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## Technological Innovations and in the Banking Sector: An Evaluation of the Rate of Diffusion of the Automated Teller Machine

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# Academic Leadership Journal

## INTRODUCTION

The internet widely regarded as the *third wave of revolution*, (after the *industrial revolution* and the *agricultural revolution*) heralds the age of electronic revolution and is fast becoming the central nervous system of a universal consumer marketplace and an essential means of conducting and coordinating business activities.

For the banking sector, the internet marks the transition from the brick and mortar stage of banking to the branchless stage. In a word, *Information Technology* (IT) has moderated the constraints of time, space, and information access in world trade and commerce as a whole.

The growing popularity of *Electronic Funds Transfer* (EFT) for online bill payment, for instance, is paving the way for a paperless universe where cheques, stamps, envelopes, and paper bills will become obsolete.

In other words, global electronic network with its increasing power and pervasiveness is speedily driving the entire globe towards a converging commonality and constitutes the backbone of today's world economy, just as railroads, steamships, telegraphs and postal systems formed the transportation and communications infrastructure of 19th century industrial economies.

Modern technological innovations have enhanced communication, transport and virtually every economic activity by a magnitude previously unimagined and according to reports by Computer Industry Almanac Inc. (<http://www.c-i-a.com/>) there were 10,040,000 internet users the world over as at March 2005, of which according to Oketola, (2009), Nigeria, in all Africa, stands topmost of the internet penetration table with 10 million users, most of whom are youths who allegedly utilise the internet for illicit activities, a trend that is telling adversely on the way the country is perceived by the outside world.

## Statement of the Problem

The spate of fraud and related questionable activities with the emergence of the internet aligns closely with the nature of economic and political corruption that has persisted within the country just as poverty and unemployment ranks high for the majority of the country's active population.

In the past, payment-related fraud cases were mostly opportunistic crimes committed by small-time fraudsters. But today, the payment industry and bank customers face a very different world. As the scale and sophistication of payment products and channels have grown, so have the risks of fraud.

The first massive and seemingly coordinated fraudulent attack on ATM users was what may best be described as *the great phishing scam* of 2007, in which fraudsters cloned the interswitch website and sent wide reaching notices to ATM cardholders via email to log on to the cloned website and re-register their payment cards by changing their PIN. So daring was this attempt that notices were even

pasted on walls of bank premises. The fraudsters succeeded in accessing the accounts of many cardholders and withdrew their money. This act of fraud was chiefly successful because the magnetic stripe ATM card in use within the country is clone prone in comparison to the chip (smart) card.

ATM operations within the country are further characterized by such defects as:

- (i) non – dispersal of requested cash while the customer's account is debited of requested cash
- (ii) network problem which would make a customer in dire need of cash go round the city looking for a functioning ATM
- (iii) non availability of cash (i.e. temporarily unable to dispense cash)
- (iv) cases of disappearance of funds in customers' account by unknown means, etc.

In 2005, Nigeria was rated the 6th most corrupt nation in the world following from a survey by the international watchdog group Transparency International. Though the current rating is said to have declined following from lip service *rebranding* efforts of the government, the country's rating as king and progenitor of cyber crime is yet to be equaled by any other country.

Even more disheartening is the account by Bajulaiye & Ekundayo, (2009), following from an interview with a senior bank official who pleaded anonymity but affirmed that *most of the ATMs in use within the country were procured second-hand a reason why malfunctions occur...*

Regarding how the bank evades tax the same official declared:

*As you are taking up a job in our bank, you are asked to operate two accounts – current and savings accounts. If a staff earns N120,000 for instance, N80,000 may be paid into his savings account while the balance of N40,000 goes into his current account. When the internal revenue officials come to the bank to calculate the taxable incomes only the salaries paid into savings accounts will be declared...*

On a similar terrain and as reported by Olesin (2006) and Ezeoha (2006a), the country's dwindling image problem has been a reason for outright rejection of payment cards issued by Nigerian banks on the international arena.

Akinseye, (2009) summarizes the problems faced by ATM users in Nigeria thus:

1. Can hardly ever print account statements owing to *printer error*.
2. Forever *out-of-service* machines owing to epileptic internet connections.

