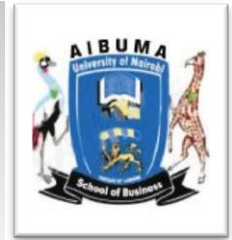




AFRICAN JOURNAL OF BUSINESS AND MANAGEMENT

(AJBUMA)

ISSN 2079-410X



## EXTENDING TECHNOLOGY ACCEPTANCE MODEL TO PREDICT INNOVATION IN MICRO AND SMALL FOOD MANUFACTURING ENTERPRISES IN KENYA

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### ABSTRACT

*Food processing is one of the manufacturing sectors that is propagated to feed the steady growing population and other current economic development challenges such as poverty, job supply, healthy lifestyles, globalization and competitive entrepreneurship in food value chain. How food processing innovations are affected by Micro and Small Entrepreneurs' (MSEs') perceived ease of use, perceived usefulness and attitude towards acceptance behaviour are the research questions this study addresses. The Technology Acceptance Model (TAM) is used as a base model to produce a causal model representing a network of relationships among the study constructs. Mixed research methods were used to collect data from 132 MSEs manufacturing food in Busia and Nairobi Counties on Likert Scale questionnaires and interview schedules. The Cronbach's alpha found an excellent internal consistency of 0.97 reliability. Due to weak information management system of agro-food processors in Busia county, snowballing sampling techniques was used and fisher sampling techniques formula at standard normal deviate of 1.96 on Nairobi County Government given its numerous food manufacturing enterprises. Data analysis by Logit model showed that at  $wald(1) = 41.475$ ,  $p = .000$ ,  $sig < .05$ , 2 tailed, the three of Davis predictors ("ease of use," "usefulness" and intention to use) significantly influenced food innovations. Behavioural intention to adopt technology scored highest  $n=129(97.7\%)$  followed by perceived technology to be useful  $n=109(82.6\%)$  and ease of use  $n=102 (77.3\%)$  last. The study recommends that county governments should facilitate technology permeation among MSEs through appropriate policies and programmes and establish agro-industrial "silicon valley," and agro-export zones that would link MSE products to global agricultural value chains.*

**Key terms:** Technology Acceptance Model; Perceived Ease of Use; Perceived Usefulness; Behavioural Intention to Use Technology; food innovation choice; Micro and Small Enterprises

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## 1.0 Introduction

Overwhelming evidence have proved that stepping up innovation in agriculture is the best way for a country like Kenya to escape the bondage of poverty and hunger as contemplated in the Millennium Development Goals (MDG) (Mwita, 2013). Agriculture is one of the biggest contributors to Kenya's source of employment for more than half of the rural population and Gross Domestic Product (GDP) growth (GoK, 2015). As a country, agriculture has been recognized as a key sector to make the economy grow at double digit. This has been demonstrated through *Kenya Vision 2030*, by the country's plan to industrialize agriculture and make it competitive and major foreign income earner. Increased value in agriculture by processing before marketing is one of the key projects in grand plan of the Kenya to make the economy grow by 10% and generate additional GDP of KShs. 80-90 billion (GoK, 2007). Many a times, its products are traded at village markets in raw value with minimal primary processing and minimal pay back to the farmer and the economy (GoK, 2015). Technology therefore comes in handy in transforming the sector. Agriculture needs technological solutions to graduate itself from traditional subsistence farming to modern agribusiness to cushion peasant farmers from the exploitation of cartels and greedy middlemen and post harvest losses (Ndemo, 2013). The use of technology is therefore urgently required to increase the productivity so as to meet the increasing demand of food for rapidly growing populations in internal and external market (Karki & Bauer, 2004). Ignoring technology adoption, agricultural production growth is likely to dive and rural poverty escalate.

As observed by Prahalad, 2006, weak and traditional technologies are active and largely used in Kenya hence producing poorly performing products in global

market. Much of the technology being used by the MSEs in Kenya are insufficiently productive, unprofitable with available resources and cannot deliver the required technology to break into emerging new and demanding markets (Ngugi & Henry, 2013). Understanding technology acceptance among MSE in food manufacturing is still a galloping knowledge gap. If bridged it would help MSEs participate in the global food value chain effectively.

