

# Cashless Payments: Perceived Challenges by Stakeholders in Tanzania Using UTAUT2 Model.

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Received: 18-JAN-2024; Reviewed: 01-MARCH2024; Accepted: 13-MARCH-2024

<https://dx.doi.org/10.4314/fuoyejet.v9i1.11>

ORIGINAL RESEARCH

**Abstract**— The establishment of cashless payments has revolutionized financial transactions globally, yet its implementation in developing countries like Tanzania presents a unique series of challenges. This study investigates the challenges associated with cashless payments in Tanzania using UTAUT2 model. The UTAUT2 model determine behavior intention by individual technology consumers. The study employed quantitative research method for data collection by distributing questionnaires. Data analysis was performed using SPSS analytical tool. Findings revealed the most used cashless methods were mobile money 59%, Scan to Pay (QR Codes) 51% and Mobile banking 43%. Majority of respondents were found to use cashless payment service to pay bills 87%, sending and receiving money 85% and purchasing airtime 79%. Findings also shows UTAUT2 factors that affect the adoption of cashless payment is highly influenced by perceived price value of the service (heavy tax and levy 65%, high transaction costs 50%), facilitation condition (low support by merchants 51%, IT related Risks 42% and Delayed transaction completeness 41%), social influence (social altitude 38%) and hedonic motivation (risk of fraud 38%). This research contributes to the existing literature by offering insights into the current challenges impacting cashless payments in Tanzania.

**Keywords**— Cashless Payments, UTAUT2 Model, Perceived Challenges.

## 1 INTRODUCTION

Cashless payment methods are the ones which allow people to make business transaction without requiring physical money/cash. Cashless services facilitate data and information collection, access and promptly delivery of services (Barbu et al, 2021). Cashless payments methods include various modes of digital payments such as Banking Card, Unstructured Supplementary Service Data (USSD), Aadhaar Enabled Payment System (AEPS), Unified Payments Interface (UPI), Mobile Wallet, Cheque, Cryptocurrency, Internet Banking, and Micro ATM (Vipin & Sumathy, 2017; Rajesh et al, 2022). Most Tanzanians prefer mobile money as it is readily available due to wider penetration of mobile network operators. This research is intended to find out various challenges facing cashless payments in Tanzania by deploying the Unified Theory of Acceptance and Use of Technology Extended version (UTAUT2).

The UTAUT2 model explores individual intention to use information system and subsequent usage behavior. The UTAUT2 has seven constructs: technology usefulness in performing the required task, effort required to use technology, societal influence, condition that facilitate the technology, hedonistic motivation, cost associate with technology and custom formed around the technology (Venkatesh et al, 2012). In this study primary data was collected through questionnaire in order to identify challenges by cashless payment consumers and UTAUT2 model was deployed to explore how the perceived challenges align with usage intention and behavior by the model.

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Section B- ELECTRICAL/COMPUTER ENGINEERING & RELATED SCIENCE

Can be cited as:

Lissah M.J., Kirobo A., and Kaaye B.P. (2024).: Cashless Payments: Perceived Challenges by Stakeholders in Tanzania Using UTAUT2 Model, FUOYE Journal of Engineering and Technology (FUOYEJET), 9(1), 70–75. <https://dx.doi.org/10.4314/fuoyejet.v9i1.11>

## 2 LITERATURE REVIEW

### 2.1 BACKGROUND OF THE STUDY

Several studies have been performed to measure the adoption of cashless payments and their respective services in countries like Iran (Hojjati & Rabi, 2013), Turkey (Akturan & Tezcan, 2012), Jordan (Alalwan et al, 2017), Portugal (Oliveira et al, 2016), and Lebanon (Arvidsson, 2014). Studies such as (Tarhini et al, 2016), (Lee, 2006), (Riquelme & Rios, 2010), (Tan & Lau, 2016), and (Chiu et al, 2017; Tee & Ong, 2016) shows diffusing mobile banking and cashless payment systems in Asian nations. There is inadequate grounded theory in the field of information technology that can be used to fetch a reasonable analysis without some alterations, researchers moved towards the intention models of social psychology to understand user behavior (Mutiso & Reuben, 2021). This led to the formulation of various theoretical frameworks of information technology (IT) adoptions including Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), the Theory of Innovation Diffusion (TID), Decomposed Theory of Planned Behavior (DTPB) and Unified Theory of Acceptance and Use of technology (UTAUT).

