

INFLUENCE OF INFORMATION TECHNOLOGY ON MARKETING PRACTICES IN OSUN STATE

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Abstract

This paper examined the effects of information technology in marketing practices of organisations in Osun State. It further examined the impact of information technology on the level of achievement of total corporate goals in these organisations. The paper also determined the extent to which information technology contributes to smooth job performance in the organisations. The study employed survey research with descriptive analysis. The population for the study consisted of sixty managers of multinationals and large scale organizations operating in Osun State. The population was used as the sample size for the study since the number is moderate and easy to handle. Binomial (Binary) Logistic Regression was employed to analyse the data collected and findings revealed that information technology significantly contributes to the degree of corporate goal achievement. It was also found that information technology contributes to smooth job performance in the organisations. The study concluded that since management information systems play a vital role in achieving total corporate goals, therefore, it becomes necessary for marketing organisations to adopt the utilisation of management information system in enhancing total corporate goal achievement. It was recommended that marketing organisations should invest more in management information system to enhance their future competitive advantage. Organisations should also embark on regular training of their information technologists in order to have seasoned experts to design, manage and maintain information systems and provide the enabling environment such as constant power supply to telecommunication installations.

Key words: *Computer, Decision making, Information technology, Management information system, Management process*

Introduction

Most economic sectors today are affected by information generation and processing and the communication of its outcome with the use of technology. Information has affected all aspects of human life whether in offices, factories, homes, banks, supermarkets, filling stations and many other places. Managers make use of information in various ways.

Specifically, management information system (MIS) includes: the provision of information on the staff strength of organizations including the turnover rate, its income and expenditure pattern, employment decision, what is to be produced and at what costs and so on. Such information is used in the decision making process and the taking of appropriate steps which will result into an acceptable level of prediction and accuracy at an economical and reasonable costs.

Feedback mechanism is also an essential requirement of information system (Majebi, 2008). The use of technology to generate appropriate information as well as create the optimum output cannot be under estimated in the current dynamic business environment and so, almost all aspects of management functions such as planning, directing, controlling and staffing have been computerised to make the job of managers easier.

According to Kadiri (2014) organizations that cannot respond to these changes cannot compete adequately with other firms in the same or similar sectors of the economy. In his view, Afolabi (2009) was of the opinion that, technology has reached a level of artificial intelligence where machines such as computers have the ability to behave and display close to human intelligence.

Some of the areas where artificial intelligence is developed are expert system, vision system, as hardware, natural language, robotics and machine learning. Computers to Alo and Ogidi (2015) are the latest craze in Nigeria today and it will continue to be relevant as the country develops. Computers have gained acceptance in all sectors of the economy ranging from oil and gas, marketing organisations in large and small sizes and many others. Today's customers are not only concerned about the high quality products at low costs, they also demand efficiently fast and convenient services and will prefer services that will meet their personalised needs.

Management information system supports and improves work efficiency which enhances the achievement of quick provision of low cost marketing service to customers (Rhodes, 2010). Jahangir (2005) opined that management information system may be received as organized, integrated and scientific approach to providing relevant and timely information for managers to aid decision making. Management information system (MIS) is a combination of different components which works as a body of highly integrated unit to achieve set objectives. According to Kumar (2006) the major function of a manager is to make organisational decisions through management information system to achieve objectives. Are there other benefits in the adoption of information and communication technology by marketers of goods and services? This study therefore, seeks to examine the role of cyber management and information and communication management on marketing practice in Lagos State.

Review of Literature

Conceptual Analysis

According to Anna et al. (1996), Cyber Management is a structure which encourages fluidity in an organization so that it can adapt and evolve in accordance with the changes in the need of the customer base. It can succeed through a strong emphasis on teamwork, crossing tanning, open communication and the vigorous sharing of resources. Cyber management combines the flexibility of the "power team" concept with the stability of the traditional managerial approaches. Anna (1996) identified boost in productivity, excellent staff assessment and increased customer satisfaction as the prospect of cyber management, redesigning organisational structures which are not futuristic as regards being able to respond quickly and effectively to the changing needs of the information technology environment in all organizational settings.

