AFRICAN CULTURAL TECHNOLOGY ACCEPTANCE MODEL (ACTAM): REVISITING THE UTAUT2 MODEL IN AFRICAN CONTEXTS

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ABSTRACT

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) provides a theoretical framework for understanding technology adoption. However, its universal applicability is questioned in culturally diverse regions like Africa given a different dimension to its use and application. This study revisits the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model to evaluate its applicability in African contexts. A structured questionnaire was developed to capture data on three cultural aspects (collectivism, oral traditions and spirituality). The results shows that while core UTAUT2 constructs such as performance expectancy and effort expectancy are relevant, additional factors like community consultation, cultural and linguistic compatibility, resource accessibility, and collectivist orientation significantly impact technology acceptance in African communities. For instance, 23% of respondents consult community elders before adopting new technology, while a majority emphasize the importance of technologies serving collective over individual needs. The findings also highlight barriers such as inadequate infrastructure and limited cultural alignment, which UTAUT2 does not fully address. This study underscores the importance of culturally inclusive models like ACTAM to foster sustainable technology adoption in Africa. Recommendations for future research include expanding geographic scope, exploring spirituality's role, and incorporating participatory co-design methods to refine ACTAM and enhance its practical relevance.

KEYWORDS: *UTAUT2, African Cultural Technology Acceptance Model (ACTAM), technology adoption, culture, technology acceptance in Africa, user-centred design*

INTRODUCTION

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) provides a theoretical framework for understanding technology adoption. However, its universal applicability is questioned in culturally diverse regions like Africa. The UTAUT2 model, an extension of the original UTAUT, is widely used to explain technology acceptance and use behaviour across various domains. It incorporates seven key constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit (Vidosavljević *et al*., 2024; Putranto, 2020). These factors have been found to influence user satisfaction in mobile commerce (Vidosavljević *et al*., 2024) and

mobile banking usage (Putranto, 2020). Studies have shown that performance expectancy, price value, and habit positively affect behavioural intention, while habit and behavioural intention significantly impact use behaviour in e-wallet applications (Utami and Irwansyah, 2022). Similarly, all seven UTAUT2 constructs were found to have a significant and positive influence on the behavioural intention to use mobile payment systems (Maharjan ad Kc, 2023).

The UTAUT model developed in 2000 by Venkatesh *et al*. (2003) was based on four constructs (performance expectancy, effort expectancy, social influence and facilitating conditions). They were derived from reviews from previous models like Theory of Planned Behaviour, The Technology Acceptance Model, the Motivational Model and the Theory of Planned Behaviour. Venkatesh *et al*. (2012) added three new constructs to form UTAUT 2 model (hedonic motivations for enjoyment check, price/cost of getting the tool and habit to measure how technology had become part of the user. the model by Venkatesh *et al*. (2012) is shown in figure 1, with the following description of the various constructs:

1. Performance Expectancy: The degree to which an individual believes that using the system will help him or her to attain gains in a job.
2. Effort Expectancy: The degree of ease associated with the use of the system.
3. Social Influence: The degree to which an individual feels that it is important for others to believe he or she should use the new system.
4. Facilitating Conditions: The degree to which an individual believes that organizational and technical infrastructure exists to support use of the system.
5. Hedonic Motivation: the fun or pleasure derived from using a technology,
6. Price Value: The degree to which the cost and pricing impact the consumer's use of technology
7. Experience and Habit: Experience was based on post-training, one month later and three months later, while habit is the degree to which people perform behaviours automatically due to learning.
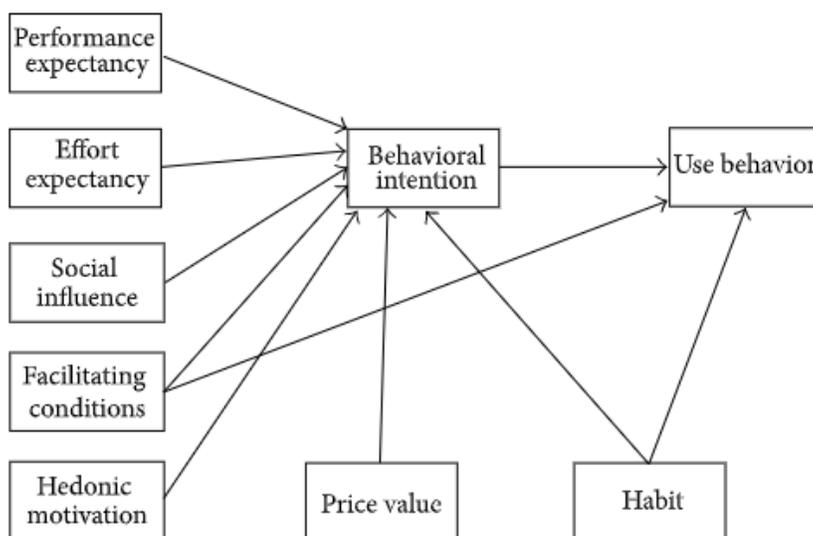
Fig. 1: UTUAT 2 MODEL (Venkatesh, 2012)

The UTUAT 2 model has the assumptions in Table 2 that forms the hypothesis of the model. The hypotheses are labelled H1-H9, would be checked with data obtained for this study.