### 2.2 UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY EXTENDED VERSION (UTAUT2)

UTAUT2 is an improved model of UTAUT which had four constructs: Effort expectancy, Performance expectancy, Social Influence and Facilitation conditions. The UTAUT model was created to capture essential element of eight psychological model (Venkatesh et al., 2003). The main disadvantage of UTAUT is that it focused on the organization settings (Williams et al, 2015). The UTAUT was used to find the insight of users who use Information System (IS) in a job setting and for personal use and hence it could not be used to assess the individual

IS products (Chang, 2012; Williams et al, 2011; Khechine et al, 2016; Shachak et al, 2019; Barrane et al, 2018). Thus, the extension to UTAUT2 has covered aspect which affect individual user directly (Venkatesh et al, 2012). The UTAUT2 model expands UTAUT by adding other three constructs: Price Value, Habit and Hedonic motivation. Thus, UTAUT2 models can be used to anticipate acceptance rate of a product and can be used to design more user-oriented products Tamilmani et al, 2017; Tamilmani et al, 2018; Tamilmani et al, 2021; Martins et al, 2014). This study used UTAUT2 model to explore the challenges that hinders the adoption of cashless economy in Tanzania.

**2.3 CHALLENGES AND LIMITATIONS OF CASHLESS PAYMENT**

The increasing interests in cashless payments methods not only led to a new way of conducting business transactions but also brought forth new types of challenges, threats and risks (Sowon et al, 2023). The challenges include vulnerabilities due to ignorance, technical issues, inadequate regulations, lack of information about mobile transactions, and lack of formal complaints and redress mechanisms (Seck-Sarr, 2024; Javaid et al, 2024). However, the security threats remain to be main obstacle towards cashless economy adoption (Gobena, 2023; Obiokafor, 2023; Nikoloska et al, 2022). Other literature has stipulated that there are cybercrime activities that pull back some customers from trusting CPM (Zargar et al, 2023; Rushita et al, 2023). Security challenges includes cryptographic security solutions, physical security for the e-payment terminals and lost debit/credit cards, political solution and IT security schemes such as transaction logs, and user-based privileged application access has hindered the potential customers from adopting the CPM (Obodoeze et al, 20012).

**2.4 RELATED WORKS**

The study by Alalwan et al (2017) concerning cashless payments have showed that the behavior intentions were supported significantly as factor affecting adoption of mobile banking in Jordan. Another study has focused on investigating how user experience contributes to the adoption of mobile money services (Olaleye S A et al, 2017). The study by Mallya and Makula, 2021 indicated that three independent variables (competition, technology and security concerns) had strong correlations with cashless payment system. This paper set itself apart from all previous studies by adopting UTAUT2 technology adoption model to explore factors identified by stakeholders' implication to adoption cashless payment methods.

**3 METHODOLOGY**

This study used quantitative approach in data collection and data analysis. Primary data collected through structured questionnaires and secondary data collected from literature. The study objectives were to find out most used CPM in Tanzania, what CPM services are wildly used by consumers, what are challenges which facing the

adoption of cashless payment in Tanzania and how the challenges identified are matched and explained by the UTAUT2 model. The study targeted different cashless payments stakeholders in Tanzania above 18 years old and those who have made multiple payments using CPM in the past year.

**3.2 SAMPLE POPULATION**

This study used snowball sampling method aiming to collect the data from 1200 people in Tanzania with a type I error of  $\alpha=0.05$  and confidence level of 95% using a formula in 1. With this population, 292 sample size was expected.

$$n = \frac{Nz^2pq}{d^2(N - 1) + z^2pq} \dots\dots\dots (1)$$

Where:

*N=Population per distribution*

*z= Normal Distribution*

*p= q+1 (proportion of selection)*

*q=1-p (chances of proportional unselected)*

*N-1= means holding one leaving others to rotate i.e. N must be greater than one*

*d2= Error of tolerance- omission or commission errors in computation*

Due to unavoidable circumstances, only 446 were returned. The sample size has been constrained by time limitations, geographical locations and budget. Among the returned questionnaires, 44 were discarded due to age limitations and 39 were removed due to incompleteness. Only 296 questionnaires were used.

