Paper #	Model	Sub-area in Agriculture.	Contribution to theory	Technologies	Aim of the research	Findings presented	Methodology used
1	Diffusion of innovation (DOI) Theory of reasoned action (TRA) Theory of Planned Behavior (TPB) Technology Acceptance Model (TAM)	green fertilizer technology (GFT) paddy production rubber and palm oil paddy fertilizer sector	adoption of agricultural innovations with the help of psychological ideas from the TRA, TPB, TAM, DOI and combination of communication channels to determine the aspects that effect agronomists' decision towards the adoption of GFT.	innovation attributes communication channels	factors that determine paddy farmers' adoption decision on GFT in Malasia focus of this study: social sustainability	farmer's age is negatively connected to the technology adoption. Experience and education are positive. Size of the farm has positive effect	cotent analysis methodly was used analysis material investigation and analyzing the results. 1. preanalysis 2. material investigation 3. results
2	Unified theory of acceptance and use of technology (UTAUT) and UTAUT2 Diffusion of innovation (DOI) Trust Model "willingness to be vulnerable to another party" mastery-approach goals	increasing crop production farm-level yield gap analysis	The conceptual model extended the UTAUT2 model with additional antecedents from the concept of diffusion of innovation (i.e., personal innovativeness in information technology (PIIT), trust (i.e., benevolence), and goal orientation (i.e., mastery-approach goals).	mobile communication technologies citizen science project using SMS	exploring the intention of farmers to adopt SMS for data collection.	SMS lets farmers to reach information from anywhere performance expectancy, trust, price value, effort expectancy has positive effect on SMS use in corp production.Trust is the strongest factor.	During the yield season, by giving how to use SMS prior, data collected from farmers via SMS After the use of SMS, a questionaire was conducted. After questinaire, SEM and Likelihood estimate was done to the selected data set.
3	Theory of reasoned action (TRA) Theory of Planned Behavior (TPB) Technology Acceptance Model (TAM)	Dairy producers	Using TAM this study contributes the area by proving trust, ease of use and socio economic factors are important for making changes in common agricultural activities.	tv edutainment for farmers Samba Shape UP (SSU)	Tryingyo determine effects of TV edutainment on two different group of farmers. 1st group educated, open to new things and 2nd group conservative or small land owners.	The use of edutainment programmes has been shown to be a powerful tool in encouraging farment to make positive changes in their agriculture practices	Using TRA, TBP and TAM, they tried to extract positive corellation between productivity and TV programme.
4	Technology Acceptance Mode (TAM)	farm diversification and technology acceptance	IT proposes a more detailed four-fold clustering of farm business.	Financial models, entrepreneiral behaviour	Creating an alternative model for the Welsh farmers which has diverse farm activities and leverage towards a lucrative enterpreuner. There are other factor that effect farmes such as social and political.	enterpreunal activity is direct and also on-farm non-food related. Among the Welsh farmers technology adoptation and acceptance level is high.	Interviews, questinaires. Data analysis and descriptive statistics.
5	not related with agriculture						
6	Unified theory of acceptance and use of technology (UTAUT)	smart farming with IoT	This study could also contribute other MENA countries with the same technological ecosystems and climatic conditions to learn from the technological pros and cons of the implementation of IoT in a resembling country for the intention of acquiring a smart farming.	IoT IIoT Technologies enabled by the use of IoT	IoT usage can improve agriculture in MENA area	By considering the UTAUT model in this research the more is the farmers' perception of suitable performance of IoT, the more is their motivation for its usage	questionnaires performance expectancy effort expectancy social influence indivudual factors faciliating conditions behavioral intention were searched
7	Technology Acceptance Mode (TAM)	seed testing equipments	This study proposes an unique and complete context IoT solution for seed quality testing.	Context IoT	the objective of this research is to propose an integrated solution to context aware monitoring of seed testing laboratories, consisting of hardware, middleware, and application.	Usefullness and eas-of-use of the proposed system was at fai level. Therefore automated seed quality checking system was a success	Devise the system using sensors and Raspberry PI, develop a RESTful web application. Test the system in real life and get user feedback, evaulate in terms of TAM.
8	Technology Acceptance Mode (TAM)	Integrated Pest Management ecological conservation behavior	since perceived usefulness and perceived ease of use are the most underlying constructs in the TAM (Chen et al., 2013; Abdullah and Ward, 2016), the present study attempts to add four extra constructs including social influence, compatibility, result demonstrability, and self-efficacy to the original TAM to contribute towards a better grasp		observe, examine socio-psychological factors in IPM practices, to assess use TAM, extend the TAM for improving its explanatory power in the field of ecological conservation behavior	This study is, to the best of our knowledge, one of the first studies to test the TAM for the purpose of explaining farmers' ecological conservation behavior regarding the use of IPM practices	field questionnaries and model comparison between native TAM and extended TAM
