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Measuring New Product Adoption in Uganda

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Abstract
The study addresses the question of New Product Adoption in Uganda while confirming the measures of adoption that have been applied in the previous studies. A fair amount of work has been done in the area of adoption across different fields of study in view of the antecedents of New Product Adoption but with minimal emphasis on the measures of adoption. The researchers adopted a cross sectional descriptive research design to measure new product adoption using beverage manufacturers and consumers in Uganda. The study used a sample of 210 beverage manufacturing organizations looking at both marketing staff and customers of those organizations as the unit of enquiry. Using Structural Equation Modeling, the Confirmatory Factor Analysis results indicate a good model fit for Acceptance and Usage as the measures of New Product Adoption in Uganda. The study recommends that manufacturers who are interested in evaluating the level of adoption of their products, need to consider the degree of customer acceptance and usage of the same products.
Keywords: New Products, Adoption, Measuring Adoption, Acceptance and Usage.

1. Introduction

As firms increasingly introduce new products on the market, several of these products succeed while others fail (Ma et al., 2014) some scholars like Cooper, (2007) argue that only one product has a chance of being adopted by consumers for every ten attempts while Donnelly (2010) believed that new products fail at a rate between 33 percent and 90 percent, depending on the industry.

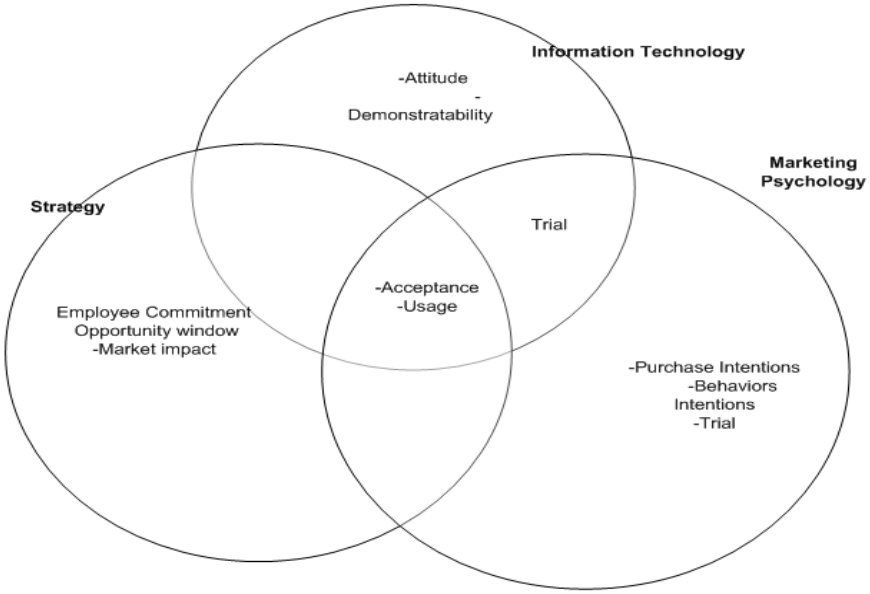
This minimal adoption trend of new products by consumers results into the waste of organizational resources (Kibet & Korir, 2013) and also affects organizational performance (Anderson, 1993). On the global market, the search for new markets to ease new product adoption is one of the major drivers of globalization (Joep et al, 2011).

New product adoption has been studied by different scholars in different disciplines (Mumtaz, 2016; Fichman et al., 2001), these include; Information Technology (Kwon & Zmud, 1987), Marketing (Cooper & Kleinchmidt, 1990), Consumer Behavior (Rogers and Shoemaker, 1971; Zhou et al, 2007; Quin et al, 2008) and Strategy, (Kwaku, 1997). These studies have made a remarkable contribution in understanding and measuring new product adoption with the major focus on the antecedents of new product adoption. However, these studies have minimal contribution on what constitutes new product adoption across the different fields of study. This paper summarizes the previously used measures of new product adoption across the different fields of study, tests and confirms their applicability in a Ugandan environment.

Among the previous studies that have been reviewed in this paper include; the work of Sing, (2003) who used a marketing approach to explain new product adoption as a decision of full and repeated use of an innovation. This conceptualization of adoption as usage has also been applied widely in the disciplines of Information Technology (Suhhan, 2002; Devis, 1989; Venkatesh et al., 2003; Sarah et al., 2007) and Consumer Behavior (Rogers & Shoemaker 1971; Rogers, 1995; 2003; Price and Ridgewa 1983; Chuar et al., 2004; Klonglan & Coward 1970).