Kotler (2002), noted that information and communication technology (ICT) and cyber management are issues the society experience almost in all endeavors of life, but some users do not recognize the system. People get in contact with information technology system through activities such as shopping at a supermarket, going to an automated teller machine, ordering a block on line and registering for classes.

The potential impact of ICT on the economies of developing countries through business organizations, public institutes and academic institutions are numerous but another issue of concern is how effective can the ICT tools be utilized and administered in a way that its prospects would be attained and its pitfalls or challenges would be avoided to the barest minimum.

According to McCarthy & Shapiro (1999), the issue of managerial (e-administration) skill application to the use of ICT tools (devices) is imperative to develop social and economic networks effectively in the society and the world, that is, a structural approach which organization and institutions put in use as regards ICT tools would make them deliver its promises. Therefore, cyber management is very relevant to the use of information and communication technology tools devices.

I consider cyber management as the application of management principles to electronic operations while it can also be described as e-administration or paperless administration. This means it is the managerial approach to administer electronic operations in such a way that it would affect positively the various users of information technology services (customers, employees, and the general public) it would resort to an effective interaction among all staff of an organisation which would lead to efficient communication and an effective opportunity for new skill acquisition in marketing.

Theoretical Framework

System Theory

System theory posits that everything is a system in the sense that the concept system can be applied to everything in a meaningful and practical sense. Everything is a system that is composed of subsystems that interact to create that system and so too for each of the subsystem down to some ground of being (Argyres, 1999). Thus there is only a field of primitive system and the information that mediates their interactions, through their permutation and combinations, they build up the successive levels of systems. Furthermore, every system is a subsystem within larger systems and interacts with other systems passing information, coordinating, organizing, cooperating and competing (Argyres, 1999).

Information System Theory

According to Andres and Zumud (2001), information theory states that every system is composed of information, regardless of what form that information takes, whether it's medium is computer files, light rays, particles of matter and so on. Information is simply discernible difference and may thereby manifest in any medium whatsoever. Information system theory conceptualises a system as a symbol within an idiom as well as an idiom in itself. An idiom is an abstract concept derived from language but generalized to all systems of symbols and relations an idiom is based upon the idea of a group from group theory which provides a conceptual bridge between set theory and algebra within the context of mathematics. It describes how an information medium becomes an information space.

Information Processing Theory

This theory holds that three kinds of memory exists; sensory register (the part of the memory that receives all the information in a person senses), short-term memory (also known as working memory, which is the part of memory where new information is held temporarily until it is either lost or placed into long term memory), the third is long-term memory (the part of memory which had an unlimited capacity and can hold information indefinitely) (Anandarajan & Arinze, 1998).

Empirical Framework

In developing the right type of information system, the nature of the organisational activities requiring information management, the feasibility and the description of the organisation, processing and control of data and information must be carefully noted (Daveport & Short, 1990).

Davenport and Short (1990), attempted to use the concept of system approach in the design of a management information system. They viewed information system from its three components; management, information and system. According to Daveport and Short, system approach literally tries to look at the various organisations as having many phases called departments, sections, systems, programmes and units. Each of these functions in business includes production, finance, marketing, sales, management and the rest while each of them performs specific activities by adopting the system approach in the design of management information system.

Kumar (2006), says the life cycle of a management information system consists of three stages which are the study and design of a system, its implementation as a new system and its operations within the organisation for which it was design. The purpose of Kumar's work is to present thorough detailed treatment of the first stage in the life cycle of management information systems that is, its study and design.

Kumar emphasised further that the design of a new system requires a definition of business goals and an overall approach. Thus, the concept of management information system (MIS) should not be viewed as unitary structure within an organisation but an integrated and interactive system that function as a system to achieve efficiency in an organization through information management. The result of his work confirmed that the job of a modern day manager is made easier by the application of computerised management information system.

Rhodes (2010), believes that information is indispensable for decision making and that, the feedback mechanism allows for rival information to circulate through the system, structured management seeks to avoid sporadic and intuitive decision making. Decisions therefore emerge as a matter of routine exercise and are therefore scientifically justifiable than relying on purely human judgment which sometimes could be vitiated by bias results and decisions. The result of his work confirmed that management information system enhances strategic and reliable decision making.

