



Utilizing Social Media Platforms for Improving Market Access for Agricultural Products

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Abstract

This study explores the use of social media platforms for improving market access agricultural products. The aim was to assess how social media platforms, specifically WhatsApp and Instagram, influence marketing efficiency and sales performance in the agricultural sector. Using a survey research design, data were collected via a structured questionnaire and analysed with t-test and least squares methods. Results indicate that social media usage significantly enhances marketing efficiency and increases farmers' turnover by reducing marketing costs and boosting demand for agricultural products. The findings highlight the role of social media in improving marketing practices and sales outcomes for farmers. This research contributes to understanding the implications of social media in agricultural marketing and its effects on marketing efficiency and sales performance.

Keywords: Agricultural marketing, efficiency in marketing, optimal sales turnover, social media marketing, demand for agricultural products

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I. Introduction

The agricultural sector plays a pivotal role in the economic development of many countries, acting as a foundation for broader industrial and economic growth (Food and Agricultural Statistics, 2004). The green revolution, marked by substantial investments in food production, has historically been a precursor to industrial revolutions, underscoring the critical importance of agriculture in achieving industrialization (Inegbedion et al., 2020; Inegbedion et al., 2018). Agricultural productivity improvements are not only essential for economic growth but also crucial for poverty alleviation in developing countries. This aligns with the macroeconomic goals of enhancing livelihoods and achieving sustainable development, specifically contributing to the United Nations' Sustainable Development Goals of "No Hunger" and "No Poverty" (Nebo & Ejionueme, 2017).

In Nigeria, however, the agricultural sector has suffered from chronic neglect and underinvestment, resulting in a decline in its attractiveness to the younger generation. This disinterest poses a significant challenge, as it threatens to undermine the sector's potential and its capacity to contribute to national development. To counteract this trend, innovative approaches to agricultural marketing are necessary. One such approach involves harnessing the power of social media, which has become an integral part of daily life for many Nigerians across different age groups.

The advent of social media platforms such as WhatsApp, Instagram, and Facebook has transformed the way people communicate and interact. These platforms offer new opportunities for marketing and promoting agricultural products, potentially increasing visibility and accessibility for farmers. By utilizing social media, farmers can reach a broader audience, engage with potential buyers more effectively, and enhance their marketing strategies. This shift in marketing dynamics could lead to significant improvements in demand for agricultural products, reduction in marketing costs, and increased sales turnover.

Given the potential of social media to revolutionize agricultural marketing, this study seeks to investigate its impact on key performance indicators in South-South Nigeria. Specifically, the study aims to evaluate how the adoption of social media influences marketing costs, demand for agricultural products, and farmer turnover. By exploring these relationships, the research will provide insights into the effectiveness of social media as a tool for improving agricultural marketing and contributing to the sector's revitalization.

II. Literature Review

2.1 Channels of Advertisement

Traditional agricultural marketing involves a series of processes including identifying and producing farm products that meet consumer requirements, ensuring proper storage to maintain product availability, and transporting these products to their required destinations. This conventional approach primarily relies on non-verbal communication between producers and consumers. Farmers develop products based on perceived consumer needs, produce them accordingly, store them, and distribute them to locations with anticipated demand. Despite its foundational role, traditional marketing strategies often lack the dynamic interaction and real-time engagement that modern methods can offer.

To address these limitations, large organizations and government bodies have increasingly turned to print and electronic media for advertising. Print media such as newspapers and magazines, alongside electronic media including radio and television, have been used to create awareness about product availability, highlight their benefits, and guide consumers to where they can be purchased. These advertising channels aim to capture a broad audience, inform them of product options, and stimulate demand, especially when products offer a compelling alternative to existing options.

In the context of agricultural marketing, the use of print and electronic media has been essential for creating a market presence and communicating product benefits. However, as the digital landscape evolves, these traditional methods face challenges such as high costs, limited reach, and less direct consumer engagement. This underscores the need for more effective strategies in marketing agricultural products.

