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## Technology acceptance model for adopting digital extension service: A comparative study of rice advice use in Nigeria

RICO AMOUSSOUHOUI<sup>1</sup>, AMINOU AROUNA<sup>2</sup>, MARIJA CERJAK<sup>3</sup>, JAN BANOUT<sup>1</sup>

<sup>1</sup> *Czech University of Life Sciences Prague, Fac. of Tropical AgriSciences, Dept. of Sustainable Technologies, Czech Republic*

<sup>2</sup> *Africa Rice Center (AfricaRice), Côte d'Ivoire*

<sup>3</sup> *University of Zagreb, Dept. of Marketing in Agriculture, Croatia*

### Abstract

Digital extension technologies play an important role in agricultural development by providing adequate solutions to multiple challenges, such as climate change, farmers' inefficiency, and market information. The increasing growth of digital extension technologies represents an opportunity to supplement and enhance the traditional approach. Although many farmers are excited to use digital farming technologies, barriers such as a lack of technology devices (smartphones, internet, electricity, etc.), low e-literacy, and a lack of technology awareness make adoption challenging. This study examines rice farmers' behaviour in relation to a new adoption approach implying the adoption of "extension service" using technology. The study examines a treated group's behaviour in adopting the new approach as well as a control group's intention to adopt it. Primary data were collected on 1562 rice farmers, with 1202 treated (submitted to a paid extension service proposition) and 360 rice farmers in the control group (no extension service proposition). We employ an extended version of the technology acceptance model to examine farmers' behaviour in the two groups. In addition to the standard construct of the technology acceptance model, we added three more constructs to analyse farmers' perception of the proposed "payment method", "the price", and their "satisfaction". To analyse the collected data, we used partial least square equation modelling. The preliminary results from the field intervention show that 72.02% of rice farmers accepted the proposed partnership. However, only 44.60% have adopted and paid for the service. Further investigation will assist us in understanding the reasons for the rejection as well as the behaviour of farmers adopting a paid partnership. This study is expected to provide experimental evidence on farmer behaviour when adopting digital extension technology versus the intention to adopt an unexposed group. The findings will help policymakers and agribusiness investors design a more sustainable adoption strategy for digital extension technology, particularly for farmers in developing countries.

**Keywords:** Digital extension services, Nigeria, rice, technology, traditional extension approach