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Case Study

Effect of Mobile Distribution Application Services on Sales of Fast-Moving Consumer Goods: A Case of Pz Cussons Limited

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Abstract

One of the areas of focus recently has been the potential of mobile apps services as a solution to overcome low levels of infrastructure development, that hinder full exploitation of business opportunities in developing countries like Kenya. It was with this in view that the primary objective of this study was to investigate the effect of mobile distribution applications services on sales of fast-moving consumer goods produced and sold by PZ Cussons. Specifically, this study sought: to determine the influence of mobile apps memory support services on sales of fast-moving consumer goods; The study employed a census sampling method. The target population was small enough to conduct a census survey of 80 employees at PZ Cussons East Africa using questionnaires as the primary data collection tool. Cronbach's alpha coefficient was adopted to ascertain for reliability that was obtained through split-half technique. Quantitative data used simple linear regression to test the strength of the relationship between the variables based on observed data and to predict the value of the dependent variable based on the independent variable. The study concluded that memory support services by mobile app services influences sales of fast-moving consumer goods, The research recommended the need for adequately adoption of technology driven business intelligent services to predict consumer preferences to enhance sales of fast-moving consumer goods.

Keywords: Brand, Distribution, Retail, Fast-Moving Consumer goods, Mobile apps.

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Introduction

The FMCG (Fast-Moving Consumer Goods) industry, like other sectors, is being reformed by newly trundled out technology and devices. Business profit sustainability motivation drives innovation on the aspects of business that manifests bottlenecks. Distribution is a very significant function of goods manufacturing companies. Manufacturing relies heavy on a strong distribution backbone to remain low cost and profitable. With this understanding FMCG companies are employing Mobile App services to bridge the chasm left by the lack of developed infrastructure and retail market in most developing countries.

Mobile App services are Android or iOS applications that are proprietary to the business using them as a distribution tool. They offer various services build into them from design. They may include but not limited to memory support services, transaction-based services, location-based services, information sharing services, customer database services, products databases services, promotions databases services, marketing activities and so on. They are designed to 'condense' the real-time data collection and management services that are otherwise handled manually. They capture the name of the sales personnel, the quantity and type of products sold, the amount of money received, the name of the customer, the location and so on. They also carry historical purchase patterns of the customer and any promotions that may have been extended. The data is relayed to the main database at the company headquarters on a real-time basis. The back-office staff are then able to analyze and keep track of sales performance as the day progresses. Gaps can be addressed by close of business day. Some of the outcomes that are analyzed are route or geographical coverage, products of focus, new outlets opening and old ones closing, competitor activity and so on.

According to KPMG, Africa has a population of around one billion and yet the continent remains comparatively under-served by FMCG companies (KPMG, 2016). The middle class in Africa consists of 350 million people presenting a promising opportunity for retailers (African Development Bank, 2017).

Africa is still a more rural continent compared to other first world and Middle-Income continents like North America, Latin America, and Europe (Heitzig, 2020). However, majority of the countries in Africa are becoming increasingly urbanized. (KPMG, 2016) This is especially the case in cities like Nairobi and Lagos, whose population has increased by 100X since the 1960s. According to Elliott, Africa is in a prime position to dominate the FMCG market: 2/3 of Africa's $1.4 trillion retail spending in 2016 was on FMCG (Elliott, 2019). Elliott expects FMCG spending to continue and increase in viability through 2030 (Elliott, 2019). Africa is projected to continue to be a profit driver for FMCG companies. It is however difficult to study selling and distribution of FMCG products in rural parts of East Africa mainly because the channel through which FMCG products are distributed are very informal. Meaning that any data collected in any study will always only be a subset. This presents the 'double edge' challenge and opportunity for FMCG brands. The challenge being, brands must surmount significant infrastructural barriers, to create a significant brand presence in rural East Africa (Deloitte, 2015). Mobile apps are a significant tool that has been deployed affordably to overcome structural barriers, to reach consumers directly. Mobile apps offer FMCG brands the

opportunity to successfully establish their brand presence in East African rural markets (PwC, 2016).