Marketing literature is also littered with several other components that have been used to measure new product adoption. These include; acceptance (Rogers and Shoemaker 1971; Rogers,1995, 2003; Price and Ridgewa 1983; Chuar et al., 2004; Klonglan and Coward 1970; Ronald et al, 2003; Suhhan, 2002; Devis, 1989; Venkatesh et al., 2003; Sarah et al., 2007; Smale et al.,1995, 2001; Meyer et al.,1988), Purchase Intention (Foxall, 1988; Holak and Lehman, 1990; Jamieson 1989; Silk and Urban (1978) Pessemier, and Lehmann ,1972; Sewall ,1978), Behavioral Intention (Jamieson, 1989 and Azjen, 1991), Awareness (KLonglan and Cowad 1970; Bergerand et al., 2008), financial performance, opportunity window and market impact, employee commitment and organizational effort (Kwaku, 1997), Evaluation and Trial (Klonglan and Cowad, 1970; Bergerand et al., 2008 and Kenneth et al; 1995). An analysis of these indicators has been done to form a set of the commonly used measures of new product adoption that are later tested and confirmed for the Uganda Environment as indicated in figure 1 below;

Figure 1: A set indicating the commonly used measures of New Product Adoption in the fields of Information Technology, Strategy and Marketing Psychology.



Following the information provided above, acceptance and usage are the widely used indicators of adoption that can be generalized across all disciplines. Trial was not considered in this study despite its wide usage. Several scholars including **(**Klonglan and Cowad, 1970 and Bergerand et al., 2008) believe that when consumers use a new product on the basis of trial, they have a chance of rejecting or accepting the product. The researchers have also supported the set above with the operationalization of measures of new product adoption provided in the table below;

Table 1: Analysis and operationalization of the previously used measures of New Product Adoption

Indicator	Area of study & Researchers	Comments	Definitions
Usage	Applied in all disciplines of ie; Marketing (Sing Fang, 2003), Entrepreneurship (Ronald et al, 2003; Price and Ridgewa, 1983), Information Technology (Suhhan, 2002; Devis, 1989; Venkatesh et al, 2003; Sarah et al, 2007; Smale et al,1995, 2001) Consumer Behavior (Rogers and Shoemaker 1971; Rogers,1995, 2003; Price and Ridgewa 1983; Chuar et al, 2004; Klonglan and Coward 1970; Doll and Torkzadeh (1988) & Strategy (Meyer et al,1988)	All these studies were applied to test the rate of use, time of use, characteristics of users & methods of usage. The studies were also done in developed countries with different adopter characteristics. Other studies used secondary data that may not be sufficient in conceptualizing adoption.	Consumption of a product which could be in form of (1) perceived daily use; (2) perceived frequency of use; (3) the number of applications used; (4) perceived usage level; (5) sophistication level of applications used.
Acceptance	Applied in all disciplines of Consumer Behavior (Rogers and Shoemaker 1971; Rogers,1995, 2003; Price and Ridgewa 1983; Chuar et al, 2004; Klonglan and Coward 1970, Entrepreneurship (Ronald et al, 2003) Information Technology (Suhhan, 2002; Devis, 1989; Venkatesh et al, 2003; Sarah et al, 2007; Smale et al,1995, 2001; Ives et. al., (1983) and Baroudi, et. al. (1986),) & Strategy (Meyer et al,1988)	It has been used in all disciplines as an element that precedes usage. However, in most of the studies, the focus was on the antecedents of product and innovation adoption. Also, none of these studies was done in Uganda.	The readiness to use a product because it meets required specifications or standards and is usable for its purpose. It's a degree to which users believe that the product at their disposal fulfills their needs.

Indicator	Area of study & Researchers	Comments	Definitions
Purchase intention	Applied in consumer behavior (Foxall, 1988; Holak and Lehman, 1990; Jamieson 1989; Silk and Urban ,1978; Bass, Pessemier, and Lehmann ,1972 ; Sewall,1978; Dhruv et al, 1998)	The Scholars focused on the general attributes of Rogers (1995) of (Relative advantage, compatibility, complexity, divisibility and communicability) which also corresponds to the antecedents of adoption.	Consumers' willingness to buy
Behavioral intention	Applied in consumer behavior (Jamieson, 1989) Information Technology, (Azjen, 1991; Gollwitzer 1999)	There was much emphasis on the consumer adoption process with less explanation of the concept of adoption.	Proximal antecedent to action or the creation of implementation plans.
Awareness	Applied in consumer behavior (Klonglan and Cowad 1970 and Bergerand et al, 2008)	It was used to indicate that adoption starts with awareness. However, it was challenged by Narasimhan (1983) that being aware of a new product doesn't result into using it.	Provision of Information about the product to support evaluation and decision making.
Evaluation	Applied in consumer behavior (Klonglan and Cowad (1970) and Bergerand et al, 2008; Madhavan Parthasarathy et al 1994)	Evaluation was considered as part of the adoption process. However, Narasimhan (1983) still argues that the customers' evaluation may result into acceptance or rejection	Customers' Judgment based on the available information.
Trial	Applied in Consumer Behavior (KLonglan and Cowad, 1970; Bergerand et al, 2008 and Kenneth et al; 1995)	Trial was considered as part of the adoption process. However, Narasimhan (1983) still argues that the customers' trial of new products may result into acceptance or rejection	Refers to the symbolic use of a product prior to full adoption.
Attitude	Applied in Information Technology (Suhhan, 2002; Singfang, 2003; Karjuoto et al, 2002)	Attitudes were used in Information Technology Discipline which made it difficult to be generalized in research.	The positive response of consumers and readiness to use the product.
Employee Commitment	Applied in strategy where an organization is adopting innovations (Kwaku, 1997; Rhodes and Matheson, 2005)	Applied where an organization is adopting innovations.	A motivational force by which employees work hard, devote time and persist in terms of achieving desired performance targets for new products.
Financial Performance	Applied in strategy where an organization is adopting innovations (Kwaku, 1997; Cooper and Kleinchmidt, 1990)	The study focused on the benefits that accrue to the firm after consumer adoption. These measures are used by the firm to measure success after product adoption.	Increase in sales performance of a new product.
Opportunity Window	Applied in strategy where an organization is adopting innovations (Kwaku, 1997; Cooper and Kleinchmidt, 1990)	The study focused on the benefits that accrue to the firm after consumer adoption. These measures are used by the firm to measure success after product adoption.	The ability of a new product to create more opportunities in the organization.
Market Impact	Applied in strategy where an organization is adopting innovations (Kwaku, 1997; Cooper and Kleinchmidt, 1990)	The study focused on the benefits that accrue to the firm after consumer adoption. These measures are used by the firm to measure success after product adoption.	The increase in the organizational market share in the industry.

