



## FACTORS INFLUENCING THE USE OF ICT AMONG CASHEW NUT MARKETERS IN OYO STATE, NIGERIA

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### ABSTRACT

The study examined the factors influencing ICT usage among cashew nut marketers in Oyo and Ogbomosho Zones of Oyo State. A multi-stage sampling technique was used to select 200 respondents, and data were collected using structured questionnaires. Descriptive statistics and a multinomial logit model were used for analysis. Results revealed that marketers were predominantly middle-aged  $x=47.25$ , married 88.2, and experienced, with education significantly predicting ICT adoption. Mobile phones and WhatsApp remain the most used tools, while advanced technologies show low patronage. The model indicated that education level ( $p < 0.05$ ) and cost of technology ( $p < 0.01$ ) were the significant determinants of ICT usage, while credit access and social influence showed limited effects. The study concludes that education level and cost of technology were the significant factors influencing the use of ICT among cashew farmers in the study area. The study recommended the need to enhance ICT integration in the cashew marketing chain.

**Keywords:** ICT, Factor, Cashew, Nut, Marketing

### INTRODUCTION

Africa emerged as the leading producer of raw cashew nuts (RCN) in 2023, accounting for about 60.2% of global production, followed by Asia with 24.7% and the Americas with 2.9%, according to FAOSTAT (2023). Across the continent, more than 3.1 million smallholder marketers depended on cashew production for their livelihoods, earning an average of 3,148 USD per ton of shelled cashew nuts between 2000 and 2019 (FAOSTAT, 2021).

In Nigeria, cashew production occupies a prominent position in the agricultural economy, with the country consistently ranked among the world's top producers. Nigeria is frequently listed among the top five cashew-producing nations alongside India, Ivory Coast, Vietnam, and Brazil (Babatunde *et al.*, 2023). The country's favorable climatic conditions—particularly in the central and southwestern regions—support extensive cashew cultivation. Recent estimates place Nigeria's annual cashew output at approximately 220,000 metric tons, making a substantial contribution to both global supply and national agricultural exports (Olukunle, 2022).

Marketing of cashew nuts in Nigeria involves an interconnected chain of producers, processors, and traders. However, despite rising production levels, the sector continues to face significant challenges. Infrastructure deficits, especially poor transportation networks, negatively affect the efficiency of the marketing system (Okeagu, 2024). Most cashew nuts are still exported in raw form, with minimal value addition conducted locally. Enhancing marketing infrastructure and expanding the use of Information and Communication Technologies (ICT) are essential strategies for improving the economic returns of cashew production in Nigeria. A major barrier influencing ICT adoption among cashew nut marketers is the limited awareness of the benefits and functionalities of digital technologies. This lack of awareness is further compounded by inadequate infrastructure, particularly in rural marketing areas where reliable internet access, modern communication tools, and technical support are often unavailable. These constraints reduce incentives for marketers to engage with ICT tools.



Resistance to change also contributes to the slow adoption of ICT. Many marketers remain committed to traditional marketing methods and may be reluctant to adopt new technologies due to perceived risks, financial implications, or the learning curve associated with digital tools. Such hesitation often stems from concerns about disrupting established practices or underestimating the potential gains from ICT use. As a result, inefficiencies persist within the marketing chain, leading to lower profitability, increased operational costs, and reduced competitiveness. Addressing these challenges is vital for maximizing the potential of ICT in the cashew marketing sector. This study therefore seeks to investigate the key issues shaping ICT adoption. Specifically, the objective of this study is to examine the factors influencing the use of ICT among cashew nut marketers in Oyo State, Nigeria. The study aims to: (i) examine the socio-economic characteristics of cashew nut marketers in the study area, and (ii) identify the factors influencing the use of ICT among these marketers.

## METHODOLOGY

### The Study Area

The study was conducted in two major zones of Oyo State, Nigeria: the Oyo Zone and the Ogbomosho Zone. Both areas are historically important and play vital roles in the state's agricultural and socio-economic development.

The **Oyo Zone**, centrally located in the state, comprises Atiba, Afijio, Itesiwaju, Iseyin, Oyo East, and Oyo West LGAs. With a population of about 736,072, it covers roughly 2,427 km<sup>2</sup> between latitudes 7.85°N–8.25°N and longitudes 3.93°E–4.38°E. The zone has a tropical climate, with rainfall from April to October and a dry season from November to March. Annual temperatures range from 24°C to 32°C, and rainfall averages 1,200–1,500 mm. Agriculture is the major economic activity, supported by fertile soils that favor yam, cassava, maize, and fruit production, alongside active local markets and traditional crafts.

