

Factors Influencing Customers' Adoption of Mobile Marketing in Tanzania's Telecommunication Industry

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Abstract

This paper presents the findings of a study that had examined the factors influencing the customers' adoption in Tanzania's telecommunication industry. Specifically, it had evaluated the effect of perceived usefulness, perceived ease-of-use and perceived online negotiation. Using a structured questionnaire survey, the study collected data from a sample of 440 respondents generated using Multistage sampling in the five municipalities of Dar es Salaam. The response rate was 406 (92.3%). After subjecting the resultant quantitative data to multiple linear regression analysis, the study found that perceived usefulness and perceived ease-of-use have a strong positive influence on mobile marketing adoption. On the contrary, perceived online negotiation had no such significant bearing on the customers' adoption of mobile marketing. However, the study's scope was limited to one region out of 31, thus limiting the generalizability of the findings to the entire population of Tanzania. This study also validates the Technology Acceptance Model (TAM) and introduces perceived online negotiation as an integrated variable in Tanzania's telecommunications industry. Moreover, it underscores the importance of understanding customers' prioritisation of mobile gadgets in mobile marketing experiences to develop customer-centric platforms that cater to their needs and provide easy access. Therefore, policymakers and telecommunication stakeholders should improve the policies and strategies regarding ease-of-use and usefulness mobile marketing products by ensuring they conform to the consumers' wants and needs.

Keywords: *Adoption of mobile marketing, Perceived Usefulness, Perceived ease-of-use, Perceived online negotiation*

1.0 Introduction

A rise of digital technology has introduced significant changes in marketing practices, with digital alternatives supplanting traditional methods in many aspects. One such alternative is mobile marketing, which entails wireless communication facilitated by mobile phones, personal computers, and personal digital assistants. With such facilitation, marketers and consumers can engage in product and service exchanges (MMA, 2009). Factors such as perceived usefulness and perceived ease of use key constructs under the technology acceptance model (TAM)— influence the customers' adoption of technology through mobile phone and can help predict technology adoption (Davis et al., 2000). The goal of mobile marketing is to satisfy both customers and marketers by facilitating value exchange in an online setting. Perceived

online negotiation, which refers to the bargaining and negotiation processes conducted online through web environments, is another important variable that affects mobile marketing adoption (Chille et al., 2021). Even though Davis et al. (2000) have underscored the significance of perceived usefulness and perceived ease-of-use as core variables of the TAM in influencing technology adoption, the addition the construct of perceived online negotiation facilitated the assessment of technology's effects on customers' adoption of mobile marketing in the Tanzania's telecommunication industry.

Due to global increase in mobile users, China, with 1000 million users of its population using mobile phones, ranks highest in global mobile phone usage (Howarth, 2023). The second in mobile use is India with 700 million users, followed by the United States with 300 million users. Meanwhile, Indonesia has 250 million users, Brazil and Russia with 150 million users respectively. Despite having 52.9 million active mobile money subscribers by December 2023, smartphone penetration in Tanzania stood at 32.13 percent (URT, 2023). Even though smartphone penetration plays big role in fostering mobile marketing adoption, the country continues experiencing low marketing adoption. This empirical description is congruent with findings of Chille et al., (2021), and Lailat and Chille (2023) on the low adoption of mobile marketing on the telecommunication industry of Tanzania.

The models used in assessing the adoption of mobile marketing include the technology acceptance model (TAM), which happen to be the most widely applied (Ajibade, 2018; Chille et al.,2021; Davis, 1989). When evaluating the factors influencing the adoption of mobile marketing, the model approach has indicated high explanatory power in accounting for the mobile marketing adoption (Ajibade, 2018; Bitner, Brown & Muter, 2000; Dabholkar, 1996; Mondego, 2018; Scharl, 2009). However, numerous studies have examined the TAM constructs, which are perceived ease-of-use, perceived usefulness, attitude, and intention to use (Venkatesh, 2000). Nevertheless, there is a paucity of studies on adoption of technology integrative of the variables of perceived usefulness, and perceived ease-of-use with perceived online negotiation. In fact, previous studies have treated perceived online negotiation as antecedents of perceived ease-of-use (Chille & Shayo, 2021). As previous research has suggested, the behavioural intention construct was excluded in this investigation since the adoption of technology may not always correlated with the aim and actual use of the system (Ajibade, 2018; Bagozzi,2007; Taylor & Todd, 1995).