## 2.0 Objectives of the Study

The overall objective of the study is to find out how the three of Davis predictors ("easy to use," "usefulness" and intention to use) influence MSEs choice to use food system innovations to produce of advantageous product

## 3.0 Literature Review and Conceptual Framework

Innovation in food MSEs is the mean to development of advantageous products that would competitively participate in the global market. The advantageous product is thus a food product with superior performance; able to satisfy customers healthy needs more effectively and conveniently than competitors. It is achieved if and when MSEs add real and perceived value to the food products for customers.

Economic globalization, competition, food safety concerns, rising consumer bargaining power and improved healthy lifestyles have necessitated innovations and continuous product improvement in food manufacturing. To actively participate in the global market, innovations and use of latest technologies by agro-food processing Micro and Small Enterprises (MSEs) is inevitable (Jin, 2007). According to Vorley et al. (2008) modernization has come with a basket of economic opportunities. However, local

MSEs risks being bypassed because of low uptake of latest technologies that would enable them meet costly market entry requirements (ibid). This low uptake has bothered researchers to find out the predictors and barriers of technology adoption as a competitive advantage. A study on 126 Netherlands firms discovered that the market oriented culture prioritized profit and superior customer value which produced a sustainable competitive advantage (Langerak et al., 2004). The study suggested strategic and technological anchorage in new product development that account for more revenue, superior value for customers and market information processing behaviour (Homburg & Pflesser, 2000). Agro-food processors and fabricators of agro-food processing machines need to first transform their behaviour and attitude; appreciate the presence of food innovation systems and make use of them to process their harvest, add value, pack and market their products competitively at the world market.

Various Scholars in technology adoption industry have bothered to find out how the behaviour could be enhanced in the end user so as to increase the technology anxiety (Yang & Forney, 2013; Micheni et al 2013). User acceptance of innovation systems have been studied severally in the dimensions of organizational change and innovation diffusion theory (Jurison, 2000). In 1989, Technology Acceptance Model (TAM) was proposed by Davis to explain the potential user's perceived Ease of Use (PEU) and perceived Usefulness (PU) and the dependant variable Behavioral Intention (BI). It is a process where perceived ease of use and perceived usefulness determined technology acceptance. Technopreneurship intentions are influenced by user's motivations which are purely perceptions of ease or difficulty of performing the technology linked to actual behaviour to use technological innovation (Krueger et al., 2000). Since

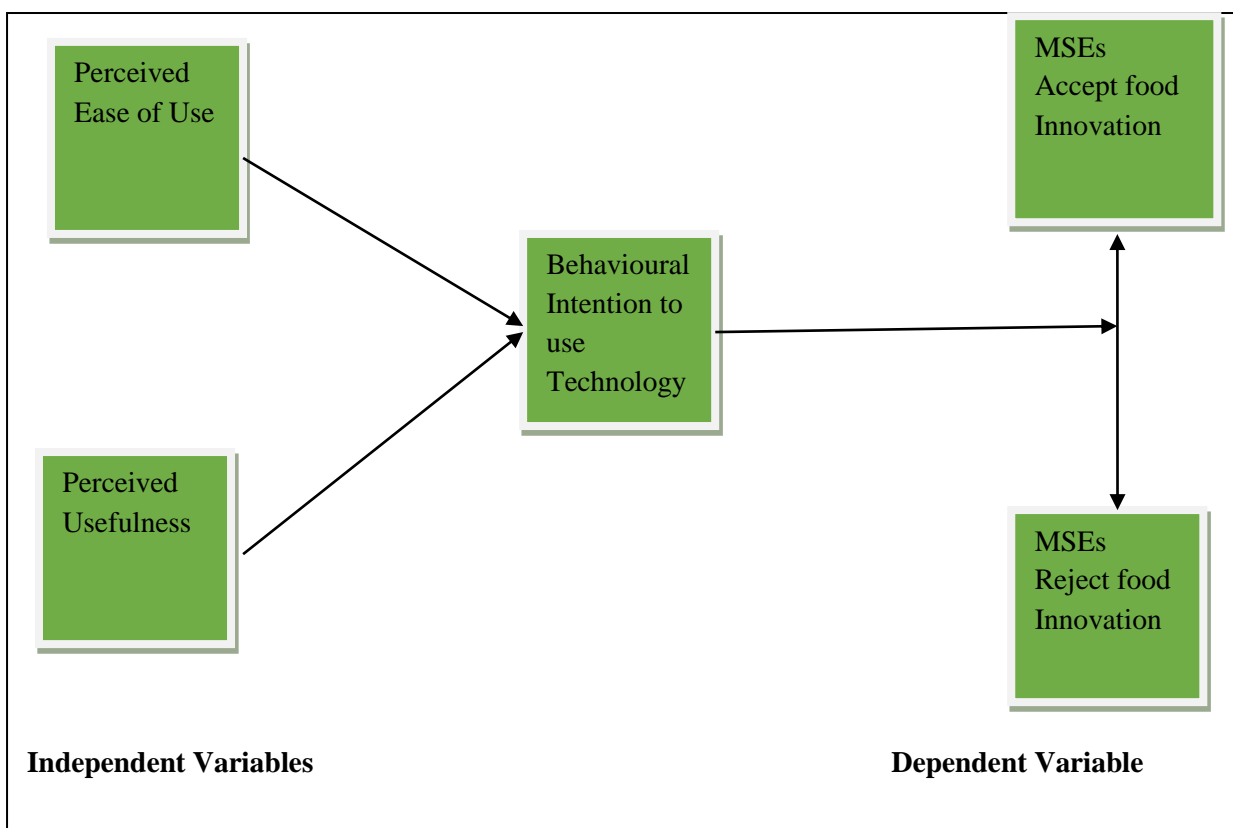
then TAM has gained popularity among various researchers to explain and predict system use, especially in ICT use. It was used in a study exploring students' acceptance of e-learning in Jordanian Universities, Korean Universities and Australian universities. In Jordan, TAM was found a useful theoretical model in predicting user's intention and user's perception of technology usefulness as the most important motivators (Al-Adwan et al, 2013). All the three studies above agreed that TAM was a solid theoretical model that could be applied to any innovation system contexts and that is why this survey uses it to explain food innovation uptake among micro and small enterprises (MSEs) in Kenya.

