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Can Modern ICT Engage Farmers' Experiential Knowledge in Agricultural Advisory Services?

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Abstract

Public agricultural extension systems in developing countries play essential roles in agricultural development. But they often face challenges, including budget restrictions, a dispersed rural population, and weak infrastructure. In response, recent years have seen growing interest in the use of modern information and communication technologies (ICT) for extension delivery. To date, many new ICT-driven agro-information services follow a rather traditional transfer-of-technology paradigm. Agricultural knowledge and skills, however, are often embedded in social processes, undergo transition, and are hard to formalise because they arise from context-specific experience.

Modern ICT might help to materialise farmers' experiential knowledge resources, which could complement technical information in more meaningful agro-advisory services. But capturing this knowledge will require extension to accommodate two-way information flows that systematically recognise farmers' contributions, rather than pure one-way dissemination of information. For this, ICT-driven information services likely bear underused potential: Many opportunities exist for recollection of users' feedback to extension messages, such as simple up- or down-voting, or recording more elaborate personal commentaries. Analyzing big data arising from users' interactions with agro-information services, including data on accessed advisory topics, timings of use, location of users, etc., may reveal patterns in agricultural knowledge use that reflect farmers' day-to-day farming experience. With appropriate methods, this experience could be exploited for social learning, evaluating the agricultural technologies currently promoted, or setting priorities for future research.

In Kenya and Tanzania, we engaged with farmers, agro-advisors, and researchers in an open-ended, participatory, iterative design process. We aimed at developing a new agro-information service that mobilises experiential knowledge through two-way communication flows. In our design prototype, farmers have access to a library of short audio messages about agricultural topics, recorded by advisors, researchers, and experienced farmers, through an automated telephone hotline. Farmers may voice-record comments and questions. Advisors may use an online platform to record answers and send automated phone calls to farmers' phones. Experiential knowledge may materialise by spatial and temporal analysis of keywords attributed to questions and harnessing farmers' comments for recording new podcasts. First insights from pilot implementations will be presented.

Keywords: Agricultural extension, experiential knowledge, ICT, information system design

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