3. Being **charged N100** for using another bank's machine.
4. *Money deducted from accounts even when the ATM does not dispense the cash.*
5. ATM cards being **swallowed** or retained without any prior warning.
6. *Intra-bank charges* for using the machine, either by being charged each time or through a regular *maintenance* fee.
7. *Lack of ATM machines in busy spots.*
8. ATM machines situated in banks which are **out of cash**.
9. Charges on ATM card *replacement*.
10. *ATM machines waste much time playing music, only for cards to be rejected without any money.*

The ATM bank facility is typically unmanned and lacks an immediate or on-the-ground complaints/suggestions register to take inventory of problems experienced in the use of the facility. The fact that it lacks a fraud detection or prevention accessory also does not help matters. For instance a dispensing machine ought to have a manner of identification that recognizes an account holder by means that cannot be easily duplicated by another for security reasons but this is not the case at the present.

### **Objectives of the Study**

The purpose of this paper is to help fill significant gaps in knowledge concerning the internet banking landscape in Nigeria with particular reference to the Automated Teller Machine (ATM). The study therefore intends to:

1. Ascertain whether issues bordering on inadequate knowledge of how to use the ATM are reasons for its acceptance or rejection.
2. Ascertain whether the nature of service delivery of the ATM in respect to its benefits are reasons for its acceptance or rejection of the ATM.
3. Ascertain the rate of acceptance of the ATM in comparison to the human teller.

## Hypotheses

Any useful hypothesis will enable predictions, by logical reasoning. It might predict the outcome of an experiment in a laboratory setting or the accurate observation of the nature of a phenomenon.

The study took into consideration three variables of the *innovation-decision process theory* - a component of Rogers' Diffusion of Innovation theory (DOI) as its model for testing and obtaining result for the study.

Hypothesis 1: Inadequate *knowledge* of the use of Automatic Teller Machine significantly affects the decision towards adoption of the technology

Hypothesis 2: The relative *merits* associated with the use of the Automatic Teller Machine significantly affect the decision to use the technology.

Hypothesis 3: The *decision* to continually use (*implementation*) the Automatic Teller Machine significantly affects the rate of adoption of the technology.

## Significance of the Study

Automation has become a dynamic feature of modern industrial society which displaces or replaces human skill and labour as ancillary to production. Today with the aid of computers tool production tasks earlier performed by human beings can be designed, constructed and redesigned with much ease and accuracy.

Automation brings along so many complexities into social life; such include: increased social distance among people; increased isolation or otherwise alienation of the technology from the inventor; while norms and values of traditional societies face the threat of dilution and at the extreme outright extinction.

On yet another scale increased automation also means increased globalisation which beyond inducement of changes on cross cultural patterns also attempts to bridge the gap between developed and developing societies.

This study is replete with several dimensions and will go a long way to enlighten the government of the day on the experiences of Nigerians in the use of the ATM and as well tip off the government on the implication of a possible isolation of the country from the league of nations of internet users if it continues to pay lip service to efforts aimed at limiting the propensity of the country's complicity in cyber and cyber related fraud activities or at best eliminating them completely.

The study will also inform regulators of banks namely the Central bank of Nigeria (CBN) and the National Deposit Insurance Corporation (NDIC) on the need to intensify efforts at enforcing promulgated policies especially those concerning banks and their customers. Regulatory agencies following from this study would see the need to make their presence felt by regular or periodic ground survey (assessment) of the quality of electronic gadgets in use by banks. It is the duty of such bodies to examine by periodic online polls or direct one-on-one survey the quality of service rendered by banks in various respects. For instance, a CBN quality regulation team if in place would ensure that *tokunbo* ATMs are not allowed to be installed by banks as cited by the anonymous bank official mentioned

above.

The study from the sociological perspective would enlighten the society or world of users of automated banking facilities and enhance the obviously narrow base of information on the rubrics of electronic banking and as well dangers to look out for while using electronic delivery channels like the ATM especially for those not already entangled in the web of problems associated with its use.

On another scale the result of this study would enable banks understand the true yet somewhat concealed perceptions of customers on the character and performance of the ATM and other delivery channels.