The degree to which an innovation end user believes that using a particular food innovation system is free of physical and mental efforts is called Perceived Ease of Use (PEOU) (Davis, 1989). In this context, it is an agro-food processor's perception that the food manufacturing system is free of sophistication, complexity and difficulty understand and use. PEO is one of the fundamental determinants of Agro-food processor's willingness to accept or reject the food innovation. The more difficult the innovation the more likely resistance is expected in adopting technology by the entrepreneurs in food industry. Studies on e-learning proved that PEOU had the strongest significant influence on Australian attitudes of system use (Shroff et al., 2011). Perceived Usefulness (PU), as used by Davis, 1989, is the degree to which an end user believed in using a particular innovation would enhance job performance. In this study it is about the MSE's perception of value of food innovation system as means to an end. It is argued that PU is the most influential technology acceptance predictor (Davis, User acceptance of information technology: system characteristics, user perceptions and behavioural impacts,

1993). Conceptual modelling of personal computer for utilization among others has observed have also confirmed positive association between PU and choice of technology (Thompson, Higgins, & Howell, 1991). Behavioral intention (BI) to use technology means the MSE's evaluative feelings (either positive or negative) about using food processing

innovations for realizing a highly competitive product.

This study chooses innovation diffusion acumen to examine food innovation acceptance among micro and small agro-food processors based on their perception of technology ease of use (PEU), Usefulness (PU) and their Behavioral Intentions (BI) to adopt the innovation in producing advantageous products.



**Fig. 3.1: Conceptual Framework**

**Source: Adopted from Davis (1989)**

The conceptual framework in fig.1.1 makes a critical assumption that it is the agro-processor's perceptions of the food innovation that matter and not technical cues of the innovation per se in accepting or rejecting of the food technology.

#### 4.0 Research Design

Research design is a framework of philosophical worldview, strategies of enquiry and specific research methods used in conducting the study (Creswell,

2009). It ensured that research questions were validly, objectively, accurately and economically answered; connecting the conceptual research problems to the pertinent and achievable empirical research; and articulating the type of data required, methods to be used to collect and analyzed data (Otti et al., 2007). The study used social constructivist worldview in the understanding the subjective meaning, experiences and perceptions of agro-food processors on food innovations in the food

industry. Mixed methods were used to allow opportunity for both quantitative and qualitative methods in a manner that can fix differences in addressing the research objective. Mixed methods were used to address inherent methodical weaknesses and capitalise on inherent strengths as well as offset biases (Greene, 2007). The mixed methods involved field survey to scientifically sample and design questionnaire that measured characteristics of the population with statistical precision. The survey was also preferred because of its confirmed excellence in measuring demographic characteristics, social condition, relationships, attitudes (Babbie, 2010); broadness in coverage of subject matter of research (Moser & Kalton, 2009). Because the study collects data on selected cases of agro-food sector to construct empirical body of knowledge, survey is recommended to be the best alternative (Uwe, 2007).