Safaricom (a subsidiary of Vodacom UK and the largest cellular services provider in Kenya) realized the potential of mobile distribution apps in the local Kenyan market and partnered with PZ Cussons East Africa Limited and Virtual City in 2013, to launch a mobile application that targeted Fast-Moving Consumer Goods (FMCG) industry. The brand name of the app is M-Distributr, available on android platform. This app empowers sales teams and businesses to track sales transactions and deliveries, place orders and collect returns on real time basis. It also incorporates built-in mobile money payments capability through M-PESA while in the field. The application is currently being used by PZ Cussons and Safaricom airtime dealers. It is integrated into their supply chain systems and processes (PaymentsAfrika, 2014).

To keep track and continuously improve value chain response to the market demands, the mobile distribution application was introduced in 2013. The pilot project of M-distributr mobile application demonstrated how mobile money can be integrated with mobile apps to enhance the sales and distribution process for PZ Cussons, tracking sales orders and payments right in the field enabled the sales team to cover a wider radius in the targeted distribution area from the head offices in Nairobi. The opportunity behind adoption of mobile apps exists in the increased use of real-time data created through the digitalization of the customer relationship. From such data it is easy to derive customers' and consumer behavior. The M-distribtr app presents an opening for the researcher to analyze how FMCG companies can leverage collected app data to make strategic decisions that will positively influence sales outcomes (PaymentsAfrika, 2014).

In Kenya many of these potential consumers are still in rural areas or communities lacking modern infrastructure. Approximately 15 million new retail stores in the form of supermarkets, mini supermarkets (mom and pop shops), dukas and kiosks effectively tap into the rural economic potential and represent new consumers who will likely require their localized tastes met at very competitive pricing (Owuor, 2018).To effectively address such challenges digital technology is one of the few economically viable solutions available to FMCG companies. The motivation of most businesses to retain and grow their market share converge in digital applications to achieve both, for this reason FMCG companies should evolve to a digital operating model (Fletcher, 2013). This study posits that the use of mobile apps is a key strategy in selling and distribution of FMCG goods particularly in infrastructure challenged areas of Kenya.

Objectives of the Study

The objective was to investigate the effect of mobile distribution applications services on sales of fast-moving consumer goods with focus on mobile app memory support services

Research Question

The study answered the following research question: Does memory support by mobile applications influence the sales of fast-moving consumer goods?

Research Hypotheses

The study tested the following hypotheses: H0: Memory support by mobile app has no significant influence on sales of fast-moving consumer goods.

of consumer production goods and how available data affects the distribution value chain.

Literature review

Mobile applications now enable brands and companies to connect directly with the consumer, such that few FMCG managers would ignore mobile distribution strategies. A worldwide survey of 2.1 billion mobile phones and 3.2 trillion sessions done by (Lino, 2016) demonstrated that there are around 1.5 billion people using mobile apps daily, a 60X increase over the past decade. With customers spending all this time on their mobile phones, companies are leverage users' mobile data to grow their business and increase revenue for their company. The current era of technology has increased information available to companies to better understand consumer buying behavior, patterns of spending and how they make other vital decisions. Memory support is therefore vital for sales, marketing, and management strategy formulation. The data collected assists FMCGs to recognize and try to align products or experiences with users' expectations.

A dynamic module of memory support is mobile data collected by the mobile application during the sales process. Data that is collected by a mobile app including FMCG sales app is referred to as first party data. Professor Douglas Schmidt of Vanderbilt University in the USA in his study of Google Data Collection, observed that Google collects data from its users in two ways. The first is through information provided by users and the other is covert. The data collection is used to predict users' behavior and usually utilized in targeted advertising. First party data could be user-centric information for example user profiles, upgrades, installs, processes, location tracking data and even push notifications (Schmidt, 2018). One of the more pressing concerns for managers is the quality mobile apps data collected. Normally, an app activates data at the point where the consumer at a point of purchase. This activation can be from a web interface with software development kit and integrated mobile analytics. The analyzed information can be used by the FMCG manager as insights into the sales of the company.