John (2019) embarked on a research appraising the impact of ICTs on mass media performance in Osun State broadcasting Corporations (OSBC), Osogbo and found out that ICTs have enhanced the performance of OSBC in the area of information speed and spread, accuracy, writing and editing scripts. He hence concluded that ICTs have significant impact on the performance of OSBC.

Oyeyinka and Bello (2013), study investigated farmers' use of ICTs for marketing information outlets in Osun State and results revealed that ICTs use is viable for disseminating marketing information. His study further concluded that there were significant relationship between levels of use of ICT for agricultural marketing information.

Olawumi and Jacob (2014), examined women farmers' perception and utilisation of marketing information systems on cassava in Osun State and found out that information system is significant to marketing cassava and cassava products in the state and across the country. His work subsequently confirmed positive perception of women in utilising marketing information and also that information and communication technology positively assists in cassava production and marketing.

2.4 The Digital Revolution in Consumer Behavior

In the view of Kotler and Keller (2005), the digital revolution has improved the practice of one to one marketing leading to consumers or prospects alteration, retention and profit making, it has allowed a greater level of customization of products, services and professional messages than the usual marketing system, thereby enabling marketers to build and maintain relationship with customers.

A movie titled "Minority Report" was thought to be an imitation of 2054 technology made known to its audience the experience of an ultimate one to one marketing. A person passes by a billboard featuring the American Express card; the billboard becomes a hologram, presumably visible only to him, portraying his picture and personal data urging him to use a card. He thereafter enters a gap store where customers are met by voices greeting them by name, asking them how they like previous purchases, and suggesting items they may like, based on their past purchases. From the above, it would be understood that the year 2054 would be a marketing paradise (Kadiri, 2014).

Kadiri further ascertained that customers of supermarkets now experience e- marketing through on-line purchases, on line reading of newspapers, customized advertisements etc. For instance, on Nike's website, buyers can choose among many modals of sneakers in various price ranges, customize the chosen shoe using several colures and features, put a personal ID on each shoe, pay for the product and have it shipped directly to them. Therefore, the new marketing technologies must be appropriately managed by organisations.

In the application of ICT to the marketing profession, it could be seen as an extension of the sales person in a local shoe store who recognises customers by name and by preferences, or the neighborhood grocer who remembers the routine daily purchases of each customer and places them on the counter before the customer even ask.

2.5 Effects of Digital Technologies in Marketing Practices in Osun State

Customers in Osun State enjoy greater convenience as they are opportune to do their comparative buying without going to the seller's shop and they do not hassle to examine products but browse through e-catalogs, through intelligence selection of best products or services, best price and bypass distributors and middlemen (Alo & Ogidi, 2015).

These consumers have a large access to information about the industries that transact businesses with them, in terms of products availability, competitors' performances and alternative products. Websites are designed and created to show or give details of the top-depth of a particular brand, which could be applicable to goods and services that are being marketed or promoted by these organisations.

Today, most marketers around Ilesa, Osogbo, Ila-Orangun, Ile Ife and other big cities in Osun State do not want to connect with just any customers; instead, most these marketers through their ICT are targeting fewer, potentially more profitable customers. The technological changes according to Kotler (2001) have made companies to begin to find new ways to deliver more values to customers. Multinational organisations such as, Unilever, Cadbury, S.C. Johnson Wax including Guinness and Nigerian Breweries have all developed effective ICT resources that facilitates business transactions without much difficulties.

According to Etzel, et al. (1997), the old thinking is done only by marketing, sales and customer support people. However, in today's connected world, every functional area, such as finance, operations, production, engineering and design and others are constantly interacting with customers that are widely scattered all over the state both digitally and electronically. These days, no marketing operator has sole control and ownership of customer interactions because the new thinking is that every employee must be customer- focused.

Fagboun (2008), posits that most companies today are networked companies and rely heavily on partnership with other firms. Fast moving consumer goods (FMCGs) marketers nowadays, get information about current and prospective users of their brands as regards their needs and on line behavior, which aid marketers to maintain an efficient customer and prospects' database.

