	.70	.757	.875	.74	.93	.59	.72	.68	.10
Perceived Usefulness	.710	.854	.877	.916	.84	.92	.58	.64	.17	.21
Satisfaction	.87	.823	.886	.905	.87	.91	.62	.66	.91	.22
Loyalty	.734	.70	.853	.918	.80	.92	.50	.62	.91	.24

### Findings

This study revealed fundamental differences and similarities among mobile banking users in Australia (developed economy) and Kenya (developing economy). The study also revealed a high level of significance among TRI and TAM dimensions, especially for Kenyan mobile banking users.

### **Effects of Optimism and Innovativeness on Perceived Usefulness and Ease of Use**

The results indicated that optimism and innovativeness had a direct, positive influence on perceived ease of use and perceived usefulness of mobile banking technology for users in Kenya. A possible reason could be insufficient technological advancement, leading to a tendency to attach considerable importance to any innovation. Users were very optimistic about the innovation and its ability to make their lives easier. For mobile banking users in Australia, a developed country, the same sentiments did not apply. Optimism and innovativeness had no influence on ease of use or usefulness

of mobile banking technology. Based on this study, it appears that when advanced technology is available in all sectors and customers expect innovative products, they are less excited about it.

**Table 2.** Summary of Hypotheses Test Results

<b>Hypothesis Path</b>		<b>Country</b>	<b>F</b>	<b>Sig.</b>	<b>Results</b>
<b>H<sub>1</sub></b>	a) Optimism → perceived usefulness	Australia	0.728	.863	Not Supported
	b) Optimism → perceived usefulness	Kenya	11.059	***	Supported
	c) Optimism → perceived ease of use	Australia	0.508	.989	Not Supported
	d) Optimism → perceived ease of use	Kenya	4.672	***	Supported
<b>H<sub>2</sub></b>	a) Innovativeness → perceived usefulness	Australia	1.774	*	Supported
	b) Innovativeness → perceived usefulness	Kenya	7.543	***	Supported
	c) Innovativeness → perceived ease of use	Australia	1.366	.130	Not Supported
	d) Innovativeness → perceived ease of use	Kenya	3.104	***	Supported
<b>H<sub>3</sub></b>	a) Insecurity → perceived usefulness	Australia	2.219	***	Supported
	b) Insecurity → perceived usefulness	Kenya	5.201	***	Supported
	c) Insecurity → perceived ease of use	Australia	2.259	***	Supported
	d) Insecurity → perceived ease of use	Kenya	2.889	***	Supported
<b>H<sub>4</sub></b>	a) Discomfort → perceived usefulness	Australia	2.775	***	Supported
	b) Discomfort → perceived usefulness	Kenya	3.257	***	Supported
	c) Discomfort → perceived ease of use	Australia	1.628	*	Supported
	d) Discomfort → perceived ease of use	Kenya	1.490	.117	Not Supported
<b>H<sub>5</sub></b>	a) Ease of use → usefulness	Australia	5.178	***	Supported
	b) Ease of use → usefulness	Kenya	3.418	***	Supported
<b>H<sub>6</sub></b>	a) Perceived usefulness → satisfaction	Australia	1.782	*	Supported
	b) Perceived usefulness → satisfaction	Kenya	5.030	***	Supported
	a) Perceived ease of use → satisfaction	Australia	63.793	***	Supported
	b) Perceived ease of use → satisfaction	Kenya	5.862	***	Supported
<b>H<sub>7</sub></b>	a) Satisfaction → loyalty	Australia	92.980	***	Supported
	b) Satisfaction → loyalty	Kenya	4.887	***	Supported

**Table 3.** Summary of Test Results

<b>Construct</b>	<b>Australia vs. Kenya (all scale items for each variable)</b>		<b>Australia vs. Kenya (scale items in the fit model for each variable)</b>	
	<b>F VALUE</b>	<b>SIG</b>	<b>F VALUE</b>	<b>SIG</b>
<b>Optimism</b>	40	.000***	46.47	.000***
<b>Innovativeness</b>	36.78	.000***	47.61	.000***
<b>Discomfort</b>	288.42	.000***	293.57	.000***
<b>Insecurity</b>	395.06	.000***	264.023	.000***
<b>Usefulness</b>	0.42	.518NS	0.42	.518NS
<b>Ease of Use</b>	15.17	.000 ***	2.14	.143NS
<b>Satisfaction</b>	0.003	.956NS	0.003	.956NS
<b>Loyalty</b>	1.44	.231NS	1.44	.231NS