Nickerson and Mourato-Dussault (2016) in their case study of Camino de Santiago in Spain observed that Mobile apps mostly come with three types of memory support regarding the data stored in the application. Offline apps store their entire data on the mobile device. For some apps, data may already be fully occupied when the app is initially installed, e.g., Maps, or data may be initially installed and be updated with subsequent use by the mobile app user, e.g., contact list. Apps such as these do not require them to be online to function except maybe during initial installation; customers can experience their full functionality even offline. It is important to note that although most of offline apps back up their data to a cloud-based system, it does not constitute a change in the nature of the apps. Secondly, online apps, are dependent on access to a dedicated server for storage of data. Data on the server is uploaded from the user's mobile device continuously. It can also be updated by outside entities such as system administrators or

3rd party users directly to the server and the data downloaded from server to the mobile phone (Mourato-Dussault, 2016). Most FMCG apps and e-commerce apps important for this study fall in this category; the mobile app used by the FMCG in this case study is an online app. These types of mobile apps require the user to be online to achieve their intended functionality; the mobile app is only fully functional when online.

Research on memory support has been used to identify the most effective mobile application to develop for a particular strategy. Nickerson and Mourato-Dussault (2016) concluded that different approaches to data storage for mobile apps are appropriate depending on the characteristics of the situation in which the app will be used. Offline apps are most effective when data does not need to be updated or only the user updates the data, and all the data is stored on the mobile device. Online apps are most effective in sales since data needs to be updated according to/by external entities and as such require real time access to a data server. The data exchanged during sales is crucial for both the consumer and FMCG company's which is yet another reason for this choice of memory support.

Offline apps, with all data stored on the mobile device, are best when the data does not need to be updated or is only updated by the user. Online apps, where the app has real time access to the data on a server, are best when the data is updated by external entities and the currency of the data is critical. The third type of app synchronized apps which store all data on the mobile device but require intermittent access to the server where data is uploaded (downloaded) is useful in areas with low internet access such as border (rural) areas. Empirical research has determined some decision factors that affect the choice of memory support by app developers and app users but not extensively in the context of its effect on the sales of FMCGs. There is need to examine the effect of the memory support selection on the main user of the app, in our study FMCG companies to confirm the factors based on which the decision is made.

Theoretical Framework

Firms in the Kenyan FMCG sector are currently operating in a highly competitive business environment hence the urgent need to develop successful sales strategies that will put them ahead of the competition. Globalization and massive leaps in technology has enhanced competitiveness and forced FMCG's to rethink their selected strategic sales and distribution channels to surmount infrastructural challenges in the Sub-Saharan market, which is a major source of consumers. The study was anchored on The Signaling theory, The Economic Distribution Channel theory, and The Relationship Marketing theory.

The signaling theory

The signaling theory is the study of asymmetric distribution of information (Brian L Connelly, 2011). This model in principle illustrates how two parties, i.e., the sender and the receiver use information as a tool to communicate. This theory describes communication between a manager and stakeholders. It was expounded by (William A. Gardner, 1992) to include communication between wholesalers and retailers. Highly competitive environments such as the FMCG sector are always subject to signaling. In

