PERFORMANCE EXPECTANCY EFFECT ON YOUNG FARMERS' INTENTION TO USE ICT: THE MODERATION ROLE OF SOCIAL INFLUENCE

Akinyi Lydia Sassi; Gwahula Raphael, PhD and Saganga Kapaya, PhD
The Open University of Tanzania, Faculty of Business Management

ABSTRACT
The purpose of this study was to examine the influence of performance expectancy on the intention to use ICT among young farmers with social influence as a moderator. The study employed a cross-sectional design for data collection whereby data from 403 respondents was involved in the analysis. Variance based-Structural Equation Modeling (PLS-SEM) was used for analysis. Results revealed that performance expectancy was significantly influential on young farmers' intention to use ICT. On the other hand, social influence was found to have no significant moderation influence on a relationship between performance expectancy and behaviour intention. The study on behaviour intention is generally extensive but limited in the agriculture field. Never the less, behaviour intention has proved to be contextually specific. This study has focused on young farmers to understand their adoption behaviour on the use of ICT. Furthermore, the study investigated the moderating role of social influence on the relationship between performance expectancy and behaviour intention for which literature is scant.

Keyword: Performance Expectancy, Social Influence, Behaviour Intention, Young farmers/Youth, ICT.

1. INTRODUCTION
Agriculture is a vital sector in the Tanzania economy, it employs more than 65% of the country's population (MALF, 2016). The sector is dominated by smallholder farmers and contributes 29% of the GDP and 30% of export. The sector, however, faces constraints and challenges which lead to lower returns to most farmers (MALF, 2017). Difficult in accessing relevant information which includes information about the market for the produce is among them (Misaki, 2016; Owusu et. al., 2017).
Integration of technologies that include information communication technology has been indicated as one of the important vehicles for bringing profitable changes into the sector (MALF 2016; Misaki 2016). However, studies have indicated that the use of ICT among farmers for business purposes that include searching for agriculture market information is low most especially in the less developed countries as in most countries in Sub-Saharan Africa. In a study conducted among farmers in Uganda by Moya and Engotoit (2017), it was found that only 5.3% of the respondents used custom-built mobile agriculture application for information search and

dissemination. Misakiet. al (2015) also indicated that the use of information communication technology among small scale farmers for supporting their agricultural activities is low.

Consider the presumed relevance of the use of ICT in agriculture and other sectors as well MWTC (2016) MALF (2017) Owusu et al. (2017), different studies have been conducted to identify the determinants of use of ICT to facilitate the integration and promotion of the same. Some of them have opted for the application of the Unified Theory of Acceptance and Use of Technology (UTAUT) since it is the hybrid theory that proved to explain more variation of the intention and use of ICT as compared to the eight prominent theories of planned behaviour and technology acceptance theories that were used to formulate it (Venkatesh et. al, 2003). Some studies that have applied UTAUT to identify the determinants of ICT adoption among farmers have indicated performance expectancy as one among factors for farmers intention and use of ICT (Malima et al. 2016; Engotoit et al. 2016; Moya and Engotoit, 2017; Beza et al. 2018). This study aims at going further and not only examine the influence of performance expectancy on the intention to use ICT among farmers but also to determine whether the role of performance expectancy on the intention to use ICT is moderated by social influence which has not been extensively examined. Unlike most of the previous similar studies, this study will only focus on young farmers. Youth have been indicated as quicker adopters and most willing to use ICT for accessing agricultural information than the elderly (Anoop et. al, 2014). In that regard, a better understanding of influential factors in youth behaviour to adopt will facilitate a quicker promotion of ICT among farmers.