2. Literature Review

2.1 The Trend of Adoption Studies

Studies on adoption can be traced from the work of Lewis's AIDA Model (1898), followed by Rogers's (1962)

Diffusion of Innovation theory, the theory of Reasoned action (TRA) of Azjen and Fishbain (1975), the Technology Acceptance Model of Devis et al, (1989), the theory of Planned Behavior of Azjen (1991) and the most recent Unified theory of Acceptance and Use of Technology (UTAUT) Venkatesh et al (2003).

Lewis, (1898) explained that adoption is the ability to take an action to buy a product as a result of the organizational effort to create awareness, interest and desire of the same product. He further explained consumer adoption as the mental process that every potential customer goes through from awareness of a product to its rejection or buying the product. However, Lewis's work is silent on the behavior of the customer after buying the product and the continued usage of the product.

Rogers (1962, 1976 &1983) developed a model of diffusion which has become widely established in the marketing literature. In his work, he explained adoption on a continuum by categorizing consumer response to new products over a given period of time. Rogers developed a detailed profile of ideal types of consumers for each of the adopter categories on the basis of demographic, socioeconomic, and personality characteristics.

The adopter categories are analogous to the grouping of consumers in a market segmentation study. For example, innovators are "venturesome", tend to be better educated, willing to take risks, and are more socially mobile than their peers. In a similar manner, each of the five adopter category was given a consumer profile (Rogers 1962, 1983; Hawkins, Best & Coney 1989). He therefore meant that consumer adoption is as a result of some specific characteristics that are possessed by consumers. However, several researchers including Kotler (1991) states: No one has demonstrated the existence of a general personality trait called innovativeness. Individuals tend to be innovators in certain areas and laggards in others. This therefore implies that Rodgers's views on adoption cannot be solely relied on.

Bass (1969) also proposed and tested the model for the diffusion of consumer durables and other innovations. Because of the long time intervals between individual purchase occasions for consumer durables, the number of adopters in a time period is virtually identical to the number of sales throughout most of the diffusion process. This enables the number of adoptions in a period to be used as a proxy for sales, and *vice versa*. Bass recognized the internal elements of an adopter as mentioned by Rodgers (1962) but also added on the external marketing stimulus that influences people to adopt.

However, Azjen (1991) in his theory of Planned Behavior, explained consumer adoption as a combination of consumer attitudes, perceptions, beliefs, intentions that form the behavior to adopt a certain product. His contribution is largely on the consumer without considering the role of the organization.

Other researchers that have contributed to the study of consumer adoption include Hoeffler, (2003) and Herzenstein *et al.*, (2007) who emphasized the role of uncertainty factors in adoption, while Yongbum, (2016) examined highly influential extrinsic cues such as the entry of large competitors which may incur impacts upon consumers' choices to adopt new products. Muda *et al.*, (2012) contributed to this debate by suggesting that managing the brand through awareness and brand endorsement are key elements in enforcing adoption. However, despite the numerous contributions to new product adoption, there is still a gap in understanding what adoption is across the different fields of study.

Adoption has also been classified into symbolic and use adoption. Klonglan and Coward (1970) model explained symbolic adoption in relation to the decision to adopt, based on information and evaluation (i.e., attitudes). The model further explained use adoption as the actual act of adoption (i.e., behavior). It is the final step in the adoption-decision process. Some individuals may symbolically reject an innovation by deciding on the basis of available information.

Therefore, referring to Rodger's (1983) continuum of adoption, most innovators' adoption decision, being strongly governed by attitudes and judgment, are generally influenced by symbolic acceptance. Imitators, on the contrary, base their adoption decision primarily on other peoples' opinions and may therefore adopt a product for use even though they may not have symbolically accepted it. This put differently, it appears that imitators are more likely to adopt a product even though they symbolically resisted it to a greater extent than innovators (Madhavan et al, 1994).