Yet, there is a lack of theoretical foundation on the predictors of the adoption of technology guided by TAM. For example, Ghanem et al. (2017), Ismail et al. (2016), Lailat and Chille (2023), and Sarmah et al. (2017) vouched for the application of Perceived usefulness, perceived ease-of-use predict adoption of technology whereas Hu et al. (2019), Kim et al. (2010), Nathania et al. (2021), and Tahar et al. (2020) contended that these two variables do not necessarily predict the adoption of mobile technology. Apparently, TAM frameworks fall short in evaluating the effect of technology adoption (Chille et al., 2021; Lailat & Chille, 2023). In this regard, Lailat and Chille's (2023) conducted in Tanzania indicated low use of mobile technology gadgets, particularly mobile smartphones as an intervening variable that could make a difference. These contradictory findings and paucity of studies signal the necessity of further study to bridge the gap on the influence of a triad of Perceived usefulness, perceived ease-of-use and Perceived online negotiation.

This study adopted TAM to validate the model. Accordingly, the study incorporated Perceived usefulness (PU) and Perceived ease-of-use (PE) coupled with the new construct of Perceived online negotiation (POE) as determinants of Perceived ease-of-use (Chille & Shayo. 2021). In other words, the study employed a comprehensive theoretical model that integrated TAM constructs of PU and PE while

integrating POE to enrich existing literature. The proposed framework contributes knowledge on what we need to know and what we do not know regarding technology adoption, hence providing practical guidance for future research endeavours explaining the phenomenon under review.

2.0 Literature review and hypotheses

Though numerous studies have been conducted on mobile marketing in developed countries (Chille et al., 2021; Lamptey, 2018), there was severely limited research on the effects of perceived online negotiation on mobile marketing adoption in the telecommunication sector. Previous studies in both developed and developing countries have largely focused on behaviour intention, trust, perceived usefulness and perceived ease of use, Perceived knowledge and behaviour intention (Chachage et al., 2013; Chille & Shayo, 2021; Lailat & Chille, 2023; Lwoga & Lwoga, 2017; Kalugendo, 2018). However, Luo et al., (2024) focused on perceived usefulness, perceived ease-of-use and financial strengths in the adoption of health information systems; Pratista et al. (2024) focused on perceived usefulness, perceived ease-of-use, quantity, argument quality and attitude without assessing the effects of perceived online negotiation. The current study highlights the need of adding the perceived online negotiation on TAM in assessing the effects of technology adoption, specifically, in the telecommunication sector in Tanzania.

Yet, TAM does not consider the extrinsic and intrinsic factors such as social norms, values, and customers that can influence on the use or not using of technology. In fact, psychological or physical influences on technology include environmental factors and individual understanding of the information system (Chille et al., 2021). According to Ajibade (2018), and Davis et al. (1989) individuals need not always be informed of the latest information system to adopt the technology, which requires adopting the products without knowing the easiness and usefulness of the information system. In other words, assessing an individual's behaviour through empirical situations is not feasible in all situations as TAM propound (Abjibade, 2018; Chille et al., 2021). Therefore, the understanding of other external variables and integration of additional variables in TAM is vital for best technology adoption (Venkatesh & Bala, 2008).