2.1.1 Adoption of Social Media for Agricultural Marketing in South-South Nigeria

With the limitations of traditional media, there is a pressing need for innovative marketing strategies in agriculture. The rapid proliferation of mobile phone usage over recent decades presents a viable alternative for agricultural marketing in Nigeria and other emerging economies. Mobile phones have facilitated increased information dissemination and networking, even in remote areas. This technology has empowered rural populations by improving access to information and communication, thereby enhancing their engagement in various economic activities. In particular, social media platforms such as WhatsApp, Instagram, and Facebook have become crucial tools for agricultural marketing. They offer farmers new ways to reach potential buyers, promote their products, and interact directly with consumers, which can lead to better marketing outcomes and improved living standards for farmers.

2.2 Theoretical Review

2.2.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a widely utilized framework for understanding user acceptance of technology, including the internet. According to TAM, users' acceptance of technology is significantly influenced by their perceptions of its usefulness and ease of use (Chuttur, 2009; Dwivedi et al., 2017). In the context of social media for agricultural marketing, TAM suggests that farmers' willingness to adopt these platforms will be determined by their beliefs about how beneficial and user-friendly the technology is. Recent refinements to TAM have expanded its applicability to better understand users' intentions and acceptance of internet technologies, including social media.

2.2.2 Theory of Agricultural Marketing Cooperatives

The Theory of Agricultural Marketing Cooperatives focuses on how agricultural marketing cooperatives (AMCs) can adopt direct selling approaches to benefit their members. In this model, farmers within a cooperative have the option to sell their products directly to the cooperative or to local markets. The theory posits that selling through the cooperative can lead to anti-competitive effects in direct selling markets, whereas direct selling can foster "healthy emulation" among farmers, stimulating production and benefiting the cooperative as a whole (Agbo et al., 2013). This theory highlights the potential for cooperatives to enhance marketing efficiency and farmer profitability through strategic selling approaches.

2.2.3 Theoretical Framework

This study adopts TAM and the Theory of Agricultural Marketing Cooperatives as its theoretical framework. TAM is chosen to assess how farmers' perceptions of the usefulness and ease of use of social media influence their adoption of these platforms for marketing purposes. The Theory of Agricultural Marketing Cooperatives is relevant for understanding how cooperative structures can support and enhance the effectiveness of social media marketing among farmers. Together, these theories provide a comprehensive framework for exploring the impact of social media on agricultural marketing performance.

2.3 Empirical Review

2.3.1 Use of Social Media in Marketing Agricultural Products and Cost of Marketing

Balkrishna and Deshmukh (2017) investigated the role of social media in agricultural marketing and its potential scope. Their study, which utilized questionnaires and in-depth interviews, found that social media is highly effective in agricultural marketing. Similarly, Vassiliadou et al. (2011) examined the role of social media among students in Technology Agriculture and its impact on promoting agribusiness. Their findings demonstrated that social media facilitates the flow of information and provides a cost-effective means of advertising products. Both studies suggest that social media enhances marketing efficiency by improving information dissemination and reducing marketing costs.

2.3.2 Use of Social Media in Agricultural Marketing and Sales Turnover

Mwangi and Wagoki (2016) conducted a survey to explore the effect of social media on advertising performance in Kenya. Their study revealed a significant positive relationship between social media interactivity and advertisement performance. Similarly, Lashgarara et al. (2011) assessed the impact of ICT capabilities on agricultural marketing in Iran and found that ICT factors explained a substantial portion of the variance in marketing outcomes. These studies indicate that social media significantly influences advertising performance and agricultural product marketing. Based on these findings, the following null hypotheses are proposed:

- **H0 1:** There is no significant relationship between the use of social media in agricultural marketing and the cost of marketing agricultural products.
- **H0 2:** There is no significant relationship between the use of social media (Facebook, WhatsApp, and Instagram) in agricultural marketing and farmers' turnover from agricultural products.

Additional studies, such as those by Akintunde and Oladele (2019) on ICT usage among agricultural extension officers in Lesotho, Alavion et al. (2017) on agricultural e-marketing adoption, and Eze et al. (2019) on mobile communication technologies in agricultural marketing, also contribute to the understanding of social media's role in agricultural marketing.