**4 FINDINGS**

**4.1 DEMOGRAPHIC**

Table 1 shows the attributes of the participants who participated in this study: 82.1 % of respondent were male and 17.9% were female, majority of the respondents were aged between 25-35 and were undergraduate.

Table 1: Demographic

Description	Frequency	%
Gender		
Male	243	82.1
Female	53	17.9
<b>Total</b>	<b>296</b>	<b>100</b>
Age		
18-24	86	29.0
25-35	142	48.0
36-50	63	21.3
Above 50	5	1.7
<b>Total</b>	<b>296</b>	<b>100</b>
Education Level		
Primary School	42	14.2
Secondary School	31	10.4
Tertiary education	47	15.9
Undergraduate	111	37.5
Graduate or above	65	22.0
<b>Total</b>	<b>296</b>	<b>100</b>

### 4.2 CASHLESS PAYMENT METHODS

A need to identify the cashless payment methods most used in Tanzania was among the objectives of this study. Respondents identified that most used cashless methods used were mobile money 175(59%), Scan to Pay (QR Codes) 150(51%) and Mobile banking 127(43%). Internet banking, Pay by Mobile money, and Point of Sale had relative low responses of 68(23%), 62(21%) and 44(15%) respectively as shown in Figure 1.

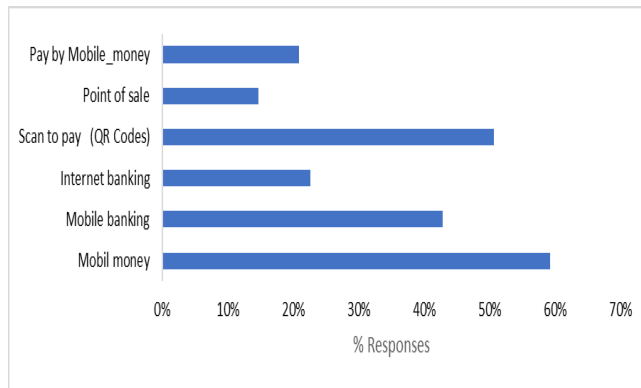


Figure 1: Cashless Payment Methods

### 4.3 CASHLESS SERVICES

The study intended also to find out the mostly used cashless services by consumers of cashless payment products. The result shows that majority uses cashless payment service for paying bills 257(87%), for sending and receiving money 251(85%), purchasing airtime 233(79%) and online shopping 156 (53%) as shown in Figure 2

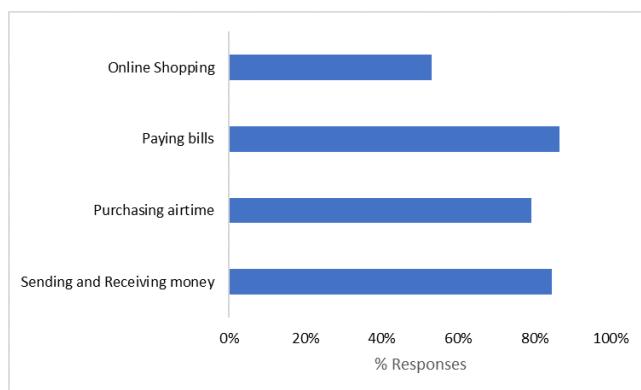


Figure 2: Cashless services

### 4.4 CHALLENGES AFFECTING THE CASHLESS PAYMENT USAGE IN TANZANIA.

The third objective was to find out the challenges that affect the adoption and usage of cashless payment in Tanzania. Figure 3, shows that the perceived factor which affect the usage of cashless transaction in Tanzania include heavy tax and levy associated by the cashless transaction 192(65%), services not being widely supported by merchants 150 (51%), high transaction cost of cashless payment methods 142(48%), IT related Risks 124(42%) and Delayed transaction completeness 121(41%). Other perceived factors with high frequency are risks of fraud, lack of knowledge on how to use cashless services, lack of confidentiality, poor

infrastructure and lack of vendors supporting cashless methods as elaborated in figure 3.