2.1 Perceived usefulness (US)

Perceived Usefulness is “the degree to which a person believes that using a particular system would enhance job performance” (Davis, 1989, p.320). The variable emanated from Davis (1989), which shows that consumers can use technology to boost their productivity (Venkatesh & Davis, 2016). However, studies have yielded contradictory findings on the technology adoption variable, including those that have found no significant impact (Hu et al., 2019; Kim et al., 2010; Tahar et al., 2020) and those that have established a positive effect on technology adoption (Lailat & Chille, 2023; Li et al., 2024; Kelly & Palaniappan, 2023; Pratista et al., 2024; Suhud et al., 2019). As such, we hypothesise:

H1: Perceived usefulness has significant and positive effect on the adoption of mobile marketing

2.2 Perceived ease of use (U)

Davis (1989, p. 320) describes Perceived ease-of-use as “the degree to which a person believes that using a particular system would be free from effort.” Moreover, Davis, (1989) and Venkatesh et al. (2003) contend that Perceived ease-of-use is the best determinant of perceived usefulness, which in turn determines the

adoption of technology. Studies that have reported a positive influence of perceived ease-of-use on mobile marketing adoption include Basukia et al. (2022) and Chille et al. (2021) whereas others such as Nathania et al. (2021) and Pratista et al. (2024). These contradictory findings informed the following of the following hypothesis:

H2: Perceived ease-of-use has significant and positive effect on the adoption of mobile marketing

2.3 Perceived online negotiation (O)

Perceived online negotiation plays a crucial role in the purchasing process (Chille & Shayo, 2021; de Moura & Costa, 2018). Specifically, Chille and Shayo (2021) found perceived online negotiation to be the strong predictor of perceived ease-of-use. Since perceived usefulness and perceived ease-of-use are the main constructs in TAM, and the model does not account for other aspects that affect the adoption of technology besides perceived usefulness and perceived ease-of-use (Bagozzi, 2007; Chille et al., 2021a). Therefore, Venkatesh and Bala (2008) vouch for the importance of additional constructs in TAM to determine the adoption of technology. Such prospects justified the addition to perceived online negotiation to TAM in a bid to assess the influence of the mobile marketing adoption in the Telecommunication industry of Tanzania, hence the following hypothesis:

H3: Perceived online negotiation has significant and positive effect on adoption of mobile marketing adoption.

3.0 Methods

3.1 Population, sample and measurement

The area of study was in Dar es Salaam in Tanzania. The sample comprised 440 respondents, generated using the Yamane's (1967) formula stated as $n = N/(1+N(e)^2)$; Where n = Sample size; N = is the Targeted study population; e = Level of precision (0.05); Therefore, $n = 2,116,584 / (1 + (2,116,584 * 0.05^2))$. With the non-respondent questionnaires considered, the sample included 40 more respondents (Saunders et al., 2012). An error estimate of 10% is permissible when accounting for non-response in a questionnaire survey. The number of questionnaires distributed exceeded Yamane's criterion (1967) but only 406 of the 440 self-administered questionnaires were returned.

The study's sample of 440 respondents were drawn from a population of 2,116,584 customers of the three telecommunication companies under review (TCRA, 2023) $n = 2116,584/5292.46 = 399.92 = 400$ respondents (approximately). Data were collected from the customers of three mobile service providers Airtel, MIC (T) Limited (Tigo/Zantel) and Vodacom. The primary structured questionnaire distributed to 440 potential respondents, 406 were successfully returned, hence a high return rate of 92.3%. Dar es Salaam, the research site, is the hub of financial and commercial activities in Tanzania, with a population of more than seven million people (URT, 2023), hence making it ideal for the study.

The study employed a multistage sample strategy to choose respondents who use mobile devices. Usually, the application of multistage sampling facilitated the solving the problem associated with the exorbitant costs of establishing a sampling frame over a population scattered over a large geographic area; because its cost-effectiveness in enabling in-person communication under such circumstances (Saunders et al., 2012). The study's population comprised all mobile device-owning customers of the relevant mobile