2.3.3 Gaps in the Literature

While there is a growing body of empirical literature on the use of social media and other communication technologies in agricultural marketing, several gaps remain. Studies by Balkrishna and Deshmukh (2017), White et al. (2014), and Khou and Suresh (2018) have explored social media usage in agricultural marketing, while Akintunde and Oladele (2019) and Alavion et al. (2017) have examined ICT determinants in agricultural marketing. However, few studies have specifically investigated the implications of social media usage on marketing efficiency and sales turnover in South-South Nigeria. This study aims to address these gaps by providing insights into the impact of social media on marketing efficiency and sales performance in this region.

III. Methods

3.1 Study Population

This study employed a quantitative research method with a conclusive research design consistent with Inegbedion (2018), Inegbedion et al. (2018), and Inegbedion et al. (2016). Data were collected through a survey.

3.1.1 Population and Sample Size

The target population comprised 4,280 farmers registered in cooperative societies across three states: Edo, Ondo, and Delta. Specifically, 1,620 farmers were from Edo State, 1,460 from Ondo State, and 1,200 from Delta State. To estimate a representative sample size, Yamane's formula (1967) was applied, which yielded a sample size of 366 farmers. Proportional allocation was used to ensure adequate representation from each state: 139 farmers from Edo State, 125 from Ondo State, and 102 from Delta State.

From the 366 sampled respondents, 246 (67.2%) voluntarily participated in the study. The participants were randomly selected from farmers' cooperative societies in the three states. To achieve randomization, a lottery method was used after stratifying the farmers based on their type of farming—crop, poultry, and fish farming. The farmers were then contacted through their preferred social media platforms (Facebook, WhatsApp, or Instagram).

3.1.2 Consent of Respondents

Prior to data collection, verbal consent was obtained from the management of the cooperative societies. Following this, the consent of the 366 sampled respondents was requested through social media channels. Out of these, 120 respondents declined participation, citing personal reasons or not providing any explanation. Consequently, 246 respondents agreed to participate in the study.

3.1.3 Validity of Instrument

A pilot test was conducted on 20 respondents to assess the validity and reliability of the research instrument. For validity, two approaches were used: face validity and content validity index (CVI). The instrument was reviewed by experts in management and marketing at the authors' institution for face validity. The CVI was calculated for both scale and item validity. The results were as follows:

- **Scale CVI:** 0.66
- **Item CVI for social media and cost reduction:** 0.67
- **Item CVI for social media and sales turnover:** 0.67

These values indicate that the instrument is valid since they are close to the recommended threshold of 0.7.

Table 1. Content Validity Index

Construct	CVI
Use of social media and cost reduction	0.67
Use of social media and sales turnover	0.66
Entire Instrument	0.67

3.1.4 Reliability of the Instrument

The reliability of the instrument was assessed using Cronbach's alpha (α). The computed values were:

- **Use of social media and cost reduction:** 0.70
- **Use of social media and sales turnover:** 0.75
- **Entire Instrument:** 0.84

These values are considered acceptable as they exceed the 0.7 threshold, indicating internal consistency and reliability of the instrument.

Table 2. Instrument Reliability

Construct	Cronbach Alpha
Use of social media and cost reduction	0.70
Use of social media and sales turnover	0.75
Entire Instrument	0.84

3.2 Data Sources

Data were collected through a structured questionnaire administered via social media platforms (Facebook, Instagram, and WhatsApp). The questionnaire included bio-data questions and 5-point Likert scale questions addressing social media usage in agricultural marketing and its implications for efficiency and sales turnover in South-South Nigeria. The questionnaire is available as Extended Data (Inegbedion et al., 2020).

Ethical approval for the study was obtained from the Landmark University Research Ethical Board. The study adhered to conventional ethical standards, including obtaining informed consent from all participants.