2. LITERATURE REVIEW
2.1 Theoretical Grounding
Performance expectancy, social influence and behaviour intention; the variables that have been examined in this study are sourced from the Unified Theory of Acceptance and Use of Technology (UTAUT). UTAUT was developed by Venkatesh et al. (2003), it is a combination of eight prominent planed behaviour and technology acceptance models. UTAUT has four independent variables which are performance expectancy, social influence, effort expectancy and facilitating conditions; two dependent variables: behaviour intention and use behaviour; four moderating variables: Age, Gender, Experience and Voluntariness of use. UTAUT as a more hybrid theory indicated a significant enhancement in explaining the variance for behaviour intention by 70% as compared to the variance explained by each of the eight models which were between 17%-53% (Venkatesh et al., 2003; Venkatesh et al., 2012).

2.2 Empirical Grounding and Hypothesis Formulation
Relationship between Performance Expectancy and Behaviour intention
Performance expectancy refers to the extent which, one is convinced that using a particular system will enable them to attain better results than otherwise (Venkatesh et al. 2003; Slade et al. 2015). Using of ICT lead to the improvement in the accessibility of the information, ICT can allow accessibility of real-time information and that improves farmers' ability to bargain and obtain better farm gate prices (Irungu et al., 2015). Beza et al. (2018) conducted a study among farmers in Ethiopia and find performance expectancy to be among the relevant variables in determining the intention to use ICT. Several studies have assessed the influence of performance expectancy on the intention to use ICT and a number of them have indicated it to have a positive

significant effect on farmers intention to use ICT (Malima et al., 2015; Engotoit et al., 2016; Moya and Engotoit, 2017; Fox et al., 2018; Beza et al., 2018). Thus, the benefits that come with the use of ICT such as speeding of the information flow and creation of easy connection among stakeholders motivates the use of ICT (Irungu et al., 2015; Cant et al., 2016). In Venkatesh et al. (2003) which led to the development of the UTAUT, performance expectancy was found to be the strongest predictor of the intention to use ICT. Hence the development of the following hypothesis:

H1: Performance expectancy has a positive significant influence on young farmers' behaviour intention to use ICT

The Moderation Role of Social Influence on the Relationship between Performance Expectancy and Behaviour Intention

Social influence refers to the degree of importance that an individual place on how other people stimulate their decision to use a new system (Wijewarden, 2018; Venkatesh et al., 2003). A person's intention to use a certain technology has been indicated in some studies to be influenced by the people around them (Hoque and Sorwar, 2017; Abbas et al., 2018). Family members or other people around an individual play an important role in the individual behavioural decisions (Ekpe et al. 2016; Lee et al., 2011). Lee et al. (2011) found the influence of perceived usefulness (a variable from the Technology Acceptance Theory (TAM) which is related to performance expectancy from UTAUT) on attitude which leads to intention to use ICT to be moderated by social influence. Hence the development of the following hypothesis:

H2: The Influence of performance expectancy on young farmers' intention to use ICT is significantly moderated by social influence.
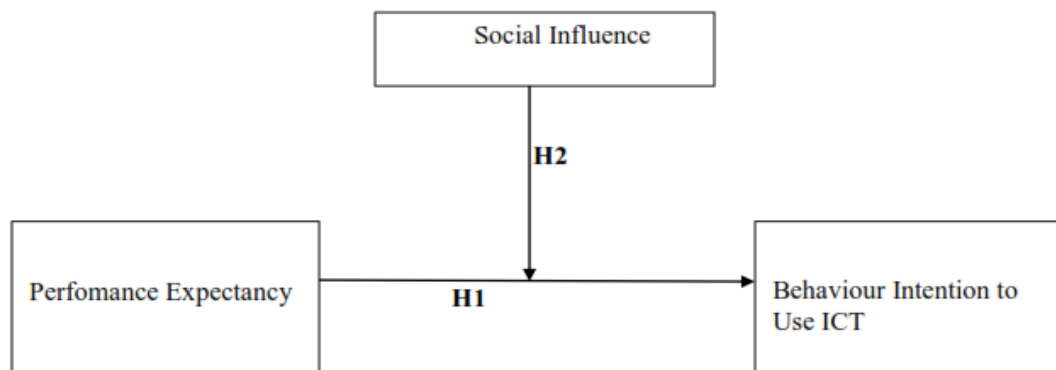
2.3 Conceptual Framework