Table 1: Hypothetical relationships between variables, adapted from UTAUT2 (Venkatesh, 2012)

Performance Expectancy (PE)	PE has a direct, positive and significant impact on BI	H1
Effort Expectancy (EE)	EE has a direct, positive and significant impact on BI	H2
Social Influence (SI)	SI has a direct, positive and significant impact on BI	H3
Facilitating Condition (FC)	FC has a direct, positive and significant impact on BI	H4
	FC has a direct, positive and significant impact on Cognitive use behaviour (UBco)	H5
	FC has a direct, positive and significant impact on functional use behaviour (UBfu)	H6
Hedonic Motivation (HM)	HM has a direct, positive and significant impact on BI	H7
Behavioural Intention (BI)	BI has a direct, positive and significant impact on Cognitive use behaviour (UBco)	H8
	BI has a direct, positive and significant impact on functional use behaviour (UBfu)	H9

The UTAUT2 model has been widely applied and extended in various cultural contexts to understand technology adoption. Studies in developing Asian and African countries have found performance expectancy, facilitating conditions, habit, and perceived security as significant antecedents of behavioural intentions for online and mobile banking (Khan *et al*., 2017; Baptista and Oliveira, 2015). A

systematic review of UTAUT2 literature revealed that the model has been extensively used and extended with context-specific variables, though its complexity affects parsimony (Tamilmani *et al*., 2021). Researchers have also mapped UTAUT2 extensions to various context dimensions to identify limitations in existing technology adoption research (Tamilmani *et al*., 2021). The model's widespread application across different technologies and cultural settings demonstrates its robustness in explaining user acceptance and behaviour (Trojanowski *et al*., 2019). Oveh and Egbokhare (2013) did a study which showed the relevance of UTAUT model constructs (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Condition) to Africa in determining acceptance of technology. This paper seeks to evaluate the applicability of UTAUT2 in African contexts, identifying additional factors influencing technology acceptance in Africa.

METHODS

A structured questionnaire was developed to capture data on three cultural aspects (collectivism, oral traditions and spirituality). The questionnaire comprised 17 items, organized into two sections (Biodata and user perception). The questionnaire items were designed using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire was pretested with a pilot group of 10 participants to ensure clarity, reliability, and validity of the items. Feedback from the pilot study was used to refine ambiguous questions and improve the overall flow of the survey.

Data collection was conducted over a one-month period. The questions were distributed both physically and online (through a google form, with the link sent to various WhatsApp groups). The study protocol emphasized voluntary participation, and informed consent was obtained from all participants prior to commencing the survey. Out of the 70 questionnaires distributed, 41 were valid while 2 were invalid due to incomplete data. The questions asked are:

1. were we consulted before technology was introduced to our community?
2. Do you feel this "technology is designed with your community's needs in mind?
3. Technology respects your language and traditions?
4. There are enough resources (electricity, internet, support) to use this technology?
5. People in your community encourage you to use technology?
6. Technology is easy to use or understand?
7. technology will improve productivity in our community
8. Spiritual beliefs are important in your decision to use technology
9. Do you believe technology must align with local customs and traditions?
10. How much do you agree with this statement? "Technology should serve the entire community, not just individuals."

RESULT

The demography showed that 35% of the respondents were males and 65% female. The educational level showed that 55% of the respondents had a BSc, 37% had SSCE, 5% had a masters and 3% had a PhD. Their occupation showed that 67% of the respondents were students, 31% workers and 2% were unemployed. The responses also showed that 37% of the

respondents do not consult anybody before adopting new technology, 21% consult family members, 23% consult Community elders or leaders, 16% consult friends/peers, while 2% consult spiritual leaders. The other responses to the questionnaire are shown in Figure 2.
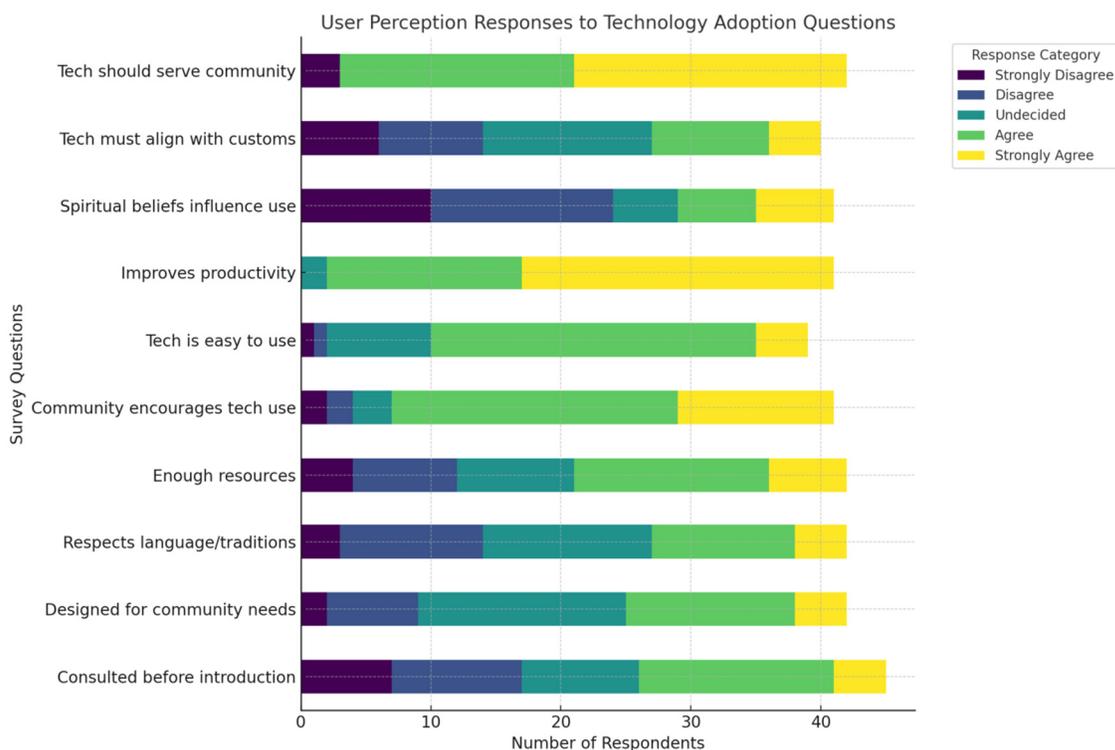