Using survey research, this study selected samples of Micro and Small Enterprises (MSEs) in Busia and Nairobi, Kenya. Busia was selected simple random method; that is out of the 44 ballots representing rural counties, the researcher chose one randomly which came out to be Busia. Nairobi was purposeful chosen because of its numerous and largest harbour of manufacturing enterprises. The MSEs manufactured food products for local and global market. From the records of Nairobi and Busia County Governments, enterprises that met such characteristics of study are 2096 (Nairobi, 2070 MSEs and Busia, 26 MSEs). Given the very large size of Nairobi City County and numerous MSEs, the participants in this study were chosen from the list of registered MSEs doing food value addition using Fisher random sampling techniques. Fisher procedures resulted into 146 MSEs to be interviewed as shown below.

$$\text{Fisher method } n = Z^2 pqD/d^2 = (1.96^2 \times 0.05 \times 0.95)2/0.5^2 = 146$$

Because of dismal number of value addition enterprises (totalling 26 firms) in Busia County Government, the study adopted snowballing. In-depth interviews were conducted on a one-to-one basis using semi structured questions by researcher and research assistants so as to uncover underlying motivations, prejudices and attitudes that might not be uncovered in other primary data collection techniques (Durgee, 1986). The research assistants were trained on the aspects of the questionnaire and how to handle the respondents ethically.

The data was analyzed using Statistical Package for Sciences (SPSS) version 21.0. and regressed by logit model by fitting the SPSS coefficient outputs in the logit framework and interpreted their effect. In general, the study had three Davis technology adoption predictor variables as shown below.

$$\text{logit}(p) = \log(p/(1-p)) = b_0 + b_4X_4 + b_5X_5 + b_6X_6 + \epsilon$$

Where;  $\text{logit}(p) = \log(p/(1-p)) = \text{Food Innovation Acceptance}$

$X_4 = \text{Perceived Ease of Use}$

$X_5 = \text{Perceived Technology Usefulness}$

$X_6 = \text{Behavioral intention (BI) to use technology}$

$b_0 = \text{Coefficient of the model}$

$b_4, b_6 = \text{Beta Coeficientes of Determination}$

$\epsilon = \text{stochastic error term}$

## 5.0 Results and Discussion

This section analyses, presents, discusses and interprets the data collected from the research instruments using descriptive statistics and logit regression techniques.

### Reliability Analysis

A pilot study was carried done in Kisumu City County to establish reliability of the research instruments. All questions on the Likert Scale in the questionnaire were subjected to the reliability test using Cronbach's Alpha at predetermined coefficient alpha using SPSS version 21. The threshold of  $\alpha \geq 0.7$  was set as adequate. The test registered a coefficient of 0.97, an excellent internal consistency (George & Mallery, 2003).

### Agro-food Processor's Background Information

Background information of MSEs studied showed that most (51%) were family-owned and (40.9%) were owner-managed. The managers were mostly secondary school graduates (34.1%). The findings also indicate that slightly over 50% of the firms were unregistered with (61.3%) having been in operation for less than 3 years, predicting a high failure rate (Kamunge et al., 2014).

### Davis Technology Acceptance Model Predictors in Food Innovation Choice

Technology acceptance model entails Perceived Ease of Use(PEU), Perceived Usefulness (PU) and Behavioural Intention to use technology.

#### Perceived Ease of Use (PEU) in Food Innovation Choice

The findings revealed that majority of the respondents n=102 (77.3%) agreed that the MSEs in food production perceived technology easy to use. In the context of this study, perceived ease of use was measured by testing the following cues: agro-food processors' perceptions on complexity, compatibility, harmfulness, length of learning to operate and cost of repairing the technologies they currently had. Out of all the cues, the survey indicated that compatibility mattered most n=95(72%) as shown in table 5.1.