2.2 Acceptance

The main indicator of adoption based on the symbolic approach is acceptance which has been used widely in the disciplines of information technology, (Kwon and Zmud 1987, Davis et al, 1989, Venkatesh et al, 2003, Rogers and Shoemaker 1971, Karjuoto Mattilla, 2002), Consumer Behavior (Rogers, 1995, 2003; Meyer et al, 1988, Davis et al, 1989 and Venkatesh et al, 2003). These scholars explain adoption as a process which begins with acceptance. Consumer acceptance of a new technology or consumer goods and services is a sign of recognition of the product. Teresa et al (2010) referred to new product acceptance as consumer recognition and readiness to welcome a new product and Davis et al (1989) who looked at perception either perceived ease of use of the new product, perceived usefulness of the new product and perceived risk as the major antecedents of consumer acceptance. This meant that if consumers are to accept new products, they need to perceive them as simple to use, more useful compared to the existing products and with low risk if adopted.

However, Rogers (1962; 1976; 1983) looked at product acceptance as a dependent on consumer innovativeness, implying that the higher the innovative characteristics of the consumer the easier it will be for the consumer to accept new products on the market since this is viewed as an opportunity to the consumer. This view of acceptance leaves the debate hugging since acceptance cannot be left to a specific group of people who have some specific characteristics (Kotler, 1991).

In a different assessment, Foxall (1988), believed that when consumers have acquired purchase intentions for the new product, it qualifies them to have accepted the product. This meant that intentions to purchase and intentions to use tantamount to acceptance.

This is also in line with Azjen (1991) scholarly work related to attitudes and behavioral intentions as predictors of actual behavior. In Azjen (1991) work, it's clear that consumer attitudes form consumer acceptance which was referred to as actual behavior and later confirmed in the works of Holak (1990); Jamieson, (1989) and Nakamoto, (2007). This leads us to hypothesize that; *There is a positive and significant relationship between acceptance and product adoption.*

2.3 Usage

Usage has been studied widely in different contexts and situations across different fields of study like Information Technology (Devis, 1989; Zaffar, 2009), Consumer Behavior (Rogers and Shoemaker, 1971) among others. Usage has further been emphasized to be among the most important elements that support organization growth. Desbarates (1995) observes that for many organizations, product usage lies at the heart in which brand values and brand loyalty are created. In the same regard, Shaffer and Sharrel, (1997) believe that product usage is the sole indicator of customer adoption and satisfaction while Zaffer (2009) in his study of diffusion of Information Technology in Institutions of Higher Learning in Pakistan concluded that usage, acceptance and adoption are the indicators of systems success and they provide evidence of accomplishments for each other. This is also in agreement with Hellier et al, (2003) who proclaims that Usage is the overall level of customer pleasure since it's the source of experience the customers accumulates about a given product or service.

Despite its wider treatment in different disciplines, usage has been categorized differently. Ram and hyung-shikjung (1991) contextualized it firstly as Usage frequency, referring to how often the product is used regardless of the product functions used or the different applications for which the product is used. Secondly as Usage function, the extent to which the product features or functions are utilized by consumers, regardless of how often the product is used and thirdly Usage situation referring to the different applications for which a product is used and the different situations in which a product is used regardless of either usage frequency or usage functions.

Considering usage rate, Mumcu and Usluel (2004), claims that sometimes usage is affected by the level of relevant information about the product while Davis et al (1989) believed in the ease of use of the innovation that could accelerate usage. This debate is further supported by several scholars who confirmed that usage levels of new products are highly associated with available information accessed by the customers or users, the skills of the users and their attitude toward usage. A review of this literature firmly confirms that usage is a very strong indicator of product adoption. We therefore hypothesize that there is a positive and significant relationship between usage and new product adoption.

3. Methodology

The existing facts about New Product Adoption in Uganda were gathered through a critical realism approach which combines assumptions of both positivism and interpretivism. Therefore, the study methodologically triangulated by using a mixed method approach combining both quantitative and qualitative as recommended by Aguinis and Pierce et al.(2009).This is because, a good research adopts a position on the continuum between the two approaches (Burell and Morgan, 1979; Gill and Johnson, 1991:36; Hunt, 1994) and this combination is recommended by a number of researchers including; (Denzin, 1970; Hammersley and Atkinson, 1983; Jick, 1979). They argue that advocates of a given methodological approach should incorporate insights from others (Morgan and Smircich, 1980). Therefore, these methods are not competing but it's a multi-method approach, described as methodological pluralism by Trow (1977).

3.1 Research Design

The study further takes a descriptive cross-sectional survey design to collect data at a particular point in time. This kind of research design is preplanned and structured, and is typically based on a large sample (Churchill & Iacobucci, 2004). While collecting qualitative data, a strength based approach was used where key participants were asked to describe in detail what New Product Adoption is and what shows that consumers have adopted a given product. This approach is appropriate in describing the respondents' experience and understanding of a study area as recommended by Peterson, 2000)

3.2 Study Population, Sample size, Sampling Design and Procedure

The study focuses on small, medium and large manufacturers of beverages in Uganda that employ above two (2) people. The United Nations Food and Agricultural institution categorized beverages to include Juice, Water, Coffee, Tea, Soda, Milk, Bushera, Energy drinks, Beers, Wines and Spirits. The Government of Uganda through the Uganda Bureau of Statistics conducts a business census every after ten (10) years that is meant to register and report on the different businesses in the Country. This study centered on the Uganda Bureau of Statistics Census of Business of 2010/2011 report which is the most recent official report. The report provides 442 beverage manufacturers that employ above two people and the sample for this study was generated from this population.