Most customers in the state therefore, enjoy easy buying activities and adequate privacy as they are not being persuaded or disturbed by desperate and passionate salesmen. Therefore, they have easy access to section of goods and examination of goods and services. Digital technologies had helped some technical and FMCG marketers to provide speedy efficiency at reduced cost, because little or no fund would be spent on stores, rent age, insurance and other materials at their regional offices.

ICT has a far reaching impact beyond the (personal computers), PC- based connections to the web. Presently, most of the digital communications between consumers and marketers takes place via a personal computer connected to the web through phone lines, a cable modem, or other high-speed connections. Thus, system, according to Kadiri (2014) is made of components that are computer system communication (telephone, satellites, internet, video text, documentary delivery) reprographic system, (micro-graphic word processor and electro copier) and micro wave system, (radio and television, the uses which have spread into human and business world. Information communication technology has made the world become a small global village (Alo & Ogidi, 2015). The concept has made business institutions and organizations find out what consumers need, proffer and find out appropriate ways to meet them.

2.6 Importance of Information Technology to Marketing Practices

Information technology has played a significant role in marketing activities worldwide, especially the recent trade and business development in the state including the actualisation of companies' objectives in products and services deliveries. The marketing activities of the business sector have important technological impact on consumers, as more and more services can be accepted remotely.

The benefit from the quality technical support services which has increased information access to customers' utilisation and option and just in time customer attention and increasing customer convenience and satisfaction could be easily derived. Likewise, multi skilled and highly trained team members required the hiring of new personnel or contracting of outside sources as it opens opportunities to academicians to prepare students for the new century.

Cyber management utilisation makes employees well motivated to work harder thereby increasing their productivity, contribution, understanding, and back-up support and skill management (Dietel & Neto, 2001). The use of ICT in organizations is expected to galvanize companies worth and values in most marketing places. It will enhance product/ brand campaign for appropriate value, which it promises. The ICT impacts positively on enterprises operations as the strength, efficiency and effectiveness of an enterprise's operations cannot be achieved outside the dynamism of the Internet.

ICT will enable the organisation to focus on consumer choice in all ramifications, as the technology deployed will produce the consumer with various alternatives of convenience rather than restrictions as far as the enterprise offerings or brand values are concerned (Dietel & Neto, 2001). All these are good tools to promote investment and marketing of products and services. ICT facilitates Internet marketing, which is effective, and more technologically advanced satellite based system of marketing. The Internet system links to the satellite where various products and services are being accessed. Internet assist multinationals' high volume of data and information, combine data and voice communication, forms a bridge with spatially located nations and market and eliminate anxiety in downloading data and ensure access to the information superhighway in seconds.

The introduction of Internet marketing has shown a significant acceptance by some companies. Virtually all blue-chip companies in Nigeria are connected to the Internet system. In Nigeria, the banking sector is benefiting from electronic banking while it operates internal marketing by electronic money transfer. In the upstream oil sector, advance digital information services are used for exploration and crude treatment. Researchers and academics improve their knowledge of new issues through the use of internal information services.

ICT promotes telemarketing, which improves the use of telephone and telecommunication gadgets in marketing activities. In the entertainment industry, photo and pictorial manipulation and configuration have succeeded irrespective of the distance, electronic wedding, e- political campaign, e-religion preaching etc. have all succeeded. According to Brown (1993), many companies in Nigeria make use of telemarketing techniques to source for items and enquiries while some companies use teleconferencing, which entails a group of people interacting with each other by means of audio and video media with still or moving picture. The inter-company interaction will facilitates them to hear them and also see the expression on each other's face. ICT policies and strategies have been formulated to meet different yearnings and aspirations of organizations.

3.1 Methodology

Hypotheses

The following hypotheses were tested in nullity

H₀₁: Information technology has no significant effect in achieving marketing objectives.

H₀₂: Information technology does not significantly contribute to increased sales performances.

Population and Sample Size

A detailed structured and close ended questionnaire was prepared and administered in person to the available multinational and large scale marketing organisations operating in Osun State. A total of fifty (50) organizations applying information technology were used as study area which forms the population of the study. The totality of these organizations managers formed the sample size. This happened because the population is not large and can easily be captured in the process of the study. All the questionnaires were correctly completed and returned for processing.