Table 5.1: PEU Parameters in Food Innovation Choice

PEU attribute	Frequency (n)	Percentage (%)	Mean	Std Deviation	Coefficient of variance
Complexity of using innovation	87	66	5.76	2.0	0.35
Compatibility with agro-processors	95	72	6.13	1.74	0.028
Harmfulness to workers	93	70.5	5.81	1.84	0.32
Takes short time to learn	82	62.1	5.66	2.07	0.365
Expensive to repair	59	44.7	4.59	2.65	0.57

This implies that agro-food processors perceived food innovations to be consistent with the existing socio-cultural values and beliefs, past and present experiences, and needs of potential adopters. Studies on beliefs in technology acceptance concur with the study findings to the extent that entrepreneurs' compatibility with the food innovation has a lot to do with consistency with a desired

work style; work processes and practice; encounters with previous technology; and entrepreneurs dominant value systems (Karahanna, Agarwal, & Angst, 2006). Africa being a continent rich with highly subjective and traditional norms one would expect such inhibitors affecting technology choice in a work environment. However, the revelations in table 4.2 imply that the work environment in most micro and small

food manufacturers was technology-tolerant and welcoming. Therefore they would hardly resist better technologies that would deliver high performing products in the market.

Other factors that made the MSEs find agro-food processing innovations ease to use were perceived rare harmfulness n=93(70.5%), perceived simplicity(less complexity) n=87(66%) and less time for learning to operate n=82(62.1%).

#### Perceived Usefulness (PU) in Food Innovation Choice

Just like a customer's perception of product's value plays a pivotal role in the

shopping behaviour and ultimate product choice, an agro-food processor's perception of an innovation's usefulness is a critical determinant in a firm's decision process to accept or reject technology. End-user's perception of the current technology as being useful to the firm, triability, experience, relative advantage, relevance, timeliness, mass production and areas of application were the characteristics of perceived technology usefulness studied. The findings revealed that majority n=109(82.6%) of the MSEs perceived technology to be useful for manufacturing advantageous food products. Further it revealed that food innovations was most perceived as a competitive advantage n=110(83.4%); mass production and timely processing as shown in table 4.3.

Table 5.2: PU Parameters' in Food Innovation choice

PU attribute	Frequency (n)	Percentage (%)	Mean	Std Deviation	Coefficient of variance
Technology usefulness to the enterprise	103	78	6.34	1.53957	0.24
Triability before Adoption	94	71.2	5.42	1.91364	0.35
Experience with technology	100	75.7	6.10	1.534	0.25
Competitive advantage	110	83.4	6.60	1.18	0.18
Relevance of technology	104	78.7	6.66	1.39983	0.2
Timely processing	102	77.3	6.46	1.463	0.23
Mass production	105	79.5	6.36	1.48449	0.23

The results imply that the agro-food processors consider technology as a tool to outdo their rivals.

#### Behavioral Intention (BI) in Food Innovation Choice

This research section addressed itself to the ability to predict such firms' acceptance of modern food technologies from measuring their intentions. According to Tsai (2012) behavioural intention to adopt technology meant the

degree of an end-user's willingness to use new innovations. In this context it would mean an agro-food processor's evaluative feelings (either positive or negative) about using food processing innovations for realizing a highly competitive product (Viswanath et al., 2012). Acceptability, willingness, support, prioritization, management commitment, preparedness

and management awareness were theorized as drivers of BI. The results revealed that level of supporting the implementation of the food innovation system mattered most

followed by the intention and management awareness about the technology as shown in table 5.3.

Table 5.3: BI Parameters' in Food Innovation Choice

BI Attribute	Frequency (n)	Percentage (%)	Mean	Std Deviation	Coefficient of variance
Technology Acceptability	119	89.5	5.96	0.15651	0.19
Intention to implement	125	94.7	6.75	6.24665	0.93
Level of support to implement	127	96.1	6.13	0.87498	0.14
Adoption priority	111	84.1	5.72	1.35392	0.23
Commitment	114	86.3	2.40	1.75314	0.73
Preparedness	111	84.1	6.12	1.36098	0.22
Management understanding	123	93.2	6.16	1.07527	0.17

The results imply that to improve technology BI among MSEs in agro-food industry, support for technology implementation is paramount. The findings on support as a critical antecedent to BI to use technology by the MSEs in agro-food processing are true to a study in Kenya on adopting money services (Micheni et al., 2013). According to the study, support is a facilitating condition that made the agro-food processor feel and have confidence that the enterprise and technical infrastructure exists to support the use of food innovation. Support has also been observed as playing moderating, facilitating and social influence role in innovation adoption to the end-user, innovation administrator support for the end user (Yang & Forney, 2013). The types of support that played the facilitating role to technology adoption by MSEs include infrastructure, R&D services, education, extension services, policies (Lundy et al., 2009). A good example in time is the Malaysian government support to SMEs to adopt technology as a new and efficient method of performing business through cloud computing to deliver government services (Weerakkody et al.,

2011). The results were: reduced costs and wastages on the government side and improved efficiency and profitability for the SMEs. In Korea, 628 students' behavioral intention to use e-learning were studied using Structural Equation Modeling (SEM) technique with LISREL program (Park, 2009). The Korean students' greatest motivator was found to be self efficacy and subjective norm as second. Almost the same study was done among 72 Australian students.