The researcher selected manufacturers because the manufacturing sector is often the darling of policy makers in Less Developed Countries (LDCs) and is viewed as the leading edge of modernization and skilled job creation, as well as a fundamental source of various positive spillovers (Tybout, 2000; Schiff and Valdez 1992 and Erzan *et al*, 1989). In the context of this study, beverage manufacturers refer to firms that make and process raw materials into finished beverage products (Houghton and Boston, 1984).

Using Krejcie and Morgan (1970) sample determination table, the population of 442 beverage manufacturers provides a sample of 205 respondents. However, due to the nature of the population and the complexity of the survey, the researcher expected to get a high non response rate. Using Israel, (1992), the non-response rate was catered for at 50% which shifts the sample to 307 respondents. This is further supported by Brink (2006) who states that there are no prescriptions for adequate sample size, but the larger the sample size, the better the statistical power in analysis for the case of quantitative studies. Hair *et al.* (2010) also added that a larger sample size is necessary to conduct various statistical analyses.

The researcher used stratified proportionate sampling to select the sample in the different business regions of the Country namely; Kampala, Central, Eastern, Western, Northern and Southern. The researcher further stratified businesses into Alcaholic and Non Alcaholic beverage manufacturers per business region to ensure proper representation. The unit of analysis was at the organizational level and the unit of enquiry included business development managers, business owners, marketing managers or sales people at the organizational level and customers of that organization. The study included organizational respondents and customers because new product adoption can easily be understood both at the organizational level that design marketing strategies and customers who adopt the products (Williams, 1994). After data collection, The 210 usable questionnaires were aggregated and interpreted both at the organization and customer levels.

Following the guidelines of field (2009), before aggregation, data from organization respondents and that from customers was subjected to analysis of variance ANOVA to test whether the variances in the two categories were the same without any major statistical differences. The results indicated the F statistic of (1.905) which was insignificant at P=.142, an indication that the mean of the two categories of data are the same without any statistical differences.

3.3 Measurements

Basing on literature reviews, we have identified that adoption has been measured differently by different scholars. Scholars who have studied adoption as a discipline of Information Technology have used attitude, demonstratability, trial, acceptance and usage as measures of adoption. Researchers who have studied adoption from the discipline of strategy have used employee commitment, opportunity window, market impact, sales growth, customer acceptance and usage as measures of adoption while most studies that looked at adoption from a marketing and consumer psychology perspective applied product ownership, purchase intention, emotional attachment, purchase behavior, usage and acceptance as measures of new product adoption. The table below summarizes these measurement approaches and the research design used in these studies.

Table 2: *Methodological approaches used in the previous studies*

Scholar	Measurement	Research Design	Sample and Sample Size	Type of analysis and Data
Grangping Wang et al 2006.	○ Product Ownership ○ Purchase Intention	Cross Section survey	11,029 consumers aged between 21 and 70 cities in selected cities in China	Negative binominal Regression Model used on syndicated Secondary data
Jae Hyunyou et al, 2011	○ Usage ○ Emotional attachment	Longitudinal survey	628 Consumers in Seoul, South Korea	Confirmatory analysis used on Primary Data
Zaffar Ahmed (2009)	○ Usage ○ Acceptance	Cross Section	350 consumers in Egypt	Confirmatory Factor analysis used on Primary Data
Sabrieh Sarabi (2013)	Purchase intention	A Cross Section survey	384 consumer respondents in Iran	Binomial regression applied on Secondary Data
Said et al (1999)	Usage	A cross section survey	329 of IT system	Confirmatory Factor analysis used on primary data
Naoufel Daghfous (1999)	Acceptance	A cross section survey	Consumers adoption	Confirmatory Factor analysis used on primary data
Joel et al, (2011)	○ Purchase Intention ○ Purchase Behavior ○ Usage	A literature Review	A-meta analysis of 99 studies that were published between 1970 and 2007 with emphasis on consumer adoption.	Bivariate Regression models applied on Secondary Data in form of a Literature Review.
Lisa Williams (1994)	Usage	A cross sectional survey with both qualitative and quantitative data	150 Customers and suppliers of Selected organization	A Regression Model applied on Primary Data.
S.Ram and Hyung-shik jung (1991)	Usage	A cross section survey for both qualitative and Quantitative	562 households in south west city of US.	Correlations and Regression models applied on primary data.
Birgul Kutlu (2008)	Usage	Longitudinal Exploratory survey	500 SME's inTurkey	Correlations applied on Primary Data
Sharen Nisbet (2008)	Usage Employee Feedback	Exploratory qualitative survey	14 registered employee clubs in Australia	Content analysis done on interview data
Erik Jan Hultink and Henry S.J.Robben (1995)	Customer Acceptance Financial Performance	A Cross section Survey	197 Dutch Large companies	Correlation used on Primary Data

In the studies reviewed above, a cross section survey designs appear to dominate with a few of the studies longitudinal in nature. The reviewed studies also indicate that customers were the key informants with a few studies combining both customers and employees of the organization in question. In the same way, most organizations used primary data that was analyzed using regression models and confirmatory factor analysis. Acceptance and usage are the most common measures of adoption from the studies reviewed. This study therefore considered acceptance and usage as measures of consumer adoption to be generalized in a Ugandan context.