Data Collection

Primary method of data collection was employed. The choice of this method is premised on the relativity of this data required to the recent performance of each of these organisations. The questions drawn revealed the socio economic benefit and usage of information technology in daily management of the various organisations in the State of Osun.

Data Analysis

Binomial (Binary) Logistic Regression was used for this study. It is a form of regression which is used when the dependent variable is dichotomous in nature and the independent variable is of any type.

The method applies maximum likelihood estimation after transforming the dependent into a logit variable (the natural log of the odds of the dependent occurring or not)

$$\text{Logit}(p) = \beta_0 + \beta_{1x1} + \beta_{2x2} + \beta_{3x3} + \beta_{4x4} + U_1 \dots \dots \dots (i)$$

For the purpose of this regression, equation (i) can be re-written as;

$$\text{LMIT} = (\text{LDM} + (\text{LJP}) \dots \dots \dots (ii)$$

LMIT is the log of gross domestic management information technology while, LMD is the log of marketing objective effectiveness, LSP is the log of increased sales performance. The endogenous variable is information technology application while the exogenous or independent variables are marketing objective effectiveness and increased sale performance. Analysis of equation two (ii) using ordinary least square

method is investigating the impact that bot marketing objective effectiveness (hypothesis i) and effective sales performance (hypothesis ii) will receive from management information technology. Data analyses based on formulated hypotheses are expressed in the tables below.

H₀₁: Information technology has no significant effect in achieving marketing objectives.

Table 1: Contingency Table of Responses on Questions relating to hypothesis one

Options	Questions' Responses and Percentages			Total and Percentages
	1	2	3	
Strongly Disagreed	3 (5%)	4 (6.7%)	6 (10%)	13 (7.2%)
Disagreed	2 (3.3%)	2 (3.3%)	2 (3.3%)	6 (3.3%)
Undecided	1 (1.7%)	1 (1.7%)	4 (6.7%)	6 (3.3%)
Strongly Agreed	29 (48.3%)	23 (38.3)	20 (33.3%)	72 (40%)
Agreed	25 (41.7%)	30 (50%)	28 (46.7%)	83 (46.2%)
Total	60 (100%)	60 (100%)	60 (100%)	180 (100%)

Source: Researcher's Survey, 2021

H₀₂: Information technology does not significantly contribute to increased sales

Table 2: Contingency Table of Responses on Questions relating to hypothesis two

Options	Questions' Responses and Percentages			Total and Percentages
	4	5	6	
Strongly Disagreed	3 (5%)	2 (3.3%)	2 (3.3%)	7 (3.9%)
Disagreed	2 (3.3%)	3 (5%)	2 (3.3%)	7 (3.9%)
Undecided	1 (1.7%)	0 (0%)	1 (1.7%)	2 (1.1%)
Strongly Agreed	29 (48.3%)	30 (50%)	25 (41.7%)	84 (46.7%)

Agreed	25 (41.7%)	25 (41.7%)	30 (50%)	80 (44.4%)
Total	60 (100%)	60 (100%)	60 (100%)	180 (100%)

Source: Researcher's Survey, 2021

4.2 Test of Hypotheses and Results

The analysis below shows the statistical test, based on the estimates of the parameters from the above contingency table, resulting from the data collected on the effect of management information technology on marketing performances of companies in Osun State.

Table 1: OLS Regression Result

Variable	Coefficient	Std Error	t-Statistics	Prob.
IT	14.17787	5.475936	2.589123	0.0180
LMO	0.121306	0.062607	5.366757	0.0120
LSP	0.123850	0.072603	1.705858	0.1043
R-squared	0.809493	Mean dependent var		39.94364
Adjusted R-squared	0.789440	S.D. dependent var		30.36882
S.E. of Regression	13.93530	Akaike info criterion		8.232851
Sum squared resid	3689.658	Schwarz criterion		8.381629
Log likelihood	-87.56136	F-statistic		40.36695
Durbin-Watson stat	0.949270	Prob (F-statistic)		0.000000

