

**UNIVERSITI TEKNOLOGI MARA**

**ICT USAGE TO SUPPORT  
AGRICULTURE  
TRANSFORMATION TOWARDS  
AGRIBUSINESS AMONG  
SMALLHOLDER FARMERS**

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## ABSTRACT

The main objective of this research is to investigate and understand the factors that contribute to the usage of ICT to support the agribusiness transformation among smallholder farmers in Malaysia by extending the existing theoretical framework. The perception of smallholder farmers plays an important role in utilising ICT as tools for improving their agriculture and business activities. Agriculture provides the main and raw source of foods for humans. Agricultural activities have been developed intensely in modern techniques and activities depending on the country, culture, and environment, such as the global climate and sustainability. Malaysia still imports food, as local providers cannot support the supply and demand within the country. Hence, the government has introduced many initiatives to support the agricultural industry to produce more food for local needs. Instead of introducing agricultural programmes and educating farmers, the government is focusing on the use of agricultural technology with ICT-based tools, and farmers in Malaysia are gradually recognising the importance of tools, such as fertigation and precision agriculture; nevertheless, they are still unable to improve their yield and supply the local demand for food. The introduction of agribusiness to the farmers is still not well understood and it is difficult to implement due to their limitations as smallholder farmers. This research uses a multi-methodology, to explore the nature of the phenomenon by integrating the multiple factor analysis with the integrated nature of the work, and an empirical system prototype has also been incorporated into the integrated information systems theory. Two research methods were initiated to achieve the research objectives. The first method involved distributing copies of a questionnaire to the smallholder farmers in Taman Kekal Pengeluaran Makanan (TKPM) in Selangor. By using SPSS for statistical analysis, this evaluated the new ICT usage framework being constructed including hypotheses testing and answering several research questions. To answer the other research questions, a second method was conducted with the aim of conducting an empirical study through exposing the farmers to the experimental prototype. Together with the result from the previous study and the secondary information from the Department of Agriculture, the first Farm Management Information System (FMIS) prototype for Malaysian farmers was developed using information systems development methodology. The research concluded that information system elements are also associated with ICT usage among smallholder farmers with strong evidence from the acceptance test and feedback interview. The result gives the researcher the opportunity to outline the final solid ICT usage framework in this study. From the findings gathered, the researcher has proposed an ICT usage framework and FMIS website guidelines in the Malaysian context. Overall, the findings suggest the low level of information system elements and farm works design may influence the technology factor towards ICT usage. This thesis provides valuable and practical information for government policy makers, researchers, and local enterprises to understand and formulate the ICT usage framework as the best method to improve the local agricultural industry.

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