the FMCG sector, company's use demand signaling (William A. Gardner, 1992), to convince retailers that their brand will sell. Based on private information the company will invest a substantial amount of money in the advertising and marketing of a new product to signal their confidence that their product would 'fly off the shelves'. Signaling models have previously been applied to channels of distribution. (Chu, 1992) examined signaling of product quality through retailers. In the model the FMCG holds the bargaining power to set a 'take it or leave it' wholesale price in the market based on the company's knowledge of the market and its marketing expertise. It is therefore useful in this study since the model postulate that underlies our signaling model are an informed FMCG company which has private information about crucial aspects of demand about its products, can set a 'take it or leave it' wholesale price. However, it should be noted that the signaling theory is basically concerned with what keeps the signal reliable. The signal's reliability depends on its ability to deliver the anticipated outcomes. Costs linked with reliability spur from production costs and punishment advanced to those caught cheating (Mulky, 2017). The theory was applicable to the study since it demonstrates the usefulness of information in setting both wholesale and by extension retail prices based on expected demand. The model was therefore useful in explaining how mobile application distribution strategy affects sales through information interchange between FMCG companies and other relevant distribution network stakeholders including customers. Mobile distribution application incorporates important features including location-based services, and information sharing tools that present the company with an opportunity to increase their sales using generated mobile application data.

The economic distribution channel theory

The economic distribution channel theory propounds that each company in the channel must charge enough to pay expenses and leave a profit (Johnston, 2019). For use in our model this theory was used to analyze how transaction-based services provided by mobile distribution applications enhance sales of FMCGs. On further examination, it can be argued that the sales system that meets the wants of the customer in the most efficient way should be established. Mobile distribution apps embody the desired value of distribution channel for consumer goods whether the cost of distribution is shared between FMCG companies and the client more transparently or not.

Relationship marketing theory

Relationship marketing theory is a type of marketing created from marketing campaigns that involve direct response and which emphasize on customer retention and satisfaction instead of predominantly focusing on sales transactions (Ojwang, 2014). Changing times and technological revolution has led to shift in consumer needs, as well as their demands, forcing industries to change their approach to customers. Relationship marketing has been repeatedly fronted as the approach that will support sales by targeting consumers more personally. A key cog in the relationship marketing theory introduced by mobile applications and integral in this study is memory support applications promote relationship marketing by storing customers' preferences, location (location-based services) and some personal data that can be used to target consumers directly. Relationship marketing keeps on evolving and moving forward because of progress of these mobile applications and the internet, this technology brings about communication

channels that are more collaborative and social (Mulky, 2017). For FMCGs, stored customer preferences are a major source of competitive advantage since their products are primarily for consumer consumption. This theory is important for our study since its development coincided with the introduction of technology that breaks down infrastructural barriers between a producer and the client like in the case of social media, and in this research, mobile applications.

Conceptual Framework

The conceptual framework shows how features of mobile distribution applications including memory support, affect sales of fast-moving consumer goods in Kenya.