3.4 Data Diagnostics, Validity and Reliability

Data was collected using a questionnaire that was developed after the modification of the items developed by Moore *et al,* (1991), Davis (1986) and Azjen and Fishbein (1980). The questionnaire was further developed without the middle point by incurring all the measurement scales at 6 point likert scale ranging from 1= Completely Disagree to 6=Completely Agree. This was done following the recommendation of Krishnaveni and Deepa (2013) who emphasized that many respondents tick the middle point when they don't want to reason.

Collected data was entered into the Statistical Programme for Social Scientists (SPSS) version 21 where it was coded, edited, explored and ascertaining the normality of data distribution, homogeneity of variance, interval level of data and independence of data from different participants. Missing values and the percentage of

missing values in the data were determined using Little's MCAR test (Field, 2009). The Little MCAR test results was (0.996) meaning it was not significant basing on the cut of (P≥ 0.5) an indication that values were not missing completely at random, implying that the questionnaire didn't have any technical problem (Hair et al., 2010). The 0.062% missing values that were found in the data were also replaced using multiple imputation methods to enable us carryout the confirmatory factor analysis (Field, 2009).

Data was further subjected to reliability and validity tests. To test for reliability, we used a Cronbach's Alpha Coefficients and all measurement items scored above the cutoff point of 0.7 (Table 3). This meant that the instrument could be used to measure New Product Adoption in different samples of the same population at different intervals. To further confirm the instrument, a Content Validity Index (CVI) was also carried out by collecting views from the experienced marketers and academicians in the field of New Product Adoption. The results of the Content Validity Index were also above the recommended cutoff of 0.7 (Acceptance was at 0.95, Usage at 0.86 and the computed variable of new product adoption was at 0.91) implying that the instrument covered the content of New Product Adoption as required.

To confirm the association among the construct measures, the average variance extracted (AVE) which is the amount variance that is captured by the instrument in relation to the amount of variance due to measurement error was also greater than 0.5 both measurement items, which meant that the variance wasn't as a result of measurement error and an indicator of a good association among the measurement constructs (Hair et al, 2010). Structural Equation Modelling and Amos version 21 were also used to determine the model fit indices.

4. Findings of the Study

This section presents and interprets the results from the data analysis. These results include the descriptive statistics of the organizations that participated in the study, their respondents and their customers. The major findings of the study are based on the confirmatory factor analysis (CFA) results.

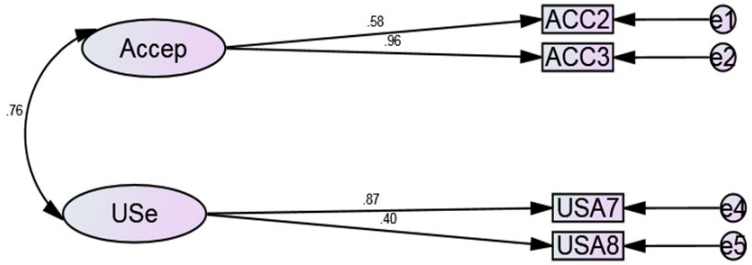
4.1 Descriptive Statistics

The study focused on a population of beverage manufacturers in Uganda using a sample of 307 organizations represented by both staff in the marketing departments and customers of the organization. Out of the 307 questionnaires that were given out, 210 usable questionnaires were returned, 87.6% of which were nonalcoholic firms and majority had been in business for a period of 5-10 years with a marketing department and a sales team. Regarding organizational respondents, most of them were male with 51% on average between the ages of (30-40) years, married, educated with a diploma or a degree and at middle management position. Customers who were able to participate in this study were also mainly male with 57%. This marginal male dominance is an indicator of the increased role of women in shopping and marketing activities. This could further be explained by the age bracket of the customer respondents, majority being between (18-28) years which are more inclined to shopping and usage of beverages. We also note that majority of these respondents were single 52.3% but educated mainly with a degree 26.5%, diploma 19% and a high school certificate 18%. This gives us more believability in our results since all of our respondents could read, write and understand the information we were asking for.

4.2 Confirmatory Factor Analysis (CFA) Results

A Confirmatory Factor Analysis was done to confirm if acceptance and usability are the appropriate indicators of adoption in the Ugandan context. Acceptance had 14 measurement items while Usage had 12 measurement items that were modified from the work of Moore et al, (1991), Devis (1986) and Azjen and Fishbein (1980). Using Structural Equation Modeling, these items were further reduced to two (2) items for acceptance and usage as well. However, it's also good to report that both acceptance and usage had good fit indices as indicated by the Comparative fit Index (CFI) of 1.000, the Turker Lewis Index (TLI) of 0.0999, the Goodness of Index (GFI) of 0.999, AGFI, 0.987, RMR, 0.018 and Root Mean Square error of Approximation was (RMSEA< 0.014).