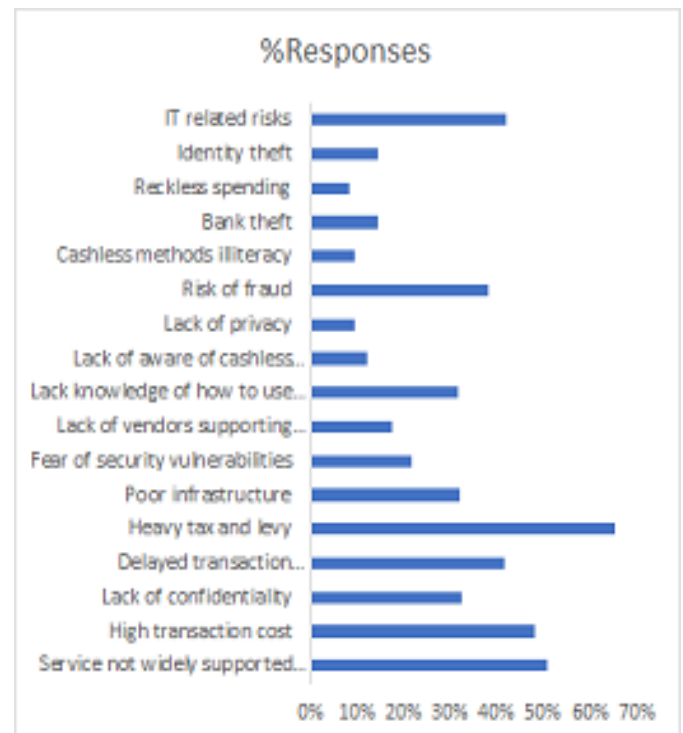


Figure 3. Challenges of cashless payment

## 5 DISCUSSION

The UTAUT2 model describes seven aspects of technology acceptance for consumers: -performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value and Habit. Figure 4 maps the identified challenges with the UTAUT2 model.

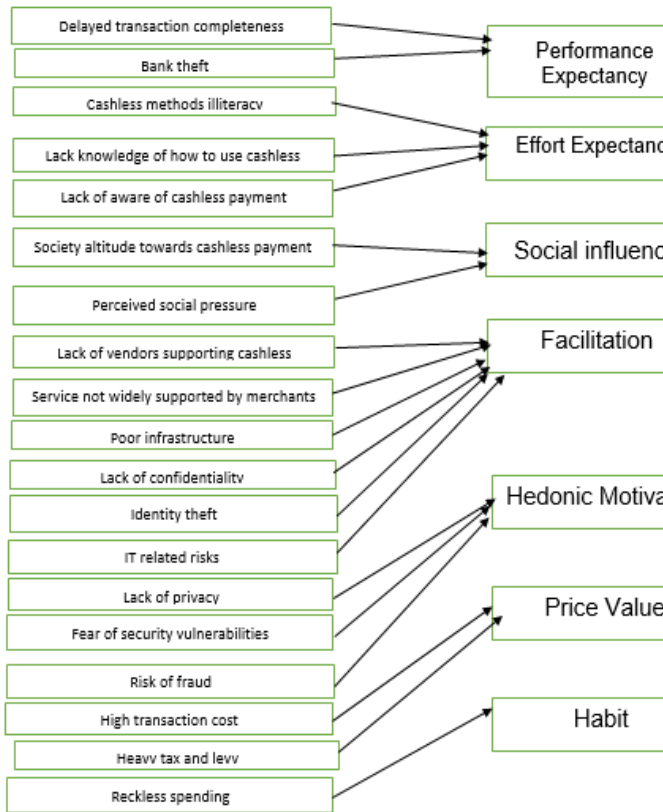


Figure 4: UTAUT2 model mapped with identified factors  
**5.1 PERFORMANCE EXPECTANCY OF CASHLESS PAYMENT**

It is true that the use of cashless payment services especially mobile payments is convenient. The result show that most respondents use mobile banking services and mobile money services by large proportional 174(59%) and 127(43%) respectively to complete different transactions but they also have identified the challenge of delay transaction completeness as one of the factors which affect cashless usage. Performance expectancy affects intention and behavior. Performance expectancy is perceived negative by consumers whereby 142(48%) of respondents identified this as a factor affecting cashless payment. This is further shown in figure 5.