Figure 1. Conceptual Framework

3. MATERIALS AND METHODS

3.1 Targeted Population and Area of the Study

The study focused on young farmers who are involved in the cultivation of rice from Ifakara town council and rural Moshi (Lower Moshi Irrigation Scheme). Rice is among the main staple food in Tanzania which creates a sustainable domestic market for the crop (Willson and Lewis,

2015). Rice is a predominant crop cultivated in Ifakara due to the presence of the Kilombero Valley that provides the conducive environment for the cultivation of rice (Makingi and Urassa, 2017). The collection of data from Ifakara and rural Moshi (Lower Moshi Irrigation Scheme) allows the combination of different features underlying the cultivation of rice in Tanzania.

3.2 Sampling Procedure and Design

A proportional stratified sampling was used whereby for each village the strata were formed based on gender and then the required sample size was reached by a proportional selection from each stratum. Simple random sampling was then used to select the final unit of analysis. Malhotra and Birks (2007) indicated that unless there is a special circumstance, otherwise simple random sampling should be used for the selection of the final unit of analysis from stratum. This procedure was preferred to have a proportional representation of both female and male into the sample.

3.3 Measurement Instrument and Data Collection

The study involved a cross-sectional survey were by structured questionnaires that were installed in tablets using surveyCTO software and administered by the researcher and trained enumerators were used to collect primary data from the field. A structured questionnaire was preferred since the study was quantitative and data collected using a structured questionnaire can easily be quantified (Bhattachree, 2012). The questionnaire had two parts, part A that consisted of qualifying questions and part B which had 13 point seven Likert scale items, with 1 being "absolute disagree" to 7 " completely disagree". A Likert scale with more points provide approximations which are more precise as it allows for more information to be captured (Wu and Leaung, 2017). The items were adopted from Venkatesh and Davis (2000) and Haque and Sorwar (2017) and modified by the researcher to match the context. The research instrument was translated in Swahili the language that is well understood among farmers. The data collection process took place from December 2018 to February 2019. Data were collected from 409 young women and men who were involved in rice farming in Ifakara and rural Moshi. After the screening process 403 entries were found to be valid for further analysis, among them 209 were from female and 194 were from the male.

3.4 Measurement Variables of the Study

Construct	Measurement Variables	Source
Performance Expectancy	• ICT serve time • ICT allow information access from multiple markets • ICT provides real-time information • ICT use improves bargaining power • ICT use support a critical part	Davis (1989), Vankatesh and Davis (2000)
Social Influence	• Influence from the important people	Hoque and Sorwar (2017), Vankatesh and Davis (2000)

Behaviour Intention	• Influence from behaviour influencers • Influence from relevant opinion • Influence from other farmers • Intention to use ICT in the future • Intention to use ICT frequently • Intention to use ICT daily • Making use of ICT a priority	Hoque and Sorwar (2017)

3.5 Data analysis

The study employed Variance Based Structural Equation Modeling for analysis. Structural Equation Modeling allows for assessment of latent variables, Ullman (2006) and this study involved latent variables. Also, compared to normal regressions SEM deals well with interactions (moderation) Lowry and Gaskin (2014) which is also part of the assessment in this study.

4.STUDY RESULTS

4.1 Respondents Profile

Respondents profile was assessed based on districts and gender and their rate of using phones for accessing agriculture market information.

4.1.1 Respondents by District and Gender

The selection of respondents for each district was done proportionately based on the total number of young rice farmers. For each district, the number of female rice farmers was slightly higher compared to that of male. Table 1 shows respondents from each district based on gender.