On the academic front, the study will provide insight into the character and workings of the ATM and other electronic delivery channels as there exist at the moment quite little information in regard to research on this area of study.

### **Theoretical Perspective**

This study is conducted under the guiding light of *survival game theory* while *the diffusion of innovation theory* (DOI) was adopted as a model for eliciting results from the study.

*Diffusion of Innovations* (DOI) describes a theory of how, why, and at what rate new ideas and technology spread through cultures. The theory has been largely influenced by the research investigation of rural sociologists – Ryan & Gross (1943) on the diffusion of hybrid seed corn among Iowa farmers, while Everett Rogers who synthesized research from over 508 diffusion studies, produced the theory for the adoption of innovations which he elaborated in his book, *Diffusion of Innovations* (1962).

In its fourth edition (1995), Rogers defines *diffusion* as *the process by which an innovation is communicated through certain channels over time among the members of a social system* (Rogers, 1995:5).

Innovation, in turn, is relative to the adopter, being any *idea, practice, or object that is perceived as new by an individual or other unit of adoption*. Rogers found that early adoption was associated with three factors: *importance, space, and time*.

The diffusion of innovations theory according to Rogers is a meta-theory spanning across multiple disciplines. He identifies six main traditions that impacted diffusion research as: anthropology, early sociology, rural sociology, education, industrial, and medical sociology.

DOI essentially requires four elements: *an innovation* (something perceived as new), *a communication system* (a transmission system from one individual, group, or society to another), *a social system* (provides the domain for the diffusion process), and *time* (from awareness of innovation through to adoption saturation in the social system).

Rogers (1995) explains that there are four major theories that deal with the diffusion of innovations. These are the *innovation-decision process theory*, *the individual innovativeness theory*, *the rate of adoption theory*, and *the theory of perceived attributes*.

The *survival game theory* on its part is a major sociological tradition that studies the evolution and anomie of organizational populations. The theory is instrumental in analyzing a key question in organization studies: *what is the role of flexibility, inertia and efficiency in facilitating acceptable performance within business environment, in terms of both profitability and survival?* Such a game-theoretic model reveals that an inert firm may push a flexible rival from the market, even if the inert market leader faces a cost disadvantage in a munificent environment. The model clearly supports the key claim of organizational ecology that relative inertia facilitates rather than impedes survival chances. This lends credence to Charles Darwin's estimation that *it is not the strongest of the species that survives, nor the most intelligent that survives, but the one that is the most adaptable to change.*

Survival for a species or organism depends entirely on its ability to adapt to embody the needs of its environment. Species use a variety of different strategies to do this ranging from physiological to behavioural changes. Some are able to operate in a wide variety of environments; others are successful only in very particular ones. The common theme is adaptation.

Translating this into an organisational world rests on the same principles. There are multiple strategies and multiple challenges. Some work better than others. Some die or are subsumed. Our environment is constantly changing and shifting, so choosing to stay the same is a high-risk strategy. Evolution is change with a purpose; the purpose is survival and the result is organisational fitness.

Blau & Scott in their comparative analysis of organizations proposed a typology of formal organizations on the basis of the criterion – *Who benefits?*

If banks would be classified on the basis of the service they render to the public they will according to Blau & Scott be best classified as *service organizations* whose beneficiaries are the clients or customers. (Blau & Scott, (1963) cited in Dunkerley, 1972:59).

Banks are however not strictly service organizations since they also qualify to be classified as *business concerns* which according to Blau & Scott has as its prime beneficiaries the *owners* or *shareholders* of the bank in question.

Talcott Parsons on his part infers that organizations differ from other types of social systems because of the primacy of orientation to the attainment of a specific goal. (Parsons, cited in Dunkerley, 1972:59).

Parsons reasons that organizations do not operate in a vacuum. They exist in environments and are shaped or influenced by conditions prevalent in their environment. Any production organization that fails to adapt to its environment faces a threat of extinction.

On yet a similar note, of the then 89 banks that faced the recapitalization exercise beginning in 2004 only 75 succeeded in brokering mergers while the rights of operation of the remaining 14 banks were withdrawn, which goes to show that any organization which becomes unable to adapt itself to its environment, faces the risk extinction or simply dies.