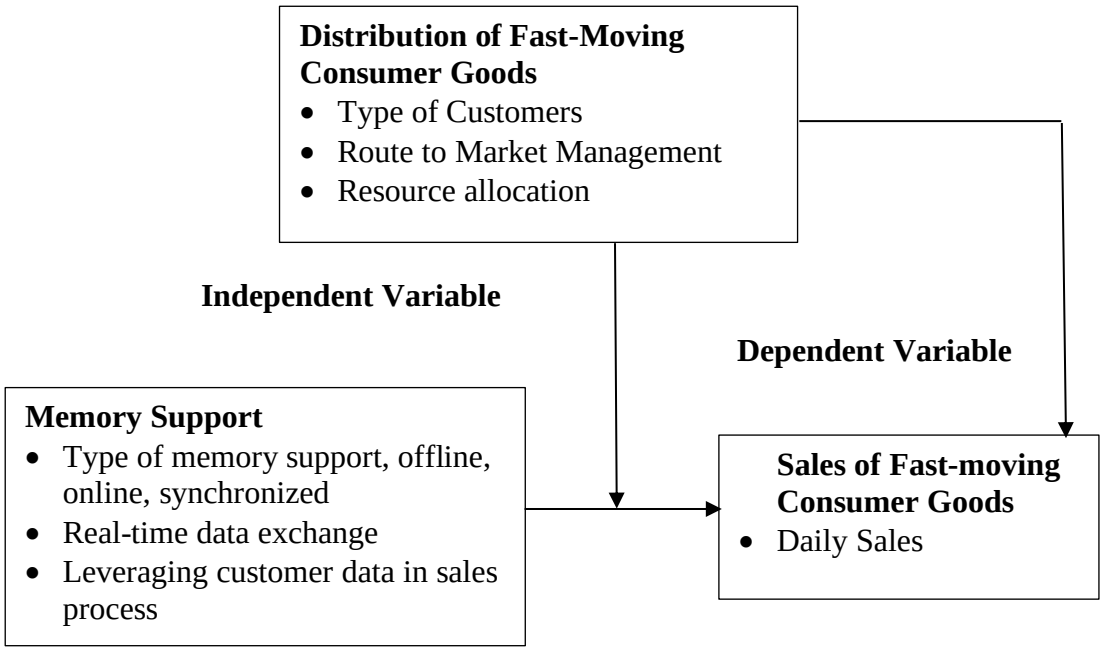

Figure 1. Conceptual framework

Research methodology

Research Design

This study focused on investigating the effect of mobile distribution applications on sales of fast-moving consumer goods. The study employed a mixed methods research methodology as it allows for the collection of both qualitative and quantitative data which will be used to enhance the findings for this study (Creswell, 2014).

The research design for this study was descriptive survey research design. Based on this design the research study adopted a pragmatic worldview of the phenomena, the effect of mobile distribution applications on sales of fast-moving consumer goods, by gathering information from employees of an FMCG company in Kenya, PZ Cussons, operating in different socio-economic environments across Kenya. The findings are descriptive of a certain phenomenon, that of understanding the expanded role of mobile distribution applications and their effect on sales of fast-moving consumer goods.

The researcher applied tools of philosophical analysis to the findings and made recommendations. The findings were analyzed to identify key concepts raised by the respondents and discussed them from the perspective of management and various stakeholders including the society.

Study Sample

The study employed the census method since the population was small enough to accommodate and sufficient to provide the information required.

Study Sample Size

From the target population of 80, the researcher worked with the entire team of employees.

Data Collection

The design of the questionnaire was such that it captured the relevant information necessary to answer the research questions.

Instrument Reliability and Validity

Reliability is a measure of consistency of the research instrument when administered to respondents drawn from different populations but exhibiting similar characteristics. The reliability of data collection instruments was determined from a pilot study where the researcher administered the research instruments to the respondents of an FMCG company not included in the sample. Data was collected from eight respondents working at Unilever, an FMCG company competing same business environment in Kenya. Test method was used to obtain two scores for the pilot test data. The two scores from the pilot test data were subjected to Cronbach's reliability coefficient formula to compute reliability coefficient and found to be reliable with an $\alpha > 0.7$, where α was the item being tested for reliability.

Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform. The study ensured content validity by carrying out a through literature review which ensured that the study covered broad perspectives of the study. This study ensured construct validity by formulating operationalization and measurement of variables.

Data Analysis and Presentation

The researcher used quantitative data analysis using electronic spreadsheet SPSS Program version 25.0. Qualitative data was analyzed thematically. Frequency distribution tables were used to present the descriptive data analysis.

Results of study

This section focused on the objective of the study which sought to determine how memory support by mobile applications influence sales of fast-moving consumer goods at PZ Cussons.

Descriptive Analysis of Memory Support by Mobile App and Sales of Fast-Moving Consumer Goods.

Memory support by Mobile App was determined by type of memory support online, offline and synchronized; real-time data exchange and leveraging consumer data in sales process on influence sales of fast-moving consumer goods. To measure the extent, the study employed the use of a 5-point Likert scale where 1= Strongly Disagree (SD), 2= Disagree (D), 3= Neutral (N), 4= Agree (A) and 5= Strongly Agree (SA). The data as shown in Table 1.

