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Digital agricultural platforms for attracting young people into farming and agribusiness enterprises

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Abstract

Imagine a 22-year-old in Nairobi scrolling through a farming app the way they scroll social media checking prices, watching tutorials, connecting with other young farmers, ordering inputs with a tap. This research investigated how digital platforms attract young people into farming in Kenya. A cross-sectional survey of 217 young people aged 18-35 was conducted between March and October 2023, with 28 user interviews and 12 developer interviews. Among platform users, 73.4% reported increased interest in agriculture versus 31.8% of non-users ($p < 0.001$). Market price features showed the highest engagement (81.3%), followed by weather alerts (74.6%) and farming tutorials (68.9%). Youth who used platforms for more than six months were 2.7 times more likely to have started an agribusiness. Platform design features perceived as 'social-media-like' correlated strongly with sustained engagement ($r = 0.69$, $p < 0.001$).

Keywords: Digital platforms, youth agriculture, agribusiness, technology adoption, mobile applications, young farmers, agricultural extension, Kenya, digital engagement, farming enterprises

Introduction

Picture this: a generation that grew up with smartphones is being asked to take over an industry that still communicates through leaflets and field days. The disconnect between how young people consume information and how agricultural extension delivers it helps explain why youth participation in farming continues to decline across sub-Saharan Africa [1]. In Kenya, the median age of farmers is 61 years, and fewer than 10% of agricultural workers are under 35 [2].

Digital agricultural platforms mobile apps and web services offering market information, advisory content, input ordering, and peer networking represent a potential bridge between the digital habits of young people and the information needs of farming [3]. Several platforms have emerged in Kenya since 2018, including M-Farm, DigiFarm, and Twiga Foods, each targeting different points along the agricultural value chain [4].

This research examined whether and how digital platforms influence young people's attitudes toward farming and their decisions to enter agricultural enterprises, focusing on which platform features drive the strongest engagement among the 18-35 age group.

Conceptual Model

The research used the technology acceptance model (TAM) [5] as modified for agricultural contexts, examining perceived usefulness and perceived ease of use as predictors of platform adoption. This was combined with the theory of planned behavior [6] to capture how attitude, subjective norms, and perceived behavioral control influence young people's decisions to enter farming through digital

pathways.

Material and Methods

Material

The research was conducted through the Department of Agricultural Extension, Kenyatta University, Nairobi, Kenya, between March and December 2023. A total of 217 young people aged 18-35 participated: 134 active digital platform users and 83 non-users from the same communities. Respondents were recruited from four counties: Nairobi, Kiambu, Nakuru, and Machakos. A 62-item questionnaire covered platform usage patterns, agricultural interest, entrepreneurial intent, perceived barriers, and demographic characteristics. In-depth interviews were conducted with 28 platform users and 12 platform developers.

Methods

A cross-sectional survey design with a comparative component was employed. Platform users and non-users from matched demographic backgrounds were compared on agricultural interest, knowledge, and enterprise engagement. Data were analyzed using chi-square tests, independent t-tests, binary logistic regression, and Pearson correlations in SPSS v.28. Cronbach's alpha was 0.88. Qualitative data were analyzed using thematic coding. Ethics approval was obtained from Kenyatta University Ethics Review Committee (Protocol KU-ERC-2023-042) on February 15, 2023. All participants provided written informed consent.