4.3 Interpretation of Results

From the table above, c value was 14.17787. This indicated that some variables were not captured by the model though these variables were not statistically significant to the tests. The coefficient of marketing objective is (0.121) which satisfied the positive assumption that information technology contributes to effectively actualising marketing goals and reject the null hypothesis that information technology has no significant effect on actualising marketing goals. The coefficient of sales performance (0.124) satisfied the alternate hypothesis that information technology contributes to smooth sales performance and rejects the null hypothesis that information technology does not

contribute to smooth sales performance in organisations. Based on the two results analyses above, it can therefore be concluded that information technology has resulted in improved business performances among companies in Osun State and has also contributed to upgrading general marketing practices in the State which resulted in the observed increased level of companies' general sales turnover in the State.

4.4 Interpreting the Significance of t-statistic Value

With t-statistic value of decision making at 5.35, and probability of 0.0120, the model shows that information technology is statistically significant to achieving total marketing objectives. Therefore, the null hypothesis that information technology has no significant effect on achieving total marketing objectives should be rejected. It is therefore significant at 0.01.

With t-statistic value of sales performance at 1.706 and probability of 0.104, the model shows that information technology is statistically significant to sales performance. Therefore, the null hypothesis that information technology has no significant effect on job performance in organisations should be rejected. It is therefore significant at 0.01 level.

4.5 Discussion of Findings

The value of R-squared suggests that 80.9% of the variation in achieving marketing objectives is jointly explained by all the explanatory variables included in the model.

Adjusted R-squared shows that if other explanatory variables that were missing in the model are included, the included explanatory variables with existing variables will still explain 78.9%. This justifies the robustness of the model.

Durbin-Watson statistic value (0.960) shows that there was presence of high serial correlation between dependent and independent variables of the model. F-statistic is statistically significant at 1% indicating that the entire model and the confidence interval of the F-statistic is 99%

There is positive correlation of 88% between information technology and marketing objectives achievement which indicates that for every 100% input in information technology, the degree of marketing manager's achievement is improved by 88%. Also, positive correlation of about 72% existed between information technology and sales performance.

The finding from the test carried out in the first hypothesis is in line with the work of Kumar (2006), who concluded that jobs are made easier with the application of ICTs and also in Rhodes (2010), who maintained that ICTs enhance strategic and reliable decision making process that ultimately leads to effective attainment of marketing goals. The findings from the test carried out in the second hypothesis is corroborated by the research carried out by Olawunmi and Jacob (2014) whose work concluded that ICTs have positive contributions to production and marketing and supported further by John (2019) in their work which concluded that ICTs aid business performance and also in tandem with the work of Oyeyinka and Bello (2013), where it was concluded that ICT is useful for information dissemination and improved performances in companies' operations.

5.1 Conclusion

This paper has examined the roles of information technology in the development of marketing practices in Osun State.

Information communication technology are seen as an exposure to marketing technology that would lead to a one-to-one marketing system, on-line interaction, promotion, customisation and on-line competition.

Business and marketing administrators must know that the marketing technology is an extension of the salesman's responsibility therefore; all personnel of an organisation must be ICT conscious.

Since management information systems play a vital role on the level of marketing objective achievement, it then becomes necessary for marketing organisations to utilise management information system in enhancing decision making

Marketing technology is of greater importance in marketing communication, customer care and relationship, marketing research and business development and management. Thus, marketing now operates within a dynamic global environment where rapid changes can quickly make yesterday's winning strategies obsolete.

5.2 Recommendations

- i. Marketing organisations should invest more in management information system to enhance their future competitive advantage.
- ii. Organisations should embark on regular training of their information technology staff in order to have seasoned expert to design, manage and maintain information systems.
- iii. Government should provide an enabling environment such as constant power supply to telecommunication installations.
- iv. Government should encourage ICT education in all colleges in order to reduce the problem of under-utilisation of devices and management should also utilise or participate in the service of providers
- v. Organisations should develop database in its technologies in ways that would not be limited and develop an information prototype and feedback system.
- vi. Marketer's needed to understand the changing technological environment as a whole and how new technology can serve human needs.
- vii. Management also needs to closely work with research and development experts in order to encourage more market oriented research activities.



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