In like manner if nothing is done to check the continual dwindling image of Nigeria by her leaders the country may in the long run face adverse sanctions or outright isolation from internet service providers as also the ATM facility in Nigeria faces a threat of extinction if appropriate measures are not taken to

allay the fears and myriad complaints of its users.

## **Area of Study**

Three banks (United Bank for Africa, First Bank of Nigeria Plc. and Intercontinental Bank Plc.), representing 12% of the 25 consolidated banks in Nigeria were selected for this study. The selection criteria were based on the prevalence of these banks within the southern part of the country.

The study was conducted in Port Harcourt, where the branches of the three banks exist in large numbers in comparison to other southern states.

## **Population**

The population for this study comprises ATM users of the three selected banks; United Bank for Africa Plc., First Bank of Nigeria Plc and Intercontinental Bank Plc. Since the society of the ATM users of the banks is a large crowd that cannot be easily assessed the researcher decided to prune the figure by attempting to reach at least 400 ATM users of each of the banks making for a total of 1200 from which samples were drawn

## **Sampling Technique**

The research data was collected by means of *grab sampling* or *judgment sampling* owing to the dispersed character of the universe of ATM users. In other words ATM users were readily found and interviewed at ATM spots unlike a study involving e.g. students which requires the researcher to get to the school chosen for the study.

The researcher made several visitations to various branches of each of chosen banks to observe the functioning of the Automated Teller machines and as well distribute and retrieve the questionnaires.

## **Sample Size**

After a series of visitations a total of 280 usable responses emerged from the United Bank for Africa; 250 from First Bank of Nigeria and 270 from Intercontinental Bank Plc. making for a total of 810 after two follow-up mailings of which 913 responses were retrieved. The useable response rate awaited to 67.5% of the total 1200 questionnaires issued which is considered acceptable social research.

## **Data Collection Method**

Data were generated from two main sources; primary and secondary sources.

A four point Likert scale was used to measure all the statements (1 = strongly disagree to 4= strongly agree). Before the field work, a pilot study with ten bank customers was conducted in order to refine the questions. Finally, data was analyzed via frequency analysis and mean score analysis.

The study began with the use of a written survey -14 item questionnaire tagged – *Diffusion of the Automated Teller Machine (DOIATM)* was employed for the purpose.

## **Method of Data Analysis**

A 14-item questionnaire tagged – *Diffusion of the Automated Teller Machine (DOIATM)* was designed by the researcher to generate information of the researcher to generate information and test the research hypotheses.

Responses to the items on the questionnaire were structured on a four point likert scale ranging in order from (1) for the lowest response to (4) for the highest response as follows:

Strongly Agree	SA	-	4
Agree	A	-	3
Disagree	D	-	2
Strongly Disagree	SD	-	1

The scale above accounts for the critical or theoretical mean value – 2.5. All scores above this value are significant while scores below are considered insignificant.

The t-test analysis was adopted to elicit the mean value of responses to each item registered in the questionnaire. Same analysis was adopted to derive the pooled mean value of all responses put together.

The rating of frequency of ATM usage however took percentile assessment.

## DATA ANALYSIS

This chapter deals with the analysis of data retrieved for the study.

Below is a demographic survey of respondents.

**Table 1: Demographic Profile of Respondents**

Variable	Categories	Frequency
<b>Gender</b>	Male	508
	Female	302
<b>Age</b>	Less than 20 years	109
	21 – 30 years	370
	31 – 40 years	221
<b>Educational Level</b>	More than 40 years	110
	Master Degree	87
	Bachelor Degree	450

Diploma	150
High School or lower	123
Single	508
Married	30

As shown in Table 1 above, there were more males than females at 58.5% to 41.4% respectively. Majority of the respondents were between the ages of 21-30 years. This result supports the findings of a lot of studies on ATM, where users tended to be young and had at least secondary school level education (Amel, 1986; El-Haddan & Almahmeed, 1992; Marshal & Heslop, 1988; Swinyard & Ghee, 1987; Taube, 1988).