The **Ogbomosho Zone**, in the northeast, includes Ogbomosho North, Ogbomosho South, Orire, Surulere, and Ogo Oluwa LGAs. It has an estimated population of about 645,000 and spans 1,454 km<sup>2</sup> between latitudes 8.08°N–8.27°N and longitudes 4.12°E–4.27°E. The zone has a tropical savanna climate, with similar seasonal patterns and average temperatures of 23°C to 33°C. Annual rainfall ranges from 1,100–1,400 mm. Major crops include maize, cassava, yam, and vegetables. Ogbomosho town serves as a commercial and educational hub, strengthened by institutions such as LAUTECH. Overall, both zones are central to Oyo State's agriculture and economy. Their strategic locations and accessible transport networks support active trade, agricultural marketing, and food security across the state.

### Sampling Procedure and Sample Size

A multi-stage sampling technique was used. First, the two zones were purposively selected. Then, two LGAs were randomly chosen from each zone, making four LGAs. In the next stage, three communities were randomly selected from each LGA, giving 12 communities. According to OYSADEP, these communities had 993 registered cashew marketers. Using proportionate sampling, 20% (200 marketers) were selected as respondents for the study.



**Table 1: Sample Size Selection Plan**

Zone	LGA	Communities	Population of Cashew Marketers	20% of Cashew Marketers	
Oyo	Atiba	Owode	78	16	
		Ojongbodu	82	16	
		Agunpopo	81	16	
		Jobele	83	17	
		Ilorra	69	14	
	Afijio	Akinmooiin	70	14	
		Takie	103	21	
		Ogbomoso North	Sabo	76	15
		Ogbomosho	OkeAanu	87	18
			Arowomole	113	23
Ogbomosho South	Apake	79	16		
		Caretaker	72	14	
<b>2</b>	<b>4</b>	<b>12</b>	<b>993</b>	<b>200</b>	

**Source:** (OYSADEP, 2026)

**Method of Data collection and analysis**

Primary data for the study were collected through questionnaires administered to cashew nut marketers. Information gathered covered respondents’ socioeconomic characteristics, available marketing technologies, factors influencing ICT use, marketing efficiency and profitability, extent of ICT adoption, and challenges associated with ICT usage. Data were analyzed using descriptive and inferential statistics. Descriptive tools such as frequencies, percentages, means, and standard deviations described key characteristics and technologies. Technique ranking identified the most commonly used ICT tools. Marketing margin analysis was used to assess the profitability and effectiveness of cashew nut marketing across different levels of ICT usage.

**RESULTS AND DISCUSSION**

**Socioeconomic Characteristic of Respondents by Level of ICT Usage**

Cashew nut marketers in the study area were mostly dominated by middle-aged of 31–40 years (39.39%) and medium (30.83%) with the overall mean age of 47.215 years. This consistent with Agbongiarhuoyi *et al.* (2020) and Akinpelu *et al.* (2021). The results in Table 1 revealed that almost all 97.06% of the respondents were male while 2.94% were female. This implies that cashew marketing in the study is dominated by men reflecting gender gaps in digital access noted by Iroanwusi *et al.* (2023) and Azeez (2024). Most marketers were married across all ICT levels (88.24%–93.94%), and education strongly predicts ICT use, with tertiary-educated respondents representing 61.76% of high ICT users, supporting Adeuyi (2024). Smaller household sizes (three to four members) show higher ICT usage (47.06% of high users), aligning with Agbongiarhuoyi *et al.* (2020). Marketing experience is long across groups—15–20 years for 38.24%–48.48% of users, with a mean of 16.925 years—consistent with Akinpelu *et al.* (2021). Cashew nut marketing is the major occupation, especially among medium (81.95%) and high (85.29%) ICT users, showing greater digital adoption among full-time marketers, while low ICT usage is highest among those only partially engaged (33.33%), supporting Adeuyi (2024).

**Table 2:** Distribution of Respondents based on the Socio-economic Characteristics

Age grp	Low Usage		Medium Usage		High Usage		Mean
	Frequency	%	Frequency	%	Frequency	%	
<=30	1	3.03	5	3.76	2	5.88	
31-40	13	39.39	41	30.83	11	32.35	47.215
41-50	5	15.15	39	29.32	11	32.35	
51-60	5	15.15	26	19.55	8	23.53	
> 60	9	27.27	22	16.54	2	5.88	
<b>Gender</b>							
Male	28	15.15	115	86.47	33		2.94
Female	5	84.85	18	13.53	1		97.06
<b>Marital Status</b>							
Single	2	6.06	12	9.02	4		11.76
Married	31	93.94	121	90.98	30		88.24
<b>Educational Level</b>							
No Formal	1	3.03	6	4.51	1		2.94
Primary	9	27.27	12	9.02	0		0
Secondary	9	27.27	63	47.37	12		35.29
Tertiary	14	42.42	52	39.10	21		61.76
<b>Household Size</b>							
3 – 4	11	33.33	33	24.81	16		47.06
5 – 6	15	45.45	81	60.90	15		5.04
>6	7	21.21	19	14.29	3		8.82
<b>Marketing Experience</b>							
≤ 5	7	21.21	26	19.55	5		14.71
6 – 10	5	15.15	20	15.04	10		29.41
11 – 15	5	15.15	26	19.55	6		17.65
15 – 20	16	48.48	61	45.86	13		38.24
<b>Main Occupation</b>							
Cashew nut marketing	18	54.55	109	81.95	29		85.29
Farming	11	33.33	19	14.29	2		5.88
Civil Service	4	12.12	5	3.76	3		8.82
<b>Total</b>	<b>33</b>	<b>100</b>	<b>133</b>	<b>100</b>	<b>34</b>		<b>100</b>

