Mobile technology in agriculture: a bibliometric and science mapping analysis of global research trends and applications

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Abstract

Many farmers encounter three primary obstacles to adopting mobile technology, including digital literacy gaps, unreliable connectivity, and high costs, which affect both remote areas and under connected regions. Additionally, women farmers face specific cultural and gender-related barriers to accessing mobile technology. This study presents a bibliometric and science mapping analysis of global research trends and applications of mobile technology in agriculture between 2018 and 2024. The study found that key research themes include mobile applications, the Internet of Things (IoT), and precision agriculture, reflecting the increasing adoption of advanced technologies in agricultural systems. It also revealed that India, China, and the United States are the most prolific contributors to the publication output. The study also revealed that the most critical solutions for these problems are Public–private partnerships, policy, and international collaboration. This study contributes to the body of literature by providing comprehensive worldwide bibliometric analysis that identifies

research gaps and trends in mobile agriculture, as well as the sociocultural factors influencing the adoption of new technologies. Further studies should focus on implementing advanced mobile strategies, as well as connecting them with IoT, blockchain, and artificial intelligence, to address environmental problems and food security challenges cost-effectively. For the promotion of mobile technologies that are sustainable and resilient agricultural systems internationally, research should be conducted using multiple discipline experts to ensure diverse perspectives are considered. © The Author(s) 2025.

Indexed keywords

Engineering controlled terms

Environmental technology; Internet of things; Mobile applications; Mobile computing; Precision agriculture

Engineering uncontrolled terms

Agricultural system; Bibliometric; Connected region; Digital literacies; High costs; Mapping analysis; Mobile Technology; Remote areas; Research applications; Research trends

Engineering main heading

International cooperation

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