Figure 2: Confirmatory Factor Analysis Measurement Model for New Product Adoption



Measurement Model for Adoption;
RMSEA=0.014, RMR=0.018, GFI=0.999, AGFI=0.987, TLI=0.999,
CFI=1.000, Df=1, P=0.298, CMIN/DF=1.088

Table 3: *Construct Validity and Reliability Table*

Item Code	Variable	Item	Mean	SD	Estimates	S.E	C.R	P.Value	Loading	Alpha	AVE
ACC 2	Acceptance	Our customers can recognize our company's products on the market.	4.619	1.242	0.622	0.065	9.565	0.000	0.58	0.820	0.63
ACC3		Our customers support and defend our products	4.419	1.210	1.607	0.168	9.565	0.000	0.96	0.815	-
USA 7	Usage	Our customers can explain to others how our new products work.	4.652	1.115	1.872	0.292	6.403	0.000	0.87	0.822	0.53
USA 8		The ease our customers get when using our products shortens their adoption decision	4.502	1.286	0.534	0.083	6.403	0.000	0.40	0.823	-

This study aimed at confirming whether acceptance and usage are valid measures of new product adoption in Uganda. Using Structural Equation Modeling and Amos version 21.0, the model fit indices indicated in figure 2 confirm that the model could fit the data. In the table above, the average variance extracted (AVE) for all items was above the recommended minimum of 0.5, the cronbach alpha values were above the minimum of 0.70 indicating a higher reliability and all items were significant at 0.000.

This implies that adoption can be seen through customers' acceptance of new products especially when customers like being exposed to new products, they have interest in purchasing new products and are eager to buy those new products as soon as they come. This is the same to usage, customer's willingness to use the actual usage and enjoyment when using the organizational products and services is easily translated in adoption.

Table 4; *Zero order correlation results*

	Correlations				
	Mean	Std.Deviation	New Adoption	Acceptance	Usage
New Adoption	4.5	.56	1		
Acceptance	4.3	.70	.917**	1	
Usage	4.6	.56	.800**	.497**	1
	**. Correlation is significant at the 0.01 level (2-tailed), N=210, Pearson Correlation				

The table above also shows a positive and significant correlation between Acceptance and Usage (r=.497**, P<.01). This implies that customers' acceptance of a new product is associated with usage of that product. There is also a positive and significant relationship between acceptance and new product adoption. (r=.917**, P<.01) This therefore implies that customers' acceptance of new products is highly associated with customer adoption. The study also reveals a very high correlation which is positive and significant between Usage and Adoption (r=.800**, P<.01) implying that higher usage levels of a new product by customers is also highly associated with new product adoption.

The study used scales of 1-6 ranging from strongly agree to strongly disagree. Taking the mean scores, Usage has a higher mean score of 4.6 and Acceptance has a mean of 4.3 which implies that majority of the respondent's answers agreed with the questions they were asked to answer.

5. Discussion of Findings

This study focuses on understanding what New Product Adoption is in Uganda. The study has reviewed several publications that have tempted to conceptualize adoption in different contexts and disciplines. Basing on the results of the study, the major study findings confirm that acceptance and usage are the main measures of product adoption in Uganda. The study also benchmarked Klonglan and Coward (1970) conceptualization of adoption which involves both symbolic adoption and use adoption. The indicators of adoption are further discussed below;

5.1 Acceptance

Consumer acceptance of a new product is the degree to which users believe that the new product at their disposal fulfills their needs. This is largely based on the level of awareness a consumer has on a given product which enables the consumer to form purchase intentions and there after use the product. The study also reveals that acceptance can be evidenced from the interest and eagerness of the consumers to buy a given product. As soon as there is a higher willingness of the customer to buy these products, this can reasonably imply that consumers have adopted these products.

These results are in agreement with Klogan and Coward (1970) who looked at adoption as a process that involves consumer acceptance of the said product. Sing and Fang (2003) findings also support the argument that acceptance is a measure of New Product Adoption basing on the response of consumers after acceptance. Therefore, consumer adoption starts when consumers have accepted the new product. However, (Reed et al, 1996) believes that the decision to adopt in this case referred to as acceptance and the actual behavior to adopt may be separated in time but both form the concept of adoption. Our results support this view of looking at acceptance as an indicator of product adoption.

In this study, we also refer to acceptance that comes after product trial but not before trial. This is because organizations prefer to pretest their products through trial and these product normally can be changed. New product pretests that are done in trial form usually create feedback that supports product improvements. This is in line with the findings of Klonglan and Coward (1970) who asserts that acceptance that symptoms adoption follows trial. This is because trial commonly results into trial rejection or trial acceptance. Its therefore believed that acceptance after trial is a measure of product adoption.