Fig. 2: Questionnaire Responses

DISCUSSION

The user perception data reveals a largely optimistic attitude toward technology adoption within the community, though it also highlights critical areas of concern. Respondents overwhelmingly agreed that technology is both easy to use and capable of improving productivity. Specifically, 93% of respondents believed that technology will enhance productivity, and a majority also felt that it is user-friendly. Similarly, strong positive sentiment was observed in the social context, with over 80% agreeing that people in their community actively encourage the use of technology. These responses indicate a favourable climate for technology uptake, driven by perceived usefulness and community support.

However, this positive outlook is tempered by significant concerns regarding inclusiveness and cultural alignment. When asked whether they were consulted before the technology was introduced, responses were mixed, with 17 respondents disagreeing and only 19 agreeing. This suggests that many community members felt excluded from the decision-making process. Likewise, there was notable uncertainty around whether the technology was designed with the community's specific needs in mind. A large proportion of respondents

remained undecided, indicating either a lack of clear communication or limited engagement during the design phase.

Cultural and linguistic relevance also emerged as contentious issues. While some respondents agreed that the technology respects their language and traditions, a nearly equal number disagreed or were undecided, pointing to a disconnect between the technology and the community's cultural identity. Furthermore, opinions were split on whether technology must align with local customs and traditions, suggesting that while cultural sensitivity matters to some, it is not a universal expectation. Interestingly, spiritual beliefs were found to have little impact on technology adoption, with the majority of respondents stating that such beliefs do not influence their decisions.

Infrastructure adequacy, specifically the availability of electricity, internet access, and support was another area of concern. Although some respondents felt that resources were sufficient, a significant number either disagreed or remained uncertain. This indicates potential barriers to effective use and sustainability of technological interventions in the community.

Importantly, there was overwhelming consensus that technology should serve the entire community rather than just individuals. This reinforces the importance of designing solutions that are inclusive and community-centred, aligning with values of collective benefit and shared progress.

Overall, while users demonstrate a strong willingness to adopt technology-driven by its perceived ease of use, productivity benefits, and community encouragement, there are clear gaps in participatory design, cultural sensitivity,

and infrastructure readiness. Addressing these concerns will be critical to ensuring not just the adoption but also the sustainability and relevance of technology in such contexts.

CONCLUSION

This study critically revisits the UTAUT2 model within African contexts and proposes the African Cultural Technology Acceptance Model (ACTAM) as a more contextually grounded alternative. The findings affirm that while core UTAUT2 constructs such as performance expectancy and effort expectancy remain relevant, they are insufficient in fully capturing the dynamics of technology acceptance in African communities. Cultural dimensions - including collectivism, oral traditions, and spirituality - emerge as significant influences on user behaviour. In particular, the roles of community consultation, cultural and linguistic relevance, and shared resource accessibility reflect the collectivist values inherent in many African societies.

The study reveals a strong willingness among users to adopt technology, driven by perceived usefulness, ease of use, and strong community support. However, the lack of participatory design, limited infrastructure, and weak cultural alignment pose challenges to sustainable technology integration. The limited influence of spirituality on adoption decisions challenges some assumptions about the dominance of religious or spiritual barriers, highlighting the nuanced and evolving nature of African cultural contexts.

We therefore propose an African model for technology acceptance ACTAM (African Cultural Technology Acceptance Model). ACTAM offers a

more culturally responsive framework by integrating local values, communal orientations, and the realities of infrastructure and access. For technology to be sustainably adopted in Africa, models must move beyond universalist paradigms and embrace participatory, inclusive, and culturally attuned approaches. Future research should test ACTAM across diverse African regions, further explore the role of spirituality, and incorporate co-design methodologies that empower local communities to shape the technologies that affect them.

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