**Table 2: Frequency of ATM Usage**

Number of visits per Month	Frequency	Percentage
Daily	23	2.8
Twice a month	198	24.4
Thrice a month	223	27.5
Four times or more	366	45.1
<b>Total</b>	<b>810</b>	<b>100</b>

ITEM 1: *Frequency of ATM Usage* - The frequency of customers' bank visits is shown in Table 2. Out of the total of 810 respondents, 366 representing 45.1% mentioned that, they made ATM transactions four or more times every month while a paltry 2.8% transacted daily. The results indicate that customers of banking services in Nigeria still find it useful to visit their ATMs every month to transact banking business.

## Hypothesis One

**Hypothesis 1:** Inadequate *knowledge* of the use of Automatic Teller Machines significantly affects the decision towards using the technology.

**Table 3**

### Analysis of Opinion of Respondents on the Effect of Knowledge on the rate of diffusion

Q	ITEM		SA (4)	A (3)	D (2)	SD (1)	$\Sigma$	(cal. mean)	Critical value
2	Pre bank information on ATM usage	Freq.	0	0	300	510	810		
		x	0	0	600	510	1110	1.37	2.5
3	Decision to use ATM in view of knowledge	Freq.	55	231	394	130	810		
		x	220	693	788	131	1832	2.26	2.5
4	Knowledge of ATM options aside withdrawals	Freq.	100	60	330	320	810		
		x	400	180	660	320	1560	1.92	2.5

Pooled mean score = 1.85

Table 3 above, shows the responses of ATM users with respect to the impact of pre information on ATM usage and how it affects their decision to use the ATM.

ITEM 2: *Pre bank information on ATM usage* - Evident from the above table none of the respondents accepted having got any information regarding how to use the ATM and were not informed prior to using the ATM on how it should be used. This rendered a calculated mean value of -1.37 less than the critical mean value – 2.5.

ITEM 3: *Decision to use ATM in view of prior knowledge* – The mean score -2.26 obtained for this rating and which ranks below the critical mean value of -2.5 discloses that prior knowledge of how to

use the ATM does not significantly affect the decision to use the facility.

ITEM 4: *Knowledge of ATM options* -Only a few of the respondents here showed knowledge of some other options possible with the ATM such as deposit and currency exchange aside withdrawals and account balance checks. This is indicated by -1.92 calculated mean score.

### Summary of findings for H1

The distribution of the rating for *inadequate knowledge of the use of the ATM* is not statistically significant. This is because the pooled calculated mean value -1.85 is less than the theoretical mean value -2.5. This shows that customers are not adequately informed as to the potentials of the ATM facility irrespective of their willingness to use the facility.

### Hypothesis Two

The relative *merits* associated with the use of the Automated Teller Machine significantly affect the decision to use the technology.

**Table 4**

### Analysis of Opinion of Respondents Effect of Service Delivery on the Rate of Diffusion of the ATM

Q	ITEM		SA 4	A 3	D 2	SD 1	Σ	(cal. mean)	critical value
5	Rating of success at withdrawals using the ATM	Freq.	215	240	180	175	810		
		x	860	720	360	175	2115	2.61	2.5
6	Rating of success with balance print out	Freq.	87	180	220	323	810		
		x	348	540	440	323	1651	2.03	2.5
7	Satisfaction with 24hr service	Freq.	51	87	352	320	810		
		x	204	261	704	320	1489	1.83	2.5

8	On ATM service charges	Freq.	20	11	404	375	810	1.6	2.5
		x	80	33	808	375	1296		
9	Rating of experience of no service	Freq.	206	232	202	150	810	2.56	2.5
		x	824	696	404	150	2074		
10	Rating of customer service response	Freq.	23	15	450	322	810	1.67	2.5
		x	92	45	900	322	1359		
11	Rating of success at ATM deposits	Freq.	0	0	342	468	810	1.42	2.5
		x	0	0	684	468	1152		

Pooled mean score =1.96

Table 4 above presents the responses of customers on the character of ATM service delivery.

ITEM 5- *Rating of success at withdrawals using the ATM*: The distribution of the rating on this aspect of the ATM is statistically significant. This is because the calculated mean value -2.61 is greater than the theoretical mean value -2.5. This shows that a greater number of the respondents have been successful at making withdrawal from the ATM.