Table 1: Respondents by District and Gender

gender			Frequency	Per cent	Valid Percent	Cumulative Percent
0 Female	Valid	Kilombero	156	74.6	74.6	74.6
		Moshi Rural	53	25.4	25.4	100.0
		Total	209	100.0	100.0	
1 Male	Valid	Kilombero	146	75.3	75.3	75.3
		Moshi Rural	48	24.7	24.7	100.0
		Total	194	100.0	100.0	

4.1.2: Respondents Rates on Using Phones for Accessing Agriculture Market Information by Gender

The assessment revealed that the majority used phones "Often" for accessing agriculture market information, this involved 49.3% of the female and 48.5% for male. The percentage of those using phones "Always" for accessing agriculture market information was higher among males than females, this was 26.8 % for males and 15.8% for females. Those who used phones "Rarely" comprised the smallest percentage both among females and males, they comprised 14.4 % and 7.2 % respectively. And for those who indicated to use their phones "Sometimes" for accessing agriculture market information were 20.6 % for females and 17.5 % for males. The description is as per Table 2.

Table 2: Respondents Rates on Using Phones for Accessing Agriculture Market Information by Gender

gender			Frequency	Per cent	Valid Percent	Cumulative Percent
		2 Rarely	30	14.4	14.4	14.4
		3 Sometimes	43	20.6	20.6	34.9
0 Female	Valid	4 Often	103	49.3	49.3	84.2
		5 Always	33	15.8	15.8	100.0
		Total	209	100.0	100.0	
		2 Rarely	14	7.2	7.2	7.2
		3 Sometimes	34	17.5	17.5	24.7
1 Male	Valid	4 Often	94	48.5	48.5	73.2
		5 Always	52	26.8	26.8	100.0
		Total	194	100.0	100.0	

4.2 Measurement Model Assessment

Using SmartPLS3, the measurement model was assessed. It involved the assessment on factor loadings, Reliability, Validity of the constructs, Multicollinearity and r-square.
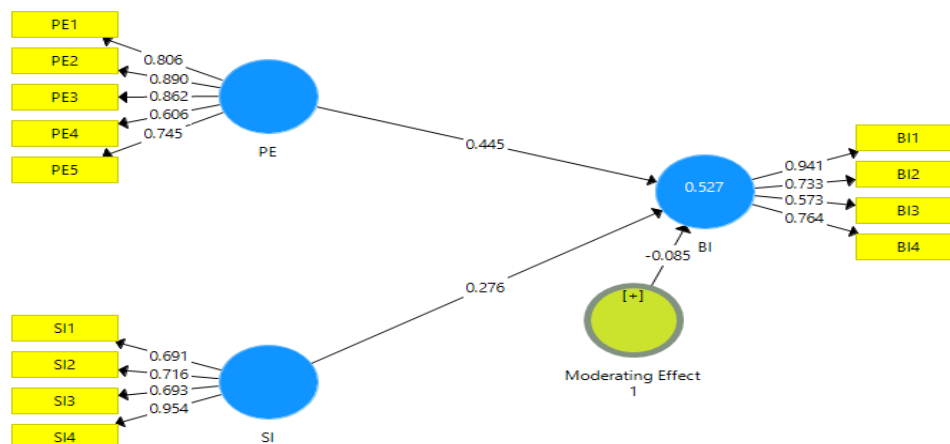
Fig 2: Measurement Model

4.2.1 Factor Loadings

As presented in figure two above all the loadings were above 0.5 an indication that they are reliable indicators of the construct. Hair et al. (2014) explained that an item with a standardized factor loading of ≥ 0.5 indicates factor reliability.

4.2.2 Construct Reliability

The reliability of the constructs was assessed using Cronbach Alpha and Composite Reliability. All constructs displayed Cronbach Alpha of above 0.8, according to Vaske et al. (2017) Cronbach Alpha values of > 0.65 are regarded as adequate to show reliability. The Composite Reliability also indicated desirable values for a display of reliability, Bagozzi and Yi (1988) indicated values from 0.6 as adequate for displaying reliability while Ilyas et al. (2017) indicated 0.7 as a lower limit for showing reliability. For this case, all values were > 0.8.