Table 1: Memory Support by Mobile App and Sales of Fast-Moving Consumer Goods

Statement	5	4	3	2	1		Mean	SDV
	F (%)	F (%)	F (%)	F (%)	F (%)	n		
Recorded data by mobile apps can be used to provide insights for decision making	28 (62.2)	14 (31.1)	3 (6.7)	0 (0.0)	0 (0.0)	45	4.10	0.623
Mobile apps Memory Support is effective for use for the company in storing time series data	30 (57.8)	12 (26.7)	2 (4.4)	1 (2.2)	0 (0.0)	45	4.14	0.618
Data collected in the sales is crucial for the company which is a key reason for this choice of memory support	25 (55.6)	17 (37.8)	1 (2.2)	1 (2.2)	1 (2.2)	45	4.07	0.711
Apps with all data stored on the mobile device, (offline) are not efficient for the company since data needs to be updated by the company	15 (33.3)	23 (51.1)	3 (6.7)	4 (8.9)	0 (0.0)	45	3.94	0.819
Recorded data from the mobile app enables the company to better understand consumer buying behavior	20 (44.4)	20 (44.4)	2 (4.4)	1 (2.2)	2 (4.4)	45	3.90	0.842
Real-time data is easier to leverage into existing sales than offline data uploaded by the user	28 (62.2)	16 (35.6)	0 (0.0)	1 (2.2)	0 (0.0)	45	4.08	0.640
Composite Mean							4.02	0.709

Memory support by mobile app obtained the following descriptive statistical findings; 28(62.2%) strongly agreed, 14(31.1%) agreed, 3(6.7%) were neutral and no respondent either disagreed or strongly disagreed with the statement respectively. The statement drew a mean of 4.10 and a standard deviation of 0.623 respectively. The findings indicate that the statement was supported by 93.3% of the respondents.

On whether mobile apps memory support is effective for use for the company in storing time series data, obtained the following 30(57.8%) strongly agreed, 12(26.7%) agreed, 2(4.4%) were neutral, 1(2.2%) disagreed and no response on those who strongly disagreed. The mean and standard deviation of the line item was 4.14 and 0.618 respectively. This implies that the statement contributes positively to the variable as supported by 84.5 % of the respondents.

The findings obtained on the data collected on whether sales are crucial for the company is vital for the choice of memory support. The findings gathered were 25(55.6%) strongly agreed, 17(37.8%) agreed, 1(2.2%) were neutral, 1(2.2%) disagreed and 1(2.2%) strongly disagreed. The statement drew a mean and a standard deviation of 4.07 and 0.711 respectively. The findings indicate that the statement contributed to the variable when as supported by majority of the respondents (42) representing 93.4%.

The findings obtained on whether apps with all data stored on the mobile device are efficient for the company established that 15(33.3%) strongly agreed, 23(51.1%) agreed, 3(6.7%) were neutral, 4(8.9%) disagreed whereas none of the respondents strongly disagreed. The statement obtained a mean and a standard deviation of 3.94 and 0.819 respectively. The descriptive findings indicate that majority of the respondents 38(84.4%) supported the statement.

The study recorded the following results on whether recorded data from the mobile app enables the company to better understand consumer buying behavior; 20(44.4%) agreed and strongly agreed respectively, 2(4.4%) were neutral, 1(2.2%) disagreed and 2(4.4%) strongly disagreed with a mean of 3.90 and a standard deviation of 0.842 respectively.

On whether real-time data is easier to leverage into existing sales than offline data uploaded by the user. The descriptive statistics obtained were as follows; 28(62.2%) strongly agreed, 16(35.6%) agreed, and disagreed with 1 (2.2%) with a mean and standard deviation of 4.08 and 0.640 respectively. The findings imply that the line item positively contributes to the variable memory support by mobile app when the line-item mean is compared to the composite mean (M=4.02) and the line item (M=4.08).