9	Unified theory of acceptance and use of technology (UTAU)	resource disposal in livestock and polutry	healthy and sustanable devlopment of breeding of livestock and polutry.		understanding social factors for farmers in-terms-of waste disposal	economic performance expectations, subjective norms, family farming populations, farming quantity positive impact on livestock and poultry waste	hypothesis based on UTAU model data collection stratified design, random sampling, and face-to-face interviews,
10	multinominal-logit model	livestock		Augmented Reality (AR) AR-IoT	increasing production by analyzing factors that can cooperate in AR use in livestock.	there are important factors that play role in AR use in livestock.	Why should we incorporate AR into livestock breeding, meta-synthesis is done to underline important portions in AR.
11	Technology Acceptance Mode (TAM) Theory of Reasoned Action (TRA)	agricultral wood	A framework developed based on TAM and TRA.		green technology adoptation in agricultural wood area	The intention to grow is explained by 44% of the model and actual growing behaviour by 48%. The perceived cost-usefulness-ratio, stakeholder influences and expected image effects are identified as the main drivers of farmers' acceptance of alley cropping systems as Ecological Focus Areas	Questionnaires
12	Acceptance of Technology for coping climate change and sustainability.	environmental benefits					
13	Technology Acceptance Model (TAM)	Cleaner products, non-point source pollution (NPSP)	a theoretical model derived from the TAM to explore farmers' adoption behavior of agricultural CPTs	cleaner production techniques(CPT)	Consequently, identifying the factors that can influence the farmers' adoption behavior of the agricultural CPTs should contribute to the control of agricultural NPSP.	Statistical results could not find a significant relationship between the technical compatibility and perceived usefulness for the CPTs, uggesting that the local pre-testing and local promotion were needed to encourage a long-term use.	detect farmers awareness employ stractural equation model to interview results evaluate results witj multinominal probit model
14	Unified theory of acceptance and use of technology (UTAUT)	e-agriculture	a model derived aroung UTAUT for acceptatnce of e-agriculture, performance expectancy, effort expectancy, social influence and habit have significant effect on the acceptance and adoptation of e-agriculture,		adoption and acceptance level of e-agriculture among the Nigerian farmers	The study establishes that performance expectancy, effort expectancy, social influence and habit were discovered as variables that have significant effect on behavioral intention for the acceptance and adoption of e-agriculture while performance expectancy was discovered to be the most significant factor that influences the usage of e-agriculture in Nigeria.	questionnaires and data collection
15	technology acceptance model (TAM)	rural farm land	contribution to existing TAM literature is that perceived economic wellbeing is an antecedent to perceived usefulness	Mobile systems	determining Agricultural Extension Services (AES) improve rural farm land usage.	it is probable that farmers will engage in use of mobile based AES. Farmer's behavior intention is driven by the need to perform better in the peer group that he/ she isplaced in. Perceived economic wellbeing (PEWB), an economic outcome of the individuals' comparisons of his current financial situationto his past situation and to other people who are important to him is an equally significant predictor of perceived usefulness. While Information and Communication Tools (ICTs) are identified as innovative tool for dissemination of information for agricultural development.	survey
16	technology acceptance model (TAM)	dairy farming	This paper extends the TAM model by adding two new constructs, perceived advantage and socio-economic characteristics.	Mobile phones	adoptation and acceptance of mobile phone use in Sub-Saharan Africa by promoting mobile phone usage in farming communities beyond just normal communication.	perceived ease of use is a major antecedent to mobile phone adoption; this is in consistent with previous studies. On the other hand, perceived advantage and perceived usefulness influence mobile phone adoption negatively.	questionnaires and data collection
17	technology acceptance model (TAM)	agricultural education	The research provides useful insights into individual's recep-tiveness toward the use of IT in classroom instruction, as well as extending the international scope of the modified TAM model with the inclusion of an Iranian study.	education ICT	determining ICT use in faculty education for agriculture	modified TAM model, explained 15% of the variance in information tech-nology usage among vocational agriculture	
18	TRA TPB TAM	sustainable agriculture precision agriculture			The purpose of this study was to investigate factors influencing impacts of precision agriculture from the viewpoints of Boushehr Province experts	underground and surface waters conservation, rural areas development, increase of productivity and increasing income as the most important mpacts of precision agricultural technologies.	cross section surveys multi-stage random sampling