The results of this study also don't deviate from the common practices of informative studies and opinion polls that are run by manufacturing firms in Uganda. Firms normally run opinion polls as investigative studies to test consumer adoption. During these studies, customers are asked about their attitudes, beliefs and their level of acceptance of these products. This therefore confirms that acceptance can easily result into adoption.

While carrying out our interviews to gather qualitative information for this work, one of our respondents said that *"In 2014, we carried out a market survey to investigate how many potential customers could accept our products if availed on the market. We registered 185 customers who were positive and accepted to use our products. After one year, when the products were already launched on the market, we contacted the same customers to gather information if they bought and used the products. Results showed that 91% (165) customers, who accepted to use our products earlier, had adopted the products and were using them comfortably."* This further confirms consumer acceptance as a perfect measure of New Product Adoption.

5.2 Usage

Usage has been widely used as an indicator of adoption. The results of this study also confirm that usage is a good measure of product adoption in Uganda. When consumers start using the new product either the first time or the second time, without considering the rate and time of usage, it translates into adoption. This is in agreement with sing and fang (2003) who referred to actual usage as a measure of product adoption and Midgley and Dawling (1990) who explained relative time of usage as adoption.

From this analysis, we also learn that adoption is action oriented. Consumers who have accepted and are ready to adopt must take an action of either buying or using the product. Consumers who buy and use the products could be the best adopters while those who buy for other people and don't use the products are also adopters since buying is also an independent action. This is in agreement with lewis (1998) who explained adoption as any action taken to use a given product. Foxall (1988) further supports this view by conceptualizing adoption as product ownership which comes as a result of product usage. Implying that when consumers buy and use the different organizational products, legally ownership passes to the hands of the buyers who are the final users.

Taking this argument to the perspective of the organization, managers normally measure adoption by the increase in financial returns of a given product to the company, how the product has created more opportunity windows to the firm and to the users. This could be as benefits that accrue to the users as a result of using the products of the organization or the benefits that may accrue to the organization as a result of the demand from the users of its products. This discussion is therefore supported by Kwaku, (1997), Cooper and Kleinchmidt

(1990) who confirmed that when consumers use organizational products widely, it increases financial returns of the new products to the firm, widening the different market opportunities to the firm and creation of a market impact which could be translated into adoption.

These results also confirm to the categolisation of Klonglan and Coward (1970) of use adoption. In this categorization, the researchers meant that for adoption to take place, consumers must be using the product in its current form which stimulates others to buy the products and later causes the word of mouth advertising. In the same vein, the results support Kotler (1990) in questioning Rogers (1970) conceptualization of adoption basing on consumer innovativeness.

These quantitative results were further supported by the qualitative results. One interviewer had this to say. " *..For the firm to confirm consumers that have adopted its products, it must compare its sales to the production levels. Higher sales of the firms imply higher consumer response which response is directly translated into usage of the firm's products and services. Therefore a firm can't talk about adoption with low usage and consumption levels."*

6. Conclusion and Implications

6.1 Conclusion

The major aim of the paper was to confirm if acceptance and usability can be perfect measures of New Product Adoption in a Ugandan context. This study confirms that adoption from the consumer's point of view is when the consumers accept to use the product. This acceptance can be evidenced through the customer's eagerness to purchase the product and the interest they show towards these products. When customers have accepted the organization's new products, they can recognize them and recommend others to use those products if given a chance to do so.

The results also indicate that adoption is the active usage of organizational products by consumers. Organizations can always measure usage levels basing on financial contributions of each new product, market impact and opportunity window. The more the customers repeatedly use the organization's products, the more the new product penetrates in the market and the high the adoption rates.

6.2 Theoretical Implications

In studies of adoption, a mixed methods approach is suitable because it allows the use of critical realism which combines both quantitative and qualitative methods. In this case, a sequential, explanatory mixed methods approach is better because it enables the use consumer's views collected qualitatively to explain the quantitative findings.

6.3 Policy and Managerial Implications

At the organizational level, policies must be developed regarding product usage. Manufacturers must get involved to know who uses their products, when and why. Such policies will always enable companies to develop new products that are simple to use.

Organizations should also develop customers lists based on those who use a given product. These customer lists developed based on those who use the products provide feedback about the performance of the products which aids new product improvements and modifications.

Organizations need to develop guidelines to enable proper categorization of customers from those who have accepted the products of the company to those who use it. This helps in evaluation of the marketing efforts and set projections based on customers who have accepted the product and ready to use it.

Organizations also need to design marketing efforts based on the segmentation and categorizations made. The way an organization communicates to customers for the purposes of awareness should be different from the way it communicates to customers who have accepted and are already using the organizational products.

Managers and Marketers of beverage firms despite the differences in brands need to appreciate the measures of acceptance and usage since they have been tested as the most successful and indicators of adoption. This should facilitate decision marketing related to marketing of New Products.

Organizations also need to develop a criterion for evaluating staff who are involved in New Product Development and Marketing. This is because the climax of a product is when it's used and used continuously. Therefore, the main objective of this team should be to design products that are acceptable by consumers and simple to use.

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