service providers; however, because these consumers are geographically separated, it was not feasible to gather a representative sample of all the clients at once. As such, the study employed a multi-stage sampling in all the five municipalities of Dar es Salaam (Kothari & Garg, 2014). Moreover, the study used a descriptive research strategy, which predicts relationships between the variables of interest to generate information on the phenomenon under review (Kothari & Garg, 2014). Descriptive studies might be cross-sectional or longitudinal. This research opted for the former since a cross-sectional descriptive study since it allows for the data to be gathered data only once, without altering the situation under examination (Magigi, 2016). Clients and employees of the three telecom firms made up the sample. Their composition was as follows: 128 (31.5%) employees, 89 (21.9%) businesspeople, and 96 (23.6%) informal sector workers, mostly merchants of consumer and industrial goods. Another 93 (22.9%) respondents were Dar es Salaam-based students attending higher education institutions.

Additionally, the study used a 7-point Likert scale as the measurement scale, whose values ranging from 1 for “strongly disagree” to 7 for “strongly agree.” Perceived usefulness (US) had 5 dimensions modified from Davis et al. (1989) and Kim et al. (2010). Perceived ease-of-use (U) had 5 dimensions modified from Venkatesh et al. (2012) and Gao et al. (2011). Perceived online negotiation (O) had 7 dimensions modified from Gao et al. (2011) and Kim et al. (2010). Subsequently, Mobile marketing Adoption (M) was measured using 7 items adopted from Davis et al. (1989) and Duzevic et al. (2016).

4.0 Findings

4.1 Descriptive analysis

Standard Deviation and Mean

The descriptive statistics analysis entailed computing the average factor scores for each item within the latent variables. These scores were then jointly added to calculate the standard deviation and the mean. The mean and standard deviation for the latent variables M, U, O & US are as presented in Table 1:

Table 1: Mean and Standard Deviation of M, US, U, & O

Variable	n	min	max	mean	Std Dev.
M	406	1	7	4.8455	1.29094
US	406	1	7	5.0360	1.38385
U	406	1	7	4.9103	1.30988
O	406	1	7	4.9384	1.29918

Reliability Test

Reliability test was run to assess the internal consistency using Cronbach’s alpha coefficient (Saunders et al., 2012). The Cronbach’s alpha results ranged from 0.905 to 0.921, hence surpassing the minimum the cut-off point of 0.7. This suggests that the measurement scale demonstrated good reliability (Saunders et al., 2012).

Factor analysis uncovered how latent factors explain the observable variables. In this regard, the study conducted the sample adequacy measurements using the Kaiser-Meyer-Olkin (KMO) and Bartlett’s Test for Sphericity (BTS). Generally, the cut-off point is the value greater than 0.6 and a significant value,

respectively, which can show that the items are good for factor analysis (Basto &Pereira, 2012). Table 2 presents the results:

Table 2: Factor Analysis for M, O, U and US

Variable	Dimensions	loadings	Reliability Cronbach's alpha	KMO	BTS (P-Value)
Adoption of Mobile Marketing	M2	0.842	0.921	0.890	<0.001
	M1	0.837			
	M6	0.836			
	M3	0.831			
	M2	0.819			
	M4	0.800			
Perceived Online Negotiation	M5	0.794			
	O3	0.861	0.915		
	O1	0.854			
	O4	0.835			
	O2	0.801			
	O5	0.787			
Perceived Ease of use	O7	0.780			
	O6	0.770			
			0.905		
	U3	0.879			
	U4	0.855			
	U1	0.845			
Perceived Usefulness	U5	0.838			
				0.920	
	US2	0.893			
	US4	0.890			
	US3	0.875			
US1	0.862				

As the results in Table 2 illustrate, there were value of <0.001 and 0.890; as such, the dataset was appropriate to support factor analysis. In this regard, the study took a cut-off point of above 0.3 on factor loading. The study retained items with factor loading of above 0.3 for performing the factor analysis.

Correlation analysis

The correlation results in Table 3 show a range of $r= 0.568$ to $r= 0.788$ at $p<0.01$, which implies there is causal relationship between the adoption of mobile marketing and independent variables. Notably, there were no instances of multicollinearity observed in the analysis.