Note: \* = *p*-value < .05, \*\* = *p*-value < .01, \*\*\* = *p*-value < .001

#### **Effects of Insecurity and Discomfort on Perceived Usefulness and Ease of Use**

Insecurity and discomfort had a direct influence on ease of use and usefulness of mobile banking technology in both countries. Discomfort had a direct negative influence on perceived usefulness, as seen in the study of Khadka and Kohsuwan (2018) in Germany. Discomfort, however, was found not to have any negative influence on ease of use of mobile banking users in Kenya. This may suggest that users are concerned about the safety of their money. Users in Australia may be uncomfortable with the perceived ease of use of the technology, which may imply their doubts as to

its usefulness. It may also mean that the technology in question was cheap, hence users did not trust it with their hard-earned money. Technology that is easy to use may also be prone to scammers, and therefore not reliably useful. However, for users in developing countries, perceived ease to use technology may mean that more people, especially the older and less educated (who may not currently use a bank), may be reached.

#### ***Effects of Optimism and Innovativeness on Satisfaction and Loyalty***

From the results, optimism and innovativeness had an indirect positive influence on satisfaction and loyalty among mobile banking users in Kenya—a result seen in studies conducted in developing countries (De Jong, De Ruyter, & Lemmink, 2003; Ward, Chitty, & Graham, 2007). However, the two TRI dimensions had no bearing on satisfaction and loyalty on users in Australia – a result similar to that of Walczuch et al. (2007), who also concluded that innovative people are more critical towards technology since they are aware of the newest developments and possibilities, and expect all technology to fulfil their highest demands.

#### ***Effects of Ease of Use on Perceived Usefulness***

The results, as seen by Özbeş, Alnıaçık, Koc, Akkılıç and Kaş (2014) in their assessment of the impact of personality on technology acceptance in a study that focused on mobile phone users, are a confirmation of the original TAM dimensions relationship. The perceived ease of use had a positive influence on perceived usefulness of mobile banking technology in both Australia and Kenya.

#### ***Effects of Perceived Usefulness and Ease of Use on Satisfaction***

The study indicated that both perceived usefulness and ease of use had a direct effect on the satisfaction of mobile banking technology users in developing countries. This was in agreement with Khadka and Kohsuwan's (2018) work in Germany where they found that perceived usefulness had a positive influence on satisfaction level. In the current study, only perceived usefulness had a direct effect on satisfaction in Australia.

#### ***Effects of Satisfaction on Loyalty***

The satisfaction factor had a direct positive relationship with loyalty in both Kenya and Australia. Similar results were obtained by Quoquab, Abdullah, and Mohammad (2016) who, through their study in Malaysia, found that service satisfaction was positively related to service loyalty. In summary, for both TRI and TAM relationships, an individual who is optimistic about technology in general will find a specific system more useful and easier to use than someone less optimistic (Godoe & Johansen, 2012).

### **Implications and Conclusions**

Whereas the findings in this study concur with many previous details, a significant theoretical contribution is that discomfort does not have a negative influence on perceived ease of use of mobile banking in Kenya, a developing economy. It is also evident from this study that dimensions of TRI have an effect on the cognitive dimensions of TAM, with an eventual influence on technology usage. In the context of developing and developed countries, it can be seen that insecurity is the only common denominator. It affects TAM constructs negatively in both countries. Optimism, innovativeness, and discomfort bring about the differences in the two contexts. Whereas optimism and innovativeness had no influence on TAM in Australia, a developed economy, the opposite was true for Kenya, a developing economy. But discomfort influences perceived ease of use in Australia.

### **Limitations and Recommendations**

Data for this study were collected through online means for two reasons. The target population was geographically widespread, and financial constraints made it practically impossible to personally or physically collect the data. Hence, it was not possible to ascertain that every participant

was an actual mobile banking adopter. Otherwise, it is recommended that considerable emphasis be placed on mobile banking users and their attitudes towards the mobile banking technology, especially in cases where new technologies are being set up. Technological companies or managers in financial institutions must also place emphasis on awareness of the uses and operability of the technology, however simple it may appear. This is because such factors, as seen in the case of Australia, may cause the technology to fail or be rejected by optimistic people, despite high levels of innovativeness that may have been employed. Hence, measures of perceived usefulness and perceived ease of use provide valuable additional information for those who design, produce, and implement new mobile banking technology, because the two factors drive satisfaction and loyalty, an essential aspect of business growth and a generator of better profit margins.