Results

Table 1: Agricultural interest and engagement by platform use status (n=217)

Metric	Users (n=134)	Non-users (n=83)	p-value
Increased agri-interest (%)	73.4	31.8	< 0.001
Agribusiness started (%)	42.5	15.7	< 0.001
Agri-knowledge score (%)	64.8	41.3	< 0.001
Farming as career option (%)	68.7	28.9	< 0.001
Peer network size (mean)	14.3	3.7	< 0.001

Platform users scored consistently higher across all engagement indicators. The 42.5% who had started an agribusiness among users compared to 15.7% of non-users

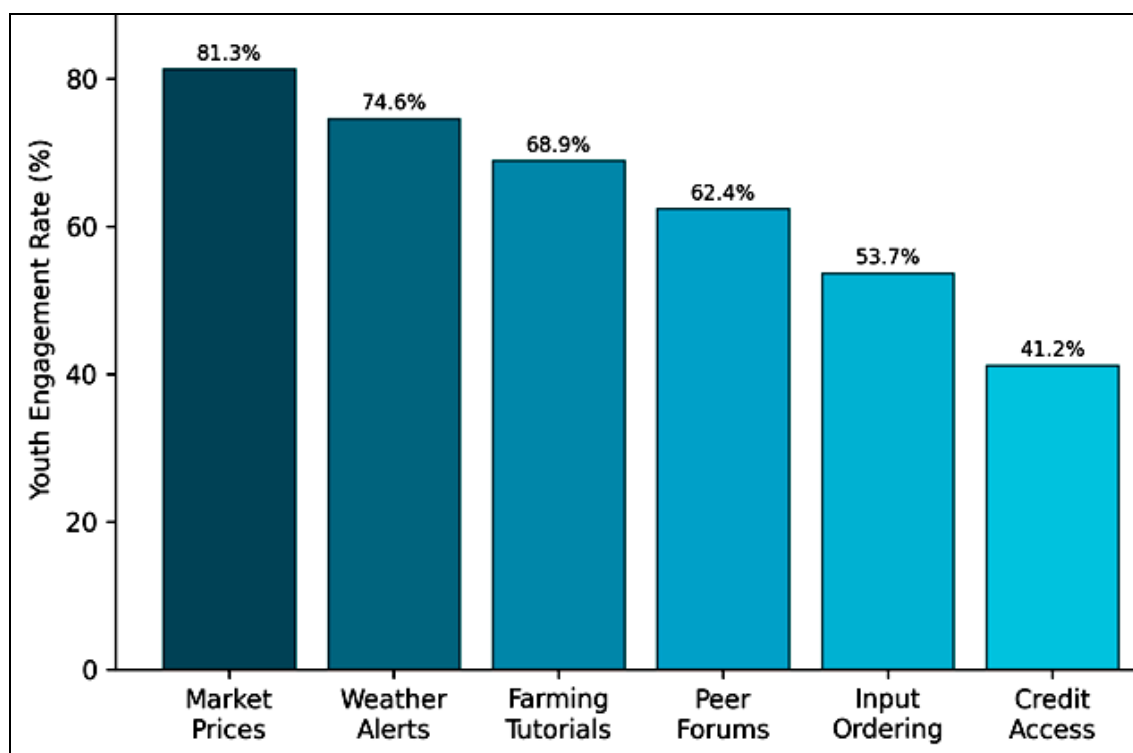
suggests that platforms don't just shift attitudes but translate into action.

Table 2: Engagement rates by platform feature among youth users (n=134)

Feature	Engagement (%)	Usefulness (1-5)	Frequency/week
Market prices	81.3	4.6	5.2
Weather alerts	74.6	4.3	4.1
Farming tutorials	68.9	4.1	3.4
Peer forums	62.4	3.8	3.8
Input ordering	53.7	3.9	1.6
Credit access	41.2	4.4	0.9

Market prices and weather alerts features delivering immediate, actionable value showed the highest engagement. Credit access, despite scoring high on

perceived usefulness (4.4), had the lowest engagement (41.2%), reflecting access barriers rather than lack of interest.

**Fig 1:** Youth engagement rates across six digital platform features

Features providing immediate practical value drove the highest engagement, while financial services lagged despite

strong perceived usefulness.