Table 3: Correlation Matrix of Variables (N=406)

Variable	M	US	U	O
M	1	0.692**	0.568**	0.696**
US	0.692**	1	0.707**	0.703**
U	0.568**	0.707**	1	0.656**
O	0.696	0.703**	0.788**	1
N	406	406	406	406

**r is significant at the 0.01 level (2-tailed)

Multiple Linear Regression Analysis

The model-fit data presented in Table 4 show R^2 and adjusted R^2 values 0.699 and 0.696, respectively, which indicates that there is an explainable variance of 70% of independent variable to the dependent variable and the F-statistics yielded 186.04 at $p<0.001$. Also, Durbin-Watson statistic was close to 2. Furthermore, the Cook's distance value was less than 1, implying no signal of outliers in the data, as Daudi (2018) has explicated.

Table 4: Model summary

R	R ²	Adjusted ²	Std error	Dublin Watson	F	Sign (P-value)
0.795	0.699	0.696	0.552	1.783	186.041	(<0.001)

Table 5: Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Partial	VIF	
		B	Std. Error	Beta			Lower Bound	Upper Bound			
1	(Constant)										
	US	0.792	0.030	0.357	6.784	<0.001	0.253	0.46	0.321	0.272	3.681
	O	0.686	0.025	0.056	0.270	0.489	-0.044	0.156	-0.035	0.708	1.413
	U	0.768	0.056	.019	3.31	0.001	0.077	0.303	0.163	0.229	4.376

Influence of perceived usefulness on mobile marketing adoption

An increase in US results in a 0.357 (95% CI; 0.253, 0.46) increase in M. The P-value is less than the 5% significant level at 0.05 ($p<0.001$) as Table 5 illustrates. Impliedly, the results do not support the null

hypothesis (H1₀₁), hence its rejection and acceptance of the alternative hypothesis (H1_{a1}): *There is positive and significant relationship between perceived usefulness and adoption of mobile marketing in Tanzania's telecommunication industry.*

Influence of perceived ease-of-use on mobile marketing adoption

An increase in U results in a 0.19 (95% CI; 0.077, 0.303) increase in M. The P-value is less than the 5% significant level at 0.05 (p=0.001) as Table 5 show. Implicitly, the results support the rejection null hypothesis (H2₀₂) and, hence, the validation of alternative hypothesis (H2_{a2}): *There is positive and significant relationship between perceived ease-of-use and the adoption of mobile marketing in Tanzania's telecommunication industry.*

Effects of perceived online on the adoption of mobile marketing adoption

An increase in 0 resulted in a 0.056 (95% CI; -0.044, 0.156) increase in M. The P-value is greater than the 5% significant level at 0.05 (p=0.489) as presented in Table 5. In other words, the study rejects the alternative hypothesis (H3_{a3}) and, instead, accepts the null hypothesis (H3₀₃): *There is no significant relationship between Perceived online negotiation and the adoption of mobile marketing in Tanzania's telecommunication industry.*

5.0 Discussion

The results have demonstrated that perceived usefulness and perceived ease-of-use are good predictors on mobile marketing adoption on the telecommunication sector in Tanzania. In other words, the more the customers believe in the easiness of the mobile marketing gadgets and the better the perception of the usefulness of those mobile gadgets (Venkatesh, 2000). The study findings, therefore, confirm both the hypotheses to the effect that perceived usefulness and perceived ease-of-use are good predictors of the adoption of technology in telecommunication industry of Tanzania. In this regard, the results align with previous studies conducted in Tanzania, Germany, Indonesia, Bangladesh by Chille *et al.*, (2021), Davis *et al.*, (1989), Hubert *et al.*, (2019), Hussain *et al.*, (2019), Lailat and Chille (2023) Lema (2017), which underscored that perceived usefulness, and perceived ease-of-use have a bearing on technological adoption. Conversely, these results are inconsistent with Tahar *et al.*, (2020), whose study in Indonesia found that perceived usefulness is not the predictor of the adoption of technology. Also, the results do not align with Pratista *et al.*, (2024), whose findings indicated that perceived ease-of-use is not a predictor of perceived usefulness on adoption of technology in Indonesia regarding buying intention. The contradictory in results can emanate from the differences in market environmental factors as well as differences in cultural norms and contextual factors that affect the perception of a person's decisions regarding products or services (Wamuyu, 2014).