Source: Field survey, 2026

### Factors Influencing the Use of ICT by Cashew Nut Marketers

The multinomial logit model was used to analyze factors influencing the use of information communication technologies (ICTs) among cashew nut marketers, with mobile phones as the baseline category and alternative options including WhatsApp, mobile applications, Facebook, Twitter, Instagram, and TikTok. The independent variables include demographic and socioeconomic factors such as age, marital status, education level, household size, marketing experience, access to ICT training, costs of ICT, social influence, and access to credit. The study revealed that positive coefficients indicate a higher likelihood of using the specified ICT compared to the baseline, while negative coefficients suggest a preference for mobile phones. The findings demonstrate that the two most important factors influencing cashew nut marketers' usage of ICT-based innovations are education level and costs. The findings also indicated that cashew nut marketers with higher levels of education are more likely to use technology, as education is positively significant ( $p < 0.05$ ) for both medium and high usage levels. This result is consistent with Akinpeluet *et al.*, (2021), who emphasized how education can improve marketers' decision-making and usage of contemporary methods in Oyo State. Similarly, ICT usage greatly increases Benin's cashew nut marketers' export competitiveness, according to Akpaet

*al.*, (2024), underscoring the significance of cashew nut marketers' expertise and ability to incorporate new technologies into farming practices.

Furthermore, the result revealed that the cost of using technology has a significant and positive impact on medium-level usage ( $p < 0.01$ ), although the effect decreases at higher usage levels. This implies that although cashew nut marketers who are prepared to pay more are more likely to implement ICT at moderate levels, affordability acts as a barrier to further usage scaling. This validates the findings of Oluwafemi (2023), who pointed out that the full usage of digital innovations in Nigeria's agro-allied sector is frequently impeded by financial barriers. According to the Ibe, *et al.*, (2022) cooperatives help smallholder farmers reach markets, but cost-related limitations prevent long-term technological usage in cashew supply chains.

The limited impact of credit availability is consistent with Ibex *al.*, (2022), who pointed out that although credit is critical facilitators in principle, Nigerian cashew nut marketers frequently encounter difficulties in obtaining operational financial services. Therefore, encouraging sustained ICT usage among cashew nut marketers requires addressing structural barriers like financial access and cooperative support, even though education and technology costs remain crucial (Alabelewe *et al.*, 2025).

**Table3:** Factors Influencing the use of Information Communication Technologies by Cashew Marketers in the Study Area

Variables	Coeff	Std err.	T Stat	Coeff	Std err.	T Stat
Age	-0.0198	0.0356	-0.56	-0.0099	0.0370	-0.27
Marital status	1.7558	1.0549	1.66	1.4827	1.0593	1.40
Level of Education	1.1192	0.3860	2.90**	1.1716	0.4184	2.80**
Household Size	-0.4084	0.2171	-1.88	-0.3322	0.2203	-1.51
Marketing Experience (yrs)	0.0371	0.0397	0.93	0.0060	0.0426	0.14
Access to training on ICT	-1.2532	0.8663	-1.45	-0.9978	0.9759	-1.02
Cost of using technology	3.3717	1.0112	3.33***	1.6812	1.1020	1.53
Social influence	-1.1425	0.7918	-1.44	0.1595	0.6568	0.24
Access to credit	22.3031	1423.844	0.02	21.0096	1862.303	0.01

**Source:** Field survey, 2026, \*\* = 0.05 (significant at 5%), \*\*\* = 0.01 (significant at 1%)

## CONCLUSION AND RECOMMENDATION

The study concluded that level of education and cost of using technology were the factors influencing the utilization of ICT among cashew marketers in the study area. Also, most marketers have access to basic ICT tools—particularly mobile phones and WhatsApp—their usage remains limited to simple communication rather than advanced marketing or business management functions.

The study recommends that

- i. Strengthen ICT Training Programs: Government agencies, NGOs, and extension services should organize regular, practical ICT training tailored to cashew marketers. Emphasis should move beyond basic phone use to digital marketing, mobile money, record-keeping apps, and price information platforms
- ii. Improve Access to Credit: Financial institutions and cooperative bodies should design flexible credit facilities that enable marketers to acquire ICT tools and data resources. Credit access will support broader and more productive use of digital technologies.
- iii. Promote Digital Literacy and Education: Adult education and digital literacy initiatives should be expanded within cashew-producing communities. Higher education levels significantly improve ICT adoption and usage depth
- iv. Encourage Adoption of Advanced ICT Tools: Marketers should be sensitized on the benefits of using advanced ICT options—such as e-commerce platforms, mobile banking, and inventory management applications—to increase efficiency and expand customer reach.



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