Paper #	Model	Sub-area in Agriculture.	Contribution to theory	Technologies	Aim of the research	Findings presented	Methodology used
19	TAM	sustainable agriculture precision agriculture			The purpose of this research was to investigate factors influencing agricultural personnel and consultants' attitude and behavioral intention to use precision agricultural technologies.	ndividual innovativeness, attitude of confidence, perceived ease of use and perceived usefulness of precision agricultural technologies affected on the behavioral attitude and behavioral intention to use.	multi-stage random sampling
20	TAM	dairy herd management		smartphone apps		use of smartphone apps positively effects dairy herd management	online survey
21			This work focused on the appropriate technology starting from the Bottom of the pyramid (BOP) approach. Further studies can incorporate TAM and derivatives	agriculture innovation systems	aim of the paper is to provide how and in which concept innovation in smallholders.	agricultural machinery, water for irrigation equipment, alternative farming systems, ICTs and mobile phone applications and biomass systems are identified as innovation systems	academic survey
22	TAM TPB	Bioenergy Biogas production	the preconditions for new business engagement are formed as a joint effect of factors at the individual level as well as at the social, regional and institutional contexts the actor is embedded in by combining TAM and TPB.		integrated model which uses TAM and TPB is constructed to widen the knowledge of the process from the discovery of an entrepreneurial opportunity to actual business engagement in bioenergy sector	Model assists the promotion of bio-based economy And the preconditions for new business engagement are formed as a joint effect of factors in TAM and TPB at the individual level, as well as the three environmental levels around the actors.	Interviews
23	TAM Technology Adoptation	sustainable agriculture	This study has extended the application of TAM, providing insight into decision-making processes that are not hindered by technology implementation.	sustainable technologies for tree production	adoptation of D. alatus tree production in Thailand.	D. alatus technology was significantly influenced by perceived ease of use and attitudes based on experience and environmental sensibilities.	Structural equation models, latent variables, and the hypothesized adoption intention interactions
24	Adoptation	shrimp farming aquaculture	Combined TAM and TPB (C-TAM and TPB)	ICT	Evaluating shrimp production with the help of TAM and TPB.	The study empirically tested an adoption model using technology acceptance model and theory of planned behavior under perceived production risks. Education, familarity effects positively shrimp production.	semi-structured interviews with 206 intensive shrimp farmers
25	Technology Acceptance Model (TAM)	agricultural marketing		mobile app	This study searches willingness to adopt marketing applications by farmers.	Out of all indicators in TAM cost has a negative effect on the use of marketing app.	interviews
26	Technology Acceptance Model (TAM)	mobile commerce	Construction of AI-based analysis for TAM	Artificial neural networks	optimizing behavirol targeting advertising (BTA)	hybrid PLS-SEM-ANN was used in context of BTA, performance increase was observed	
27	Innovation diffusion theory(IDT) TAM	Biological Control	In terms of IDC model fit an extended version of TAM (TAM2) was provided.		The observe the use practices of BC in farms.	The TAM2 outperformed the original TAM in predicting farmer's intention to use BC in farm practices and consequently actual use.	interviews
28	TPB	Farm decision making		wheather prediction	identif the contibutors for weather related risks	With more and more DSTs developed, future scholarship can draw upon our findings to understand how to encourage DSTs adoption among current non-users and extend to other regions.	
29	TAM	grazing and milk production			identifying factor affecting milk production	The results indicate that the perceived usefulness and perceived ease of use statistically ignificantly influence the adoption of grazing practices.	structural equation modeling
30	TAM	smart farming		smart farming technologies	Smart Farming Technologies (SFTs) can improve production output while minimising costs and preserving resources	A mediated model, built on the TAM, showed that the PU affected farmers' intention to adopt a technology and that personal sources of information	questionnaire
31	UTAUT	biogas straw management	willingness to pay attachment to UTAUT			Chinese households are willing to show their appreciation of energy utilization of crop straw through their stated	

Technology Acceptance and Adoptation in Agriculture

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Abstract—This study is a recent survey about technology acceptance in agriculture. Understanding technology acceptance in agriculture will yield better, greener, more efficient products. A major problem we are facing is the scarcity of the resources. In order to meet the demands of crowded world, we need to devise more productive, easier-to-implement, and reliable techniques in argriculture. Initial point for developing these techniques is to assess what is the level of acceptance among the agroeconomy and agrarian society. Therefor, we went over the conducted research guide idividuals prior their technology adoption decision. In this research, we aim to provide sound and clear representation of technology acceptance in agriculture by surveying last 5 year's research.

Keywords— Technology Acceptance, Agriculture, TAM

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