The results of the study also align with the technology acceptance model (TAM), which emphasises the influence of perceived usefulness on attitude and behavioural intention on adoption of technology. The study, thus, contributes theoretically by validating the importance of perceived usefulness and perceived ease-of-use as predictors of mobile marketing adoption. That is to say, the combined model has indicated a high explained variance in the adoption of mobile marketing using a few variables (Babbie, 1998; Zhou *et al.*, 2017; Venkatesh & Bala, 2008). It also highlights the potential importance of perceived online negotiation as an integrated variable in the model. As such, this leads to the is confirmation of the null

hypothesis to the effect that perceived online negotiation is not the stronger predictor of adoption of technology, even though further investigation is necessary. The results further provide insights for future studies regarding mobile marketing adoption in both developed and developing countries, and analyse on the similarities and differences, which can add utility in theoretical and practical aspects of the technology acceptance model regarding technology adoption.

The results further show that perceived online negotiation does not necessarily influence the relationship on the adoption of mobile marketing in Tanzania's telecommunication industry. Similarly, Chille *et al.*, (2021) study in Tanzania had found that the perceived online negotiation was a non-predictor when it came to the adoption of mobile marketing technology likely because of the customers' unfamiliarity with online negotiation concepts in the context of marketing platforms, the paucity of studies on the variable notwithstanding Chille *et al.*, (2021). As such, additional studies are necessary to explore the importance of perceived online negotiation even further.

6.0 Conclusion and recommendations

The study has revealed that perceived usefulness and ease-of-use are key predictors of mobile marketing adoption in Tanzania's telecommunications sector. It suggests that perceived online negotiation is not a significant factor in technology adoption. Moreover, the study validates the technology acceptance model's main constructs, suggesting that service providers should create mobile marketing platforms that cater to customer needs, provide user-friendly information gadgets, and ensure easy accessibility of information, which could help enhance the adoption of mobile marketing in Tanzania's telecommunications industry.

The study further found that perceived online negotiation does not significantly impact on the adoption of mobile marketing in the country's telecommunications industry. Despite emerging as an antecedent to ease-of-use, online negotiation did not necessarily affect adoption. This outcome highlights the limitations of TAM in certain situations. Furthermore, the study suggests that policy-makers and stakeholders should improve policies and strategies to enhance the ease and usefulness of mobile marketing products in a bid to ensure that they conform to consumer needs. However, the influence of online negotiation need further exploration, as most of the customers do negotiate through mobile applications. Also, further investigation is necessary due to the importance of negotiation in the daily lives of customers in both developed and developing countries.

7.0 Research limitations and areas for future studies

This study on the technology adoption in Tanzania's telecommunication sector has identified several factors that were not necessarily integral to the current research. As such, future research should explore these factors, including perceived customer tastes, preferences, social behaviour, characteristics, and behavioural traits. Additionally, understanding the impact of perceived online negotiation on customers' mobile marketing adoption could provide valuable insights. Also, as the study was conducted in only one region on Tanzania Mainland out of 31 (26 on the mainland and 5 in the Zanzibar archipelago), hence non-representative of the entire population. Future research should, therefore, aim to include a more diverse sample from different regions to gain a more comprehensive understanding of mobile marketing adoption in the country's telecommunication industry. Indeed, these limitations underscore the need for further research to address gaps and expand our understanding of factors influencing customer adoption of mobile marketing. By doing so, researchers can contribute to a more comprehensive knowledge base and offer

more valuable insights for Tanzania's telecommunication service providers, policy-makers, and other stakeholders.

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