ITEM 6: *Rating of success with Balance Print out* - A record calculated mean score -2.03 shows that account verification on demand from the ATM has not been relatively successful since the score falls below the theoretical mean -2.5.

ITEM 7: *Satisfaction with 24hr service* - Respondents here do not quite accept that the ATM has been functional round the clock as it is meant to be. This is depicted in the calculated mean -1.83 which falls below the theoretical mean score.

ITEM 8: *On ATM service charges* - In regards to ATM service surcharge, most of the respondents voted against ATM service fees leading to a paltry -1.6 which again falls below the critical value.

ITEM 9: *Rating of experience of no service* - A calculated mean score of – 2.56 which towers above the -2.5 theoretical mean indicates that ATM service delivery has been relatively stable.

ITEM 10: *Rating of customer service response* - Here majority of the respondents are of the opinion that the customer service of their banks has not been altogether friendly. This reflects in the calculated mean rating of -1.67 which ranks below the critical value.

ITEM 11: *Rating of success at ATM deposits* - None of the respondents accepts to have made use of

this facility, which also is a plausible reason why the crowd within banking halls has remained unabated. The calculated mean record of – 1.42 makes this clear enough.

### Hypothesis Three

The *decision* to continually use (*implementation*) the Automatic Teller Machine affects the rate of adoption of the technology.

**Table 5 Analysis of opinion of respondents on willingness to continue with the usage of the ATM**

Q	ITEM		SA 4	A 3	D 2	SD 1	Σ	(cal. mean)	critical mean value
12	Rating of	n	38	60	202	510	810		
	Satisfaction with ATM service on a general note	x	152	90	404	510	1156	1.42	2.5
13	On		55	51	394	310	810		
	Advancing use of the ATM to others		220	153	788	310	1471	1.81	2.5
14	On	n	100	60	330	320	810		2.5
	relevance of the ATM in Comparison to the human teller		400	180	660	320	1560	1.92	

Pooled mean score =1.72

ITEM 12: *Rating of Satisfaction with ATM service on a general note* - The distribution of the rating of satisfaction with ATM service on a general note is not statistically significant. This is because the calculated mean value 1.42 is less than the theoretical mean value of – 2.5 this shows that respondents are not entirely satisfied with the overall service delivery of the ATM though they see the innovation as a laudable one.

ITEM 13: *On Advancing use of the ATM to others* - A paltry – 1.81 mean score which falls below the

theoretical mean value – 2.5 endorses that majority of the respondents are not yet confident about the service delivery of the ATM as to recommend them to other people.

ITEM 14: *On the relevance of the ATM in comparison to the human teller* - The calculated mean score – 1.92 which falls below the theoretical value – 2.5 shows that ATM card users prefer the human teller to the ATM.

## **Result of Findings**

The pooled calculated mean score of each of the hypotheses are as follows:  $H_1 - 1.85$ ,  $H_2 - 1.96$  and  $H_3 - 1.72$  all less than the theoretical mean value -2.5 showing that none of each of the constructs postulated in the hypothesis is statistically significant.

## **Summary of Findings**

### **Discussion**

The study focused on customers' perceptions on the rate of acceptability of the ATM which in turn is a measure of the rate of the diffusion of the ATM in comparison to the human teller.

Most of the respondents following from personal contact interview voted for the human teller in opposition to the ATM owing to the frequent flaws associated with the ATM.

From the mean analysis of the *knowledge* construct, it was evident that the respondents believed that the information concerning their use of ATM though not provided did not instigate a reason to discontinue or refusal to use the innovation. This is largely because ATMs are easy to use and more convenient in comparison to the human teller. But the respondents however were clear on the count that they knew not about all the options available from the automated facility.

Findings on the *merits* construct yielded that ATMs in use are not always incapable of enabling withdrawals if they are in order but on the other hand options like currency exchange and deposits are virtually unavailable. As such the merits of the ATMs are under explored.

Findings from the construct on *implementation* and whether the ATM should replace human tellers shows that the respondents expressed a significant measure of distrust for the ATM based on its level of unavailability and inconsistencies especially when it is most needed all deriving from the fact that banks are slow or are yet to unleash the full potentials of the ATM. Hence, respondents feel that the human teller is still preferable to the ATM.