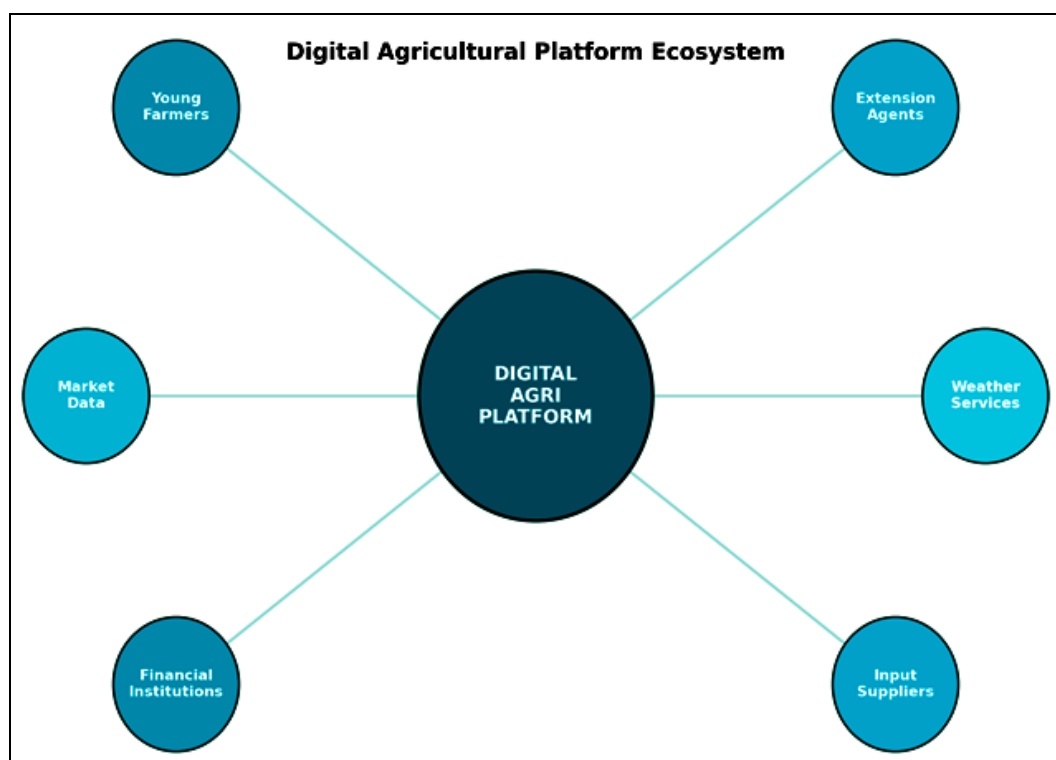


Fig 2: Digital agricultural platform ecosystem showing connections between stakeholders

Discussion

The 2.7-fold higher likelihood of agribusiness entry among long-term platform users provides encouraging evidence that digital tools can shift youth from passive agricultural disinterest to active enterprise engagement ^[7]. The strong correlation between social-media-like design and sustained use ($r=0.69$) suggests that platforms competing for young people's attention need to meet them where they already are on interfaces that feel familiar and engaging ^[8].

The gap between perceived usefulness and actual engagement for credit access deserves attention. Youth clearly want financial services through platforms but face barriers likely identity verification, collateral requirements, and trust issues that the platform interface alone cannot resolve ^[9]. Connecting platforms with youth-friendly financial products could unlock this high-potential but currently underperforming feature.

Practical Applications

Platform developers should prioritize features delivering immediate value (market prices, weather) as entry points, then layer in more complex services. Extension organizations should integrate digital platform engagement into youth-targeted programming. Policy makers should address the regulatory and financial barriers that prevent platforms from fully serving as gateways to agricultural credit.

Conclusion

This research demonstrated that digital agricultural platforms significantly increase young people's interest in farming and their likelihood of entering agribusiness. Market information and weather services drove the strongest engagement, while the gap between interest in and access to financial services represents an untapped opportunity.

Platform design that mirrors social media conventions sustained youth engagement most effectively. For a sector struggling to attract the next generation, digital platforms offer a proven pathway provided they are designed with young users, not just for them.

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