4.2.3 Construct Validity

The convergent validity was assessed using Average variance Extracted (AVE), the obtained values of AVE were all > 0.5. An indication that there was convergent validity. According to Fornell and Larker (1981) values of AVE > 0.5 are regarded as adequate to show convergent validity. Table 3 below, shows the Cronbach's Alpha, Composite Reliability and Average Variance Extracted values as per the analysis.

Table 3: Construct Reliability and Convergent Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
BI	0.850	0.845	0.584
PE	0.881	0.890	0.621
SI	0.868	0.852	0.595

4.2.4 Discriminant Validity

Discriminant validity was evidenced by the values of square roots of AVE which were greater than the inter-factors correlation values. The same had been indicated by Fornell and Larker (1981) as proof for discriminant validity. In Table 4 below the square root values of AVE that are on diagonal are greater that the inter factor correlation values that are off-diagonal.

Table 4: Discriminant Validity

	BI	PE	SI
BI	0.764		
PE	0.700	0.788	
SI	0.632	0.730	0.771

4.2.5 Multicollinearity Assessment

The multicollinearity of the variables was assessed through the Variance Inflation Factor (VIF). The values obtained represented an acceptable level of collinearity. As presented in Table 5 below, the values were far lower than what has been indicated by Hair et al. (2014) as a common threshold which is a VIF ≤ 10. Furthermore, the obtained VIF values also represent the absence of common method bias as they were < 3.3. Kock (2015) explained that VIF values of ≤ 3.3 indicate that the model can be regarded as free from common method bias.

Table 5: VIF Values

Construct	VIF
PE	2.852
SI	2.191
Dependent Variable: BI	

4.3 Hypothesis Testing Results

To test the hypotheses the PLS-SEM analysis was conducted using SMART-PLS 3.0, whereby a Consistency PLS Bootstrapping was run to determine the causal effect of the hypothesized relationships. The direct and indirect relationship were assessed.
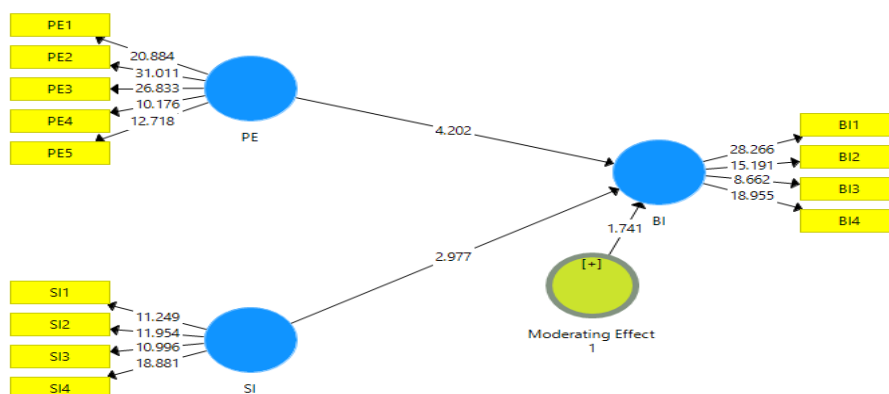
Fig. 3: Structural Model

Table 6: Path Coefficient, t-Statistic and P-Value

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values
PE -> BI	0.445	4.202	0.000
Moderating Effect 1 -> BI	-0.085	1.741	**0.082**

The first hypothesis (H1) that predicted the influence of performance expectancy on behaviour intention to be positive and significant was confirmed as hypothesized. This was evidenced by a positive beta coefficient of 0.445, a t-statistic of 4.202 which is higher than 1.96 and a significant P-Value of less than 0.001.

The second hypothesis (H2) which predicated the positive and significant moderation effect of social influence on the relationship between performance expectancy and behaviour intention was not confirmed. The obtained beta coefficient was negative (-0.085) unlike what was predicted, the t-statistic was 1.741 which is less than 1.96 and an insignificant P-value of 0.082 was revealed.