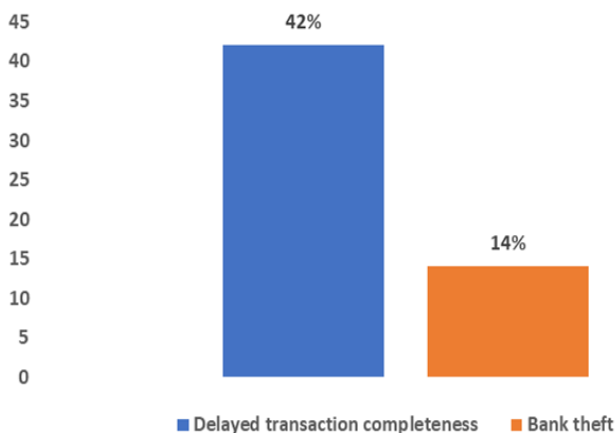


Figure 5: Performance expectancy of cashless payment

**5.2 EFFORT EXPECTANCY FOR CASHLESS PAYMENT**

Factors mapped to effort expectancy are lack of knowledge of how to use cashless methods, lack of aware of cashless payment and cashless methods illiteracy.

Effort expectancy emphasizes on how system is easy to use including the knowledge of existing system. The responses on these three factors as shown in figure 6 are: lack of knowledge of how to use cashless methods 94(32%), lack of aware of cashless payment 35(12%) and cashless methods illiteracy 29(10%). This finding shows that most people are aware of the cashless methods but they lack knowledge to how to use them. Low rate of responses on lack of aware of cashless payment 35(12%) and cashless methods illiteracy 29(10%) show that services of cashless payment especially mobile payment is widely penetrated in different locations

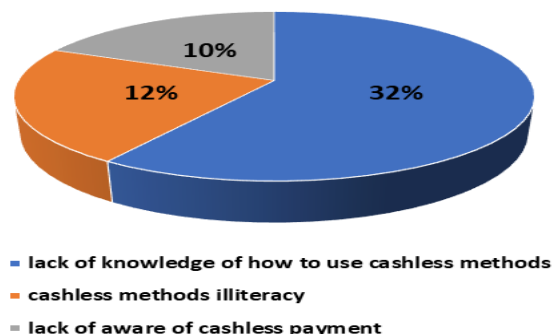
Figure 6: Effort expectancy of cashless payment  
**5.3 SOCIAL INFLUENCE ON USE OF CASHLESS PAYMENT**

Social influence follows on the perception of the society around the consumers. It affects people using technology because of how other people will regard if not used. The factors which are mapped to social influence are risk of fraud and reckless spending. The responses rate of these factors: society altitude towards cashless payment 112(38%) and Perceived society pressure 48(16%). The result shows that society perceive usage of cashless payment with fraud and hence this affects the usage of cashless payment. The perceived risk of reckless spending is low and hence not most people in the society consider this a factor of not using cashless payment methods. This concurs with the finding of (Saranza et al, 2024; Tee & Ong, 2016) that the usage of technology can be influenced by interpersonal networks.

**5.4 FACILITATION CONDITION FOR CASHLESS PAYMENT**

Facilitation conditions entails the degree to which individual believes there is technical infrastructure and support necessary for the use of system. User perception on facilitation condition determines the user behavior. Factor mapped to facilitation conditions are service not widely supported by merchants, lack of confidentiality, poor infrastructure, lack of vendor supporting cashless services, Identity theft and IT related risks. The response rate on the factors as elaborated in figure 8 include: service not widely supported by merchants 150(51%), lack of confidentiality 94(32%), poor infrastructure 94(32%), lack of vendor supporting cashless services 50(17%), Identity theft 41(14%) and IT related risks 124(42%), Figure 7.