In all, unless the service of the ATM improves significantly it is not yet set to effectively replace the human teller

## **Summary**

Advances in information technology have automated the service delivery of the Nigeria banking sector. This paper sought to evaluate the perceptions of Automated Teller Machine users (ATM) users in comparison to the human teller. The mean rating resulting from the analysed data shows customers still prefer the human teller to the ATM due from myriad problems associated with its use. This trend would

however change if the government and bank regulators namely the Nigerian Deposit Insurance Corporation (NDIC) the Central Bank of Nigeria (CBN) intensify efforts at on-site surveillance with reference to the operations of the ATM facility. A situation where a bank engages in the importation of substandard or used machines as cited in the early part of this study would not help matters within the sector.

The advances in IT have certainly introduced new delivery channels in the Nigerian banking industry. This paper sought to evaluate the perceptions of bank customers regarding the inadequacies associated with the ATM and the impact of this on the rate of diffusion of the innovation.

The Internet is comprised of virtually countless autonomous networks with no well defined security in place. There is no gatekeeper or *watchdog* person or agency to oversee activities on the Internet. Hence the urgent need for a retrofit or effective oversight mechanism to provide sanctions against misconduct or crime.

For many bank customers in Nigeria, online banking does not offer the same sort of trust and confidence as *brick and mortar* banking. Spam has become a significant worldwide problem that clogs networks, consumes resources and, due to its implication in virus distribution, identity theft facilitation and other criminal activities, erodes trust in electronic commerce.

This study has made contribution to knowledge in various ways. Firstly, it has explored the perceptions of the world or society of Automated Teller Machine users. It has also contributed to the study of organizations – an integral aspect of Industrial Relations.

The study has also revealed that the failures recorded by organizations result from poor level of adaptation and indeed if the organizations that provide the ATM facility fail to take steps towards securing effective service delivery and customers continue to lose confidence in the facility as the days go by the facility is bound to become extinct.

The study has also added to the literature of studies on automated banking especially the ATM and would thus help future researchers who may be interested in exploring other aspects of this area of study.

## **Conclusion**

Convenience, speed and ease of use are the main reasons that make the use of the ATM and other automated banking channels relevant. On the other hand, security, trust and privacy appear to be the topmost concerns for those who shelve from using the facilities.

In the light of the findings of this study, Internet banking might take a reasonably long time to fully become of economic relevance in the country's banking practice.

The rising cases of Internet related frauds originating from Nigeria have made the Internet banking environment very complex. The banking industry in the country does not also at present enjoy that level of global integration that may allow for full benefits of Internet banking system. At home, as Ezeoha (2005) discovered, the level of public confidence in the banks is not such that can guarantee effective customer patronage of Internet Banking services and in addition to the cases of poor access to the requisite facilities, very few customers actually transact businesses via automated channels. This

explains why the development of banks' web sites has not gone beyond information purposes. A situation where banks would have to invest much on acquiring information technology software without attracting enough customer patronage necessary to justify the huge expenditure does not make for a progressive chance for rapid growth of automated banking in Nigeria.

In the face of the present deficiencies and the seeming lack of proactive measures by the government and banking regulatory bodies in the country, the right environment for Internet banking may best be described as presently not in existence in Nigeria.

## **Recommendations**

Regulating Internet banking encompasses three major issues: how bank customers are to be protected; how banks are to be protected; and how the country would be protected against the negative publicity associated with the spread of Internet frauds.

The government of Nigeria and her people require drastic measures to allay the fears of her good citizens and those of the international community over its role in propagating cyber crime if Internet banking is to assume a developmental dimension in Nigeria and for the country to be fully integrated in the global financial environment.

The prevalent level of fraud in Nigeria (and among Nigerians) must first be addressed; citizens must also be well educated on the intricacies of Internet usage and frauds.

Banks on their part should device easy to use means of communication on problems that may likely result in the use of ATM and how to resolve them.

Perumal (2006) suggests that one way to increase the strength of personal identity security is the use of multiple factors of authentication. The advantage of such is that many are designed to operate with biometric systems and have sufficient space for storage of biometric templates with them.

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