The results also revealed a coefficient of determination (R-square) of 0.527, an indication that performance expectancy explained the variation in behaviour intention by 53%. Henseler et al. (2009) described R-square as a predictive accuracy of the model. The R-square values lay between 0 and 1, with 0 indicates the absence of prediction and 1 indicates perfect prediction. Indicated by Baig et al. (2017) as a general guideline for assessing the extent of the prediction accuracy thus an R-square of 0.75, 0.50 and 0.25 represent significant, moderate and weak prediction. For this study, the presented R-square was slightly above the threshold for a moderate level of prediction accuracy which represent a good amount of prediction.

5. DISCUSSION OF THE RESEARCH FINDINGS

The study aimed at determining the influence of performance expectancy on the behaviour intention of young farmers in using ICT for accessing agriculture market information and examining the moderating role of social influence on the same. Findings revealed that performance expectancy is positively significant in influencing young farmers' intention to use ICT. This implies that if young farmers can use a much shorter time to access agriculture market information when using ICT than otherwise, and if they will be able to easily access information from multiple markets than when the access of information was without the use of ICT then it will induce them to use ICT. Likewise, if the use of ICT allows for timely or real-time access of information which eventually allows the making of decisions that are favourable to them like bargaining for better prices for their produce, Misaki et al. (2016) it will be a motivation for them to use ICT. These results are in line with previous studies including Beza et al. (2018), Moya and Engotoit (2017) and Malima et al. (2015). Generally, the trend has shown that performance expectancy has proved to be an important predictor of intention to use ICT. In the study by William et al. (2015) were by the literature review was conducted on the studies that have applied UTAUT, performance expectancy was found to qualify as the best predictor while no other independent variable of UTAUT met the qualifications. Similar findings had been previously indicated by Chang (2012) who also conducted a review on studies that had applied UTAUT, in their study, it was found that performance expectancy and variables related to it, had the strongest predictive performance.

Findings also revealed that social influence had no significant moderation effect on the influence of performance expectancy on behaviour intention. That is to say, the opinion of the people around young farmers did not influence how they perceived performance expectancy to be important in predicting their behaviour intention to use ICT. The findings are contrary to Lee et al. (2011) who found the influence of perceived usefulness (a variable related to performance expectancy) on the attitude that led to intention to use ICT to be moderated by social influence. Youth are considered to be the most vibrant group and therefore found to be ready to embrace the adoption of technology (Anoop et al., 2014; ITU, 2017). This might contribute to their disregard of the influence of social influence on the importance they place on performance expectancy as a predictor of their intention to use ICT.

6. CONCLUSION AND RECOMMENDATIONS

The study has confirmed the positive influence of performance expectancy on young farmers' intention to use ICT for accessing agriculture market information. Thus, the practicability of ICT in terms of shortening the time of accessing relevant market information, easy access of information from multiple markets and allowing of real-time access of agriculture market information is essential to induce the use of ICT for business purposes among young farmers. On the other hand, despite the positive influence of social influence on behavioural decisions regarding the intention to use ICT that has been revealed by previous studies such as (Slade et al., 2015; Abbas et al. 2018). Social influence was found to play no role in reinforcing or reducing the influence of performance expectancy on the behaviour intention to use ICT. That is to say, the opinion of those around young farmers does not determine the importance they place on the benefits they expect to attain by using ICT.

As performance expectancy proved to be an essential predictor of young farmers intention to use ICT. It is therefore recommended for governments and other stakeholders to pay attention on how to demonstrate the practical benefits of the use of ICT for accessing agriculture market information in efforts to promote the use ICT among young farmers. The Marketing Information Systems introduced should demonstrate the capability to offer easy accessibility of information at real-time, such that, farmers can be able to use the information to locate profitable markets for their produce and bargain for better prices.

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