Further studies are recommended to establish the actual causes or factors contributing to the lack of negative effects between discomfort (TRI dimension) and perceived ease of use (TAM dimension) in developing economies.

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## APPENDIX A: The Questionnaire

### Optimism

1. Mobile banking gives me more control over my banking activities.
2. Mobile banking is much more efficient because it uses the latest technology.
3. Mobile banking does not limit me to regular business hours.
4. I prefer to use the most advanced mobile banking applications available.
5. Mobile banking apps tailor things to fit my own needs.
6. Mobile banking makes it more efficient in making my financial transactions.
7. Mobile banking technology is mentally stimulating.
8. Mobile banking gives me more freedom of mobility.
9. Learning about mobile banking technology is as rewarding as the services it provides.
10. I feel confident that mobile banking follows through with what I instruct it to do.

### **Innovativeness**

1. Other people come to me for advice on new mobile banking technologies.
2. It seems my friends are learning more about the newest mobile banking technologies than I am.
3. In general, I am among the first in my circle of friends to acquire new mobile banking technology when it appears.
4. I can usually figure out new high-tech mobile banking products and services without help from others.
5. I keep up with the latest technological developments in mobile banking.
6. I enjoy the challenge of figuring out high-tech gadgets.
7. I find I have fewer problems than other people in making mobile banking technology work for me.

### **Discomfort**

1. Mobile banking automatic response phone support services are not helpful because the language used is too technical.
2. Sometimes, I think that mobile banking technology systems are not designed for use by ordinary people.
3. There is no such thing as a manual for a mobile banking high-tech product or service that is written in plain language.
4. When I get technical support from mobile banking high-tech products or services, I sometimes feel as if I am being taken advantage of by someone who knows more than I do.
5. If I buy a mobile banking high-tech product or service, I prefer to have the basic model over one with a lot of extra features.
6. I feel embarrassed when I have trouble effecting a financial transaction through mobile banking.
7. There should be caution in replacing important people-tasks with mobile banking technology because it can breakdown or get disconnected.
8. Many new technologies, mobile banking included, have health or safety risks that are not discovered until after people have used them.
9. New technology like mobile banking makes it too easy for governments and companies to spy on people.
10. Mobile banking always seems to fail at the worst possible time, it cannot be relied on.

### **Insecurity**

1. Mobile banking automatic response phone support services are not helpful because the language used is too technical.
2. Sometimes, I think that mobile banking technology systems are not designed for use by ordinary people.
3. There is no such thing as a manual for a mobile banking high- tech product or service that is written in plain language.
4. When I get technical support from mobile banking high-tech products or services, I sometimes feel as if I am being taken advantage of by someone who knows more than I do.
5. If I buy a mobile banking high-tech product or service, I prefer to have the basic model over one with a lot of extra features.
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7. There should be caution in replacing important people-tasks with mobile banking technology because it can breakdown or get disconnected.
8. Many new technologies, mobile banking included, have health or safety risks that are not discovered until after people have used them.
9. New technology like mobile banking makes it too easy for governments and companies to spy on people.

### **Perceived Usefulness**

1. Using mobile banking enables me to carry out financial transactions more quickly.
2. Using mobile banking in my financial transactions increases my efficiency.
3. Using mobile banking increases my productivity.

4. Using mobile banking in my financial dealings enhances my effectiveness in terms of accuracy and speed of transaction.
5. Using mobile banking makes it easier to do my financial transactions.
6. Overall, I find mobile banking useful in my financial dealings.

#### **Perceived Ease of Use**

1. Learning to operate mobile banking apps has been very easy for me.
2. I find it easy to follow instructions with mobile banking to accomplish my transactions.
3. Mobile banking instructions are clearer and understandable to me.
4. I find it cumbersome to use mobile banking.
5. It is easy for me to remember how to perform tasks using mobile banking.
6. Overall, I find that mobile banking apps are easy to use.

#### **Satisfaction**

1. I am satisfied with the mobile banking site of my bank, it's easy to navigate.
2. I am satisfied with the accuracy of the services provided through mobile banking.
3. The services offered through mobile banking are good.
4. I am pleased by the customer services provided through mobile banking.
5. I am satisfied with the services provided through mobile banking.

#### **Loyalty**

1. I will continue using mobile banking.
2. I will use mobile banking every month.
3. I prefer to use mobile banking than traditional counter banking.
4. I prefer to use mobile banking than internet banking.
5. I believe my mobile banking service provider deserves my loyalty.
6. Over the past year, my loyalty to mobile banking service provider has grown stronger.

My service provider values people and relationships ahead of short-term goals