Further, the study sought to obtain view on the extent to which memory support offered by mobile application influence sales of fast-moving consumer goods. To measure the extent, the study employed the use of a 3-point scale where 1= Great Extent (GE), 2= Moderate Extent (ME) and 3= Low Extent (LE). The data as shown in Table 2.

Table 2: Extent to which Mobile Application Memory support services influence Sales of Fast-Moving Consumer Goods

Responses	Frequency	Percentage
Great Extent	41	91.11
Moderate Extent	3	6.67
Low Extent	1	2.22
Total	45	100.00

The findings obtained from the Table 1.2 sought to determine the extent to which mobile application influence sales of fast-moving consumer goods. The findings were as follows; 41(91.11%) who indicated great extent, 3(6.67%) indicated moderate extent while 1(2.22%) indicated low extent. The findings indicate that mobile application influence sales of fast-moving consumer goods as most of the respondents indicated great extent to the statement. This implies that the statement contributes positively to the predictor variable.

Correlation Analysis between Memory Support by Mobile App and Sales of Fast-Moving Consumer Goods

The researcher sought to determine the relationship between memory support by mobile app and sales of fast-moving consumer goods using the Pearson Correlation Coefficient. This enables in establishing the strength and direction of the relationship between memory support by mobile app and sales of fast-moving consumer goods. The correlation results as shown in Table 3.

Table 3: Correlation Analysis between Memory Support by Mobile App and Sales of Fast-Moving Consumer Goods

Variable		Memory Support by Mobile App	Sales of Fast-Moving Consumer Goods
Memory Support by Mobile App	Pearson Correlation Sig. (2-Tailed) n	1 45	0.861** 0.007 45
Sales of Fast-Moving Consumer Goods	Pearson Correlation Sig. (2-Tailed) n	0.861** 0.007 45	1 45

The results of the correlation on Table 1.3 between memory support by mobile app and sales of fast-moving consumer goods. The results revealed that there is a strong positive correlation of 0.861 between memory support by mobile app and sales of fast-moving consumer goods, which indicates a significant relationship with p-value of 0.007 which is less than the test level of significance 0.05. This indicates that memory support by mobile app influences sales of fast-moving consumer goods.

Regression Analysis for Memory Support by Mobile App and Sales of Fast-Moving Consumer Goods

Regression analysis was done to determine the relationship between memory support by mobile app and sales of fast-moving consumer goods. The hypothesis was tested using simple linear regression model to satisfy requirements of the first objective of the study.

H_0: Memory support by mobile app has no significant influence on sales of fast-moving consumer goods.

H_1: Memory support by mobile app has a significant influence on sales of fast-moving consumer goods.

The first hypothesis was tested using the following model:

$$y = \beta 0 + \beta 1\, x1 + e(1)$$

Where:

- y= Sales of fast-moving consumer goods:
- β_0= constant,
- β_1= beta coefficient,
- x_1= Memory support by mobile app
- e= error term

Table 4: ANOVA between Memory Support by Mobile App and Sales of Fast-Moving Consumer Goods

Factor	Sum of Squares	df	Mean Square	F	Sig.
Regression	862.392	1	862.392	88.257	0.007[b]
Residual	420.167	43	9.771		
Total	1282.559	44			
a. Dependent Variable: Sales of Fast-Moving Consumer Goods b. Predictors: (Constant) Memory Support by Mobile App					

Analysis of variance was used to establish the goodness of fit of the regression model as shown in Table 4. It was established that the F-significance value of 0.000 was less than 0.05 ($p<0.05$). The F-ratio was significant, $F(1, 43) = 88.257$ was significantly larger than the critical value of F=4.07. This shows that the model was significant.