**Effort expectancy for cashless Payment**



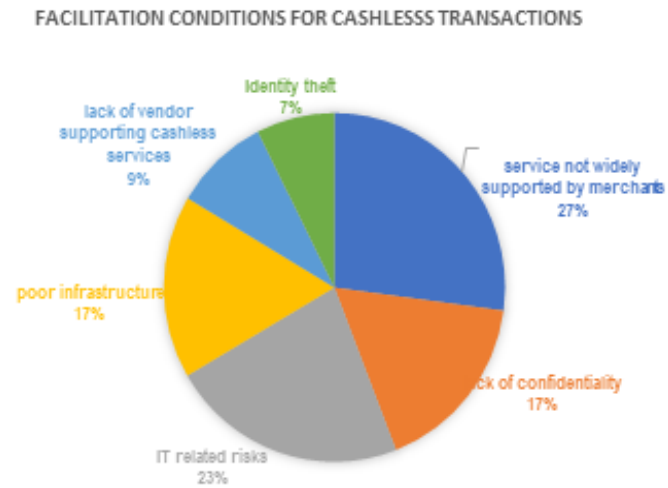


Figure 7: Facilitating conditions for cashless transactions

Based on the results the perceived consumers factor which affect their usage behavior are affected due to unavailability of cashless services when they need them and the IT related risks. This implies that consumers have low trust on the availability of the system and services offered by cashless and hence they opt not to use the system.

### 5.5 HEDONIC MOTIVATION

Hedonic motivation encompasses the experience of user/consumer when using and after using the product. The experience the user gets while using the product/system will make user reuse the product or not to reuse the product at all. The factors mapped to hedonic motivation are: fear of security vulnerabilities, lack of privacy, risk of fraud and bank theft. The responses for the marked factors: risk of fraud 112(38%), fear of security vulnerabilities 65(22%), lack of privacy 29(10%) and bank theft 41(14%). The results show that people may not use cashless payment methods because of the experience of fear on loss of their information, invasion of privacy and risk of fraud. This is because most services offered requires vendors as a third party to complete transactions.

### 5.6 PRICE VALUE OF CASHLESS PAYMENT

Price value entails that the price of product/ service can determine the behavior intention on the usage of the product and cost is a major determinant of consumer adoption decision (Venkatesh et al, 2012). Factor mapped to price value are heavy taxes and levy and high transaction cost. The response rate on heavy taxes and levy is 192(65%) while high transaction cost is 141(48%) of all respondents. This shows that most people do not use cashless method because cashless payment methods are associated with high transaction costs and heavy tax and government levy. This finding concurs with findings by (Abuya, 2023) which shows that the usage of mobile money in Tanzania decreased with the introduction of government levy in transaction apart from the transaction tax. Even though the service has widely penetrated it is not widely used because people believe it cost more than it should.

### 5.7 CONSUMERS' HABIT

Consumers' habit as a construct of UTAUT 2 describes the degree to which a consumer will perform behaviors automatically. The response factor mapped to Habit is reckless spending. Reckless spending has overall response rate of 23(8%). This means that use of cashless payment is not highly perceived as leading to reckless spending. People do not use cashless payment for reckless or unplanned spending as their automatic behavior when using cashless payment.

## 6 CONCLUSION AND RECOMMENDATION

### 6.1 CONCLUSION

The findings of the study shows that most used cashless payment method is mobile money. Other methods which are also frequently used are Scan to Pay and mobile banking. Cashless services which are mostly utilized by user are paying bills and sending and receiving money. Furthermore, the finding of the study shows that the adoption challenge of cashless payment is highly influenced by perceived price value of the service (heavy taxes and levy and high transaction cost), facilitation condition, social influence (society attitude towards cashless) and hedonic factors. There is implication in usage of cashless payment services based on the infrastructure available, redness of the society to use the services, cost associated with usage of cashless methods and security and trust.

### 6.2 RECOMMENDATIONS

In order to accelerate the adoption of cashless payment usage among different groups of users the cost of cashless transaction should be lowered to make it optimal and encouraging people to use. There should be infrastructure investment in infrastructure to facilitate CPM and the consumers should be imputed with necessary knowledge to use CPM and their security issues involved. Further study should focus on potential customers who have never used any CPM or are very new to CPM services and also the effect of control factors such as customer education level and age on CPM usage behavior.

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