3.3 Model Specification

The following models were specified for analysis:

$$\text{CMAP} = f(\text{UFB}, \text{UWA} \text{ and } \text{UINS}) \quad \dots \quad (1)$$

$$\text{DAP} = f(\text{UFB}, \text{UWA} \text{ and } \text{UINS}) \quad \dots \quad (2)$$

In specific terms, equations 1 and 2 yield

$$\text{CMAP} = \beta_0 + \beta_1 \text{UFB} + \beta_2 \text{UWA} + \text{UINS} + e \quad \dots \quad (3)$$

$$\text{DAP} = \beta_0 + \beta_1 \text{UFB} + \beta_2 \text{UWA} + \text{UINS} + e \quad \dots \quad (4)$$

Where

CMAP = Cost of marketing agricultural products;

DAP = Demand for agricultural products;

UFB = usage of Facebook;

UWA = usage of WhatsApp;

UINS = usage of Instagram; and

e. = random error observed along with the variables

3.4 Estimation Technique

Data analysis was performed using SPSS 20. The analysis involved a one-sample t-test to assess the significance of social media constructs in relation to cost reduction and sales turnover. Additionally, least-squares regression was employed to evaluate the predictive power of social media usage (collectively) on cost reduction and sales turnover. The regression coefficients' signs were used to infer the direction of the relationships between social media usage in agricultural marketing and both the cost of marketing and sales turnover.

IV. Results

The results focus on the impact of social media usage on cost reduction in marketing agricultural products and on sales turnover of farmers. Underlying data are available from Dryad (Inegbedion et al., 2020).

4.1 Social Media Usage and Reduction in Cost of Advertising Agricultural Products

A comparison of Facebook usage in agricultural marketing with cost reduction revealed that respondents who agreed that Facebook enhances cost reduction had a mean score of 3.11. With a test value of 3 on a five-point Likert scale, the computed t- and p-values were 2.04 and 0.046, respectively. This indicates that Facebook usage significantly reduces marketing costs at the 95% confidence level (see Table 3).

A comparison of WhatsApp usage with cost reduction showed a mean score of 3.59. The computed t- and p-values were 14.58 and 0.001, respectively, signifying significant cost reduction at the 99% confidence level (see Table 3).

Instagram usage showed a mean score of 3.09, with computed t and p values of 1.99 and 0.048, respectively, indicating significant cost reduction at the 95% confidence level (see Table 3).

Regression analysis of social media usage and marketing cost revealed an R-Square value of 0.48, meaning that 48% of the variation in marketing cost is explained by social media usage. The ANOVA table showed a significant F value of 10.94 ($p < 0.001$). The coefficients indicated significant predictors for WhatsApp ($t = 5.015$, $p < 0.001$) and Instagram ($t = 2.570$, $p = 0.011$) usage in reducing marketing costs, while Facebook usage was not significant (see Table 4).

4.2 Social Media Usage and Sales Turnover from Agricultural Products

For Facebook usage, respondents reported a mean score of 3.214. The t- and p-values were 5.44 and <0.001 , respectively, showing a significant enhancement in sales turnover at the 99% confidence level (see Table 5).

WhatsApp usage had a mean score of 3.289, with t and p values of 5.84 and <0.001 , respectively, indicating a significant increase in sales turnover at the 99% confidence level (see Table 5).

Instagram usage showed a mean score of 3.115, with t and p values of 4.32 and <0.001 , respectively, indicating significant improvement in sales turnover at the 99% confidence level (see Table 5).

Regression analysis revealed an R-Square value of 0.58, meaning that 58% of the variation in sales turnover is explained by social media usage. The ANOVA table showed a significant F value of 7.21 ($p < 0.001$). The regression coefficients indicated significant predictors for WhatsApp ($t = 2.77$, $p = 0.006$) and Instagram ($t = 4.614$, $p < 0.001$) usage in enhancing sales turnover, while Facebook usage was not significant (see Table 6).