Table 5: Model Summary for Memory Support by Mobile App and Sales of Fast-Moving Consumer Goods

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.861[a]	0.741	0.738	1.171

The study results as shown in Table 5 provides an explanation on the extent to which the predictor variable accounts for the overall variability of the model. The R Square is given as 0.741 indicating that memory support by mobile app contributes to 74.1% of the variations of the dependent variable sales of fast-moving consumer goods. This indicates that other factors which were not considered in this model accounted for 25.9%. The study

concluded that memory support by mobile app has a significant influence on sales of fast-moving consumer goods.

Table 6: Coefficients of Memory Support by Mobile App and Sales of Fast-Moving Consumer Goods

Variables	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.899	0.198		4.540	0.000
Memory Support by Mobile App	0.873	0.141	0.861	6.191	0.007
a. Dependent Variable: Sales of Fast-Moving Consumer Goods					

The results in Table 1.6 gave a standardized beta value of 0.861 indicating that a unit increase of memory support by mobile apps contributed to 86.1% increase in the variations of sales of fast-moving consumer goods. Overall model was fit to predict sales of fast-moving consumer goods given memory support by mobile apps at $p<0.05$. The regression model would be as such:

Sales of Fast-Moving Consumer Goods = 0.899+0.861 (Memory Support by Mobile App) + e; t = 6.191; $p<0.05$.

The findings of the study demonstrated that memory support by mobile apps has a significant influence on sales of fast-moving consumer goods. Hence, the null hypothesis of the study was rejected.

The findings of the current study on the first variable memory support by mobile apps (R2 =0.741) explains 74.1% of the variations in sales of fast-moving consumer goods. The model was deemed significant.

Qualitative Information on Memory Support by Mobile App and Sales of Fast-Moving Consumer Goods.

The study further gathered information on qualitative information from the open-ended questionnaires and key informant interviews to address the need for triangulation of the gathered information for the study. The respondents were further asked to indicate the type of memory support offered by mobile application support the data collection as intended. The findings are as shown in Table 7.

Table 7: Qualitative Information on Mobile Application Support in Data Collection

Responses	Frequency	Percentage
Yes	41	91.11
No	4	8.89
Total	45	100.00

The results as shown in Table 7, the respondents were asked their opinion on whether the type of memory support offered by mobile application support the data collection intended. The respondents were asked to share their opinion on the type of memory support offered by mobile applications. A respondent had the following opinion that was captured by the researcher:

The use of mobile application for memory support has revolutionized the world of sales and marketing. Many our clients are techno savvy and therefore reaching out to them becomes easier with the use of mobile applications that are evolving on a daily. The use of mobile applications also enables companies to gather data on their sales and customer feedback to enable continuous improvement.

The findings from the qualitative and quantitative data information indicate that there is a significantly strong and positive correlation between memory support by mobile apps and sales of fast-moving consumer goods. The adopting of the mixed methods research design. It further shows that the company utilizes technology at advanced levels to attain maximum productivity and profitability.

Conclusions of the Study

The objective sought to determine the extent to which memory support by mobile app services influence sales of fast-moving consumer goods. According to the study findings, it was established that there was a very strong positive correlation between memory support by mobile app services and sales of fast-moving consumer goods. The presence of recorded data for decision making by mobile apps, effective use of mobile memory in storage of time series data, mobile app data collection and ease of leveraging on real-time data contribute to the sales of fast-moving consumer goods. These the findings corroborate with those of Nickerson and Mourato-Dussault (2016) who concluded that different approaches to data storage for mobile apps are appropriate depending on the characteristics of the situation in which the app will be used.

Recommendations

The study made the following recommendations.

1. FMCG companies should also invest in satellite gadgets for gathering data in areas that internet is not accessible.

2. FMCG companies and others, should invest in robust storage systems for the data gathered in the distribution or selling process to inform future strategy and operations.

3. Companies may use the information gathered for appraisal purposes and reward the desired behavior of its employees

4. Companies may use the information collected to support targeted marketing campaigns.

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