### Food Innovation Choice

Food innovation is not by chance but a deliberate and direct outcome of choice and decisions of agro-food processors. Using a Tam analytical framework, this section provides a statistical synthesis of the relationship between food innovation choice and PEU, PU and BI as predictors and incentives of agro-food industrialists in production of advantageous food products. The researcher conducted a binomial logit regression analysis to explain the effect of Davis' technology adoption predictors on the uptake of food manufacturing innovations among MSEs



in making advantageous products in Nairobi and Busia Kenya. The scores to be regressed were transformed from likert scale into dichotomous and then saved as variable indices. Regression analysis was conducted using Statistical Package for Social Sciences (SPSS) version 21. The study processed 132 cases out of which 129 were positive responses. For every trial, there was a probability 97.7% of positive responses (accepting food innovation).  $\text{Log}(p/(1-p)) = 3.761$ . It turned out that  $p$  was the overall probability of accepting food innovations by agro-food processors ( $= 1$ ). So  $p=129/132 = .977$ . The odds are  $.977/(1-.977) = 42.86$  and the log of the odds (logit) is  $\text{log}(42.86) = 3.761$ . In other word, the intercept from the model without predictor variable was the estimated log odds of acceptable food innovations systems for the whole population of interest. The study also transformed the log of odds back to a probability:  $p = \exp(3.761)/(1+\exp(3.761)) = .977$ . Applying regression model to the study

dataset, each estimated coefficient was the expected change in the log odds of food innovation acceptance for a unit increase in the corresponding predictor variable holding the other predictor variables constant at certain value. Each exponentiated coefficient was the ratio of two odds, or the change in odds in the multiplicative scale for a unit increase in the corresponding technology predictor variable holding other TAM predictor variables at certain value.

The standardized coefficients of determination under the B column in table 5.4 were used to substitute the unknown beta values of the regression model. A positive or negative sign indicate the nature of the relationship. The significant values (p-value) under the sig. column indicate the statistical significance of the relationship. A p-value threshold of 0.05 was set. Less than the threshold is interpreted as a high degree of confidence.

**Table 5.4: Davis Variables against Food Technology Uptake**

	B	S.E.	Wald	df	Sig.	Exp(B)
X4	-.188	2.960	.004	1	.949	.829
X5	2.067	2.960	.488	1	.485	7.900
X6	2.677	1.539	3.026	1	.082	14.539
Constant	.219	1.320	.028	1	.868	1.245

a. Variable(s) entered on step 1: X4, X5, X6.

The model, according to the table above:

$$\text{logit}(p) = \log(p/(1-p)) = \beta_0 + \beta_4 * \text{perceived ease of use} + \beta_5 * \text{perceived usefulness} + \beta_6 * \text{behavioural intention of use technology} + \varepsilon$$

$$\text{logit}(p) = .219 - .188X_4 + 2.067X_5 + 2.677X_6 + 1.320$$

Holding perceived ease of use, perceived usefulness and behavioural intention to use technology at 0 value, MSEs performance in accepting food innovation would be 0.219. According to the results in the table

5.4, perceived ease of use ( $p = .949$ ), perceived usefulness ( $p = .485$ ) and intention to use technology ( $p = .082$ ) did not significantly influence agro-food processors' choice of food innovations as single variables, though had positive relationship with technology choice with an exception of perceived ease of use which was negative. A unit increase in perceived ease of use ( $X_4$ ) led to  $-.188$  increase in the log-odds of food innovation choice, holding all other independent variables constant. Every one-unit increase in Perceived technology usefulness score caused a  $2.067$  increase in the log-odds of technology choice, holding all other TAM variables constant. Every one-unit increase in Behavioral intention to use technology score, a  $2.677$  was caused in the log-odds of **food** innovation systems choice, holding other Davis variables constant.