4.3 Demographic Variables and Social Media Usage

An F test compared respondents' perceptions of social media's role in cost reduction and their demographic variables. The results indicated no significant influence of demographic variables on the perception of cost reduction ($F = 1.12$, $p = 0.348$ for age; $F = 1.36$, $p = 0.25$ for sex; $F = 0.673$, $p = 0.671$ for educational qualification; $F = 1.28$, $p = 0.28$ for farm categories) (see Table 7).

Similarly, no significant influence of demographic variables was found on perceptions of social media's impact on sales turnover ($F = 0.29$, $p = 0.83$ for age; $F = 1.26$, $p = 0.27$ for sex; $F = 0.961$, $p = 0.51$ for educational qualification; $F = 0.734$, $p = 0.73$ for farm categories) (see Table 8).

4.4 Proposed Model of Social Media Usage and Expected Outcomes

Based on the research findings, a model was proposed showing that WhatsApp and Instagram significantly predict social media's impact on agricultural marketing efficiency and sales turnover. The model illustrates that the optimal use of these social media channels leads to reduced marketing costs and increased sales turnover, contributing to overall marketing efficiency and effectiveness (see Figure 1).

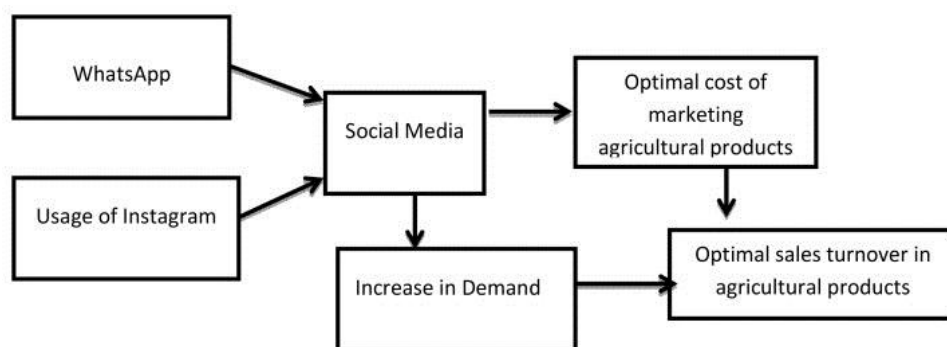


Figure 1: A model of social media marketing of agricultural products and sales turnover.

V. Conclusions

Based on the problem definition and findings, this research concludes that the use of social media channels, specifically WhatsApp and Instagram, significantly influences the cost reduction and efficiency in marketing agricultural products. Furthermore, it enhances farmers' sales turnover through increased demand for these products. Therefore, adopting social media for agricultural marketing markedly improves marketing efficiency and sales turnover for farmers in the South-South region of Nigeria. The study demonstrates that WhatsApp and Instagram are effective predictors of marketing efficiency and sales turnover.

This research contributes significantly to marketing and management knowledge in several ways. First, it is among the few studies examining the influence of social media marketing on both marketing efficiency and farmers' sales turnover in Nigeria. Second, it uniquely addresses the adoption of social media in agricultural marketing specifically within South-South Nigeria. A key distinction of this study from previous research is its focus on how social media usage impacts marketing efficiency and sales turnover, thereby reinforcing the relevance of social media to farmers in this region.

However, the study has limitations that warrant further investigation. Only three out of six South-South states were included, which may not fully represent the entire region. Additionally, the study's focus on members of farmers' cooperative societies may not capture the perspectives of non-members, who might have different views.

Implications of Findings and Recommendations

The findings underscore the importance of social media in enhancing marketing efficiency and sales turnover. Policymakers and strategic managers of agro-allied firms should leverage social media to reduce marketing costs and boost sales. This approach can contribute to agricultural sector growth, positively impacting the nation's GDP and overall development.

To further this progress, it is recommended that policymakers and agricultural stakeholders:

- Increase support for agricultural production and marketing to improve earnings and attract unemployed youths to the sector, aiding in food security and unemployment reduction.
- Promote social media adoption in agricultural marketing through farmer sensitization and the provision of modern communication gadgets at subsidized prices.

Future research should address the study's limitations by including more South-South states and incorporating perspectives from non-members of farmers' cooperative societies.

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