As a whole (confluence of predictors) the wald test showed that at  $wald(1) = 41.475$ ,  $p = .000$ ,  $sig < .05$ ,  $2$  tailed, the p value was far below the set level of significance, meaning that the null hypothesis be rejected and the alternative accepted.  $H_1$  *The three of Davis predictors ("ease of use," "usefulness" and Behavioural Intention to use) had significant influence on production of advantageous product.* These results are in tandem with many similar studies in technology adoption in the end users' context (Krueger et al., 2000; Al-Adwan et al., 2013; Park, 2009; Shroff et al., 2011; Fung, 2013; Chuttar, 2009; Cui et al., 2008; Smith et al., 2009; Bagozzi, 2007).

Having tested the hypothesis, the study tests the significance parameters using the pseudo  $R^2$ . Because Pseudo  $R^2$  is analogous to the  $R$  square for ordinary least square(OLS), test estimates the discrepancy between the model and the sample data and the strength of association

between food technology uptake by Kenyan MSEs and Davis technology adoption predictors. Because of its tenability with binary logistic regression, the Cox & Snell  $R$  Square were used as a pseudo  $R^2$  to explain the position of variance by predictors and model fitting the data. Nagelkerke  $R$  Square measure is used to adjust  $R^2_{C\&S}$  to correct the inherent weakness of not being able to reach a maximum of 1. Based on the model, variation in the food technology acceptance ranges from (4.6%) to (23.5%), depending on whether the Cox & Snell  $R^2$  reference or Nagelkerke  $R^2$  methods, respectively. The rule of thumb is that the pseudo  $R^2$  statistics range from zero (model without predictive value) and 1(model with a perfect fit). Because  $R^2$  statistics lies between .046 and .235, the model was found good and significant, meaning that the Davis TAM predictors could determine choice of food innovation systems for the advantageous product well.

#### Conclusions and Recommendations

The conclusions were based on the objective of the research study. Of the three predictors MSEs behavioural intention to use technology was most critical determinants on the choice of technology for making advantageous product. Behavioural intention to adopt technology scored highest meaning that most food manufacturers are willing to acquire and adopt relevant technology. Second in the order of priority, agro-processors was instrumentality; majority of the agro-food processors perceived technology to be useful in making the advantageous agro-food products. Finally the MSEs perceive technology as ease to use in manufacturing advantageous products.

Results of the study indicated that MSEs perceived technology ease of use inversely influenced food innovation adoption, though not significantly. The findings

confirmed that food innovations compatibility or consistent with the existing socio-cultural values and beliefs, past and present experiences, and needs of potential adopters mattered most in agro-food processors' decision process to either accept or reject the technology for making advantageous product. In as much as most of the technologies were psychologically and socio-culturally near to the agro-food processors in Busia and Nairobi, they were obsolete and inefficient to satisfy the global competition landscape. The findings on MSEs perceived technology usefulness influenced food innovation adoption positively but not statistically significant. The results confirmed that technology gave the MSEs competitive advantage most.

Results of buoyancy of technology acceptance predictors were collectively significant but singularly insignificant. The model was confirmed to be fit for studying determinants of technology adoption in the MSEs manufacturing advantageous food product.

The following recommendations were made based on the findings of the study:

The agro-food industry should be made socially inclusive. The technology fabricators should be informed of the entrepreneurs' socio-cultural values, past and present experiences, and potential needs in order to make technologies that are easy to use by women and youth so as to foster better behavioural intentions for the youth and women towards industrialized agriculture.

County and National Governments should put in place policies and programmes that would facilitate hi-tech food innovation systems permeate among MSEs to enable them manufacture competitive and advantageous products in the export market.

Programmers in food manufacturing industry should consider multiple factors underlying MSEs technology choice if they have to be successful. No single factor can significantly influence agro-food processors' decision making in choosing food innovation systems for advantageous food products in a globally competitive market.

### **Suggestions for Further Study**

Based on the findings and conclusions generated from the study, the following suggestions feature for further research:

Technology adoption among Micro and Small agro-food processing enterprises in Busia and Nairobi is critically affected by MSE background information. The extent to which the demographic and enterprise background information affected the MSE adopt technology can be further investigated to inform policy makers in the County Governments of Busia and Nairobi.

Researchers may consider studying confluence of technology compatibility, technology competitive advantage and technology adoption support among agro-food processors.

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