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INFORMATION COMMUNICATION TECHNOLOGY (ICT) AND ORGANIZATIONAL PERFORMANCE IN THE BANKING SECTOR: AN EMPIRICAL APPROACH

FATILE, J. O.
FOLARIN, E. A.

Abstract

The study delves into the effect of Information Communication Technology on organizational performance in the banking industry. The study examines whether computer aided tools enhances organization efficiency in the banking industry and examine whether the internet have effect on market shares of banks in the banking industry. The survey research design was employed in this study and the stratified sampling technique was used to draw the sample from the population. A total of 100 respondents make up the sample size of the study. The questionnaire was the major research instrument used to collect information from the respondents. Statistical tools such as cross tabulation, simple percentage analysis, mean, standard deviation and ANOVA were used to analyze the data collected using the statistical package for social sciences (SPSS). The results of the statistical inferences reveals that computer aided tools enhances organizational efficiency in the banking industry. The study also reveals that the internet has effect on market share of banks in the banking industry in Nigeria and it is recommended that infrastructure of Information Technology should be improved by providing the enabling environment for emerging technologies. Effort should be made to checkmate the activities fraudsters in the banking sector so as to ensure efficiency in the use of ICT.

INTRODUCTION

During the 1990's, the Banking sector in Nigeria had vast amounts of New Information Technologies (NIT). Up-growing banks expended huge sums on websites,

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sophisticated software packages, teleconferencing equipments, broadband networks, mobile communications and other digital technologies (Mbam, 1999). Such investments helped them keep abreast of competitors that were making similar expenditures. Today, many banks are strapped for resources and they need to be extremely selective about the technologies they fund, deploying New Information Technologies (NIT) in ways that are most relevant to their business and strategic objectives including their service marketing efforts. There is increasing demand for more profits, turnover of resources, guaranteed customer satisfaction and as well as new vision for strategic breakthrough in a competitive banking environment. As customers seek for multiple service providers for broad selection and convenience, bank also seek for streams of customers.

In the past few years, banking activities in Nigeria have increasingly depended on the development of Information and Communication Technology (ICT). This is speedily becoming a reality in the industrially and economically advanced parts of the world, with people who are far away being able to engage in formal and informal relationship, which would have required them to engage in travels that may take hours or days. Rising numbers of financial institutions are introducing and expanding their offerings of electronic banking products (Sciglimpaglia and Ely, 2002)

In service organization like banks, information flows more than physical items. In the commercial world, especially in most advanced societies today, money is rather carried in information storage medium such as cheques, credit cards and electronic means than in its pure cash form. Banks have augmented their distribution networks with transactional websites, which allow customers to open accounts, apply for loans, check balances, transfer funds and make and receive payment over the Internet. With this practice, it is believed that the less the pure cash that is used for transactions within a society, the more viable it is to conduct business and banking activities electronically.

Thus, one of the greatest concerns of every business organization is customer's satisfaction. In the banking industry, most customers are motivated by accuracy of records and timely provision of services. Particularly, most of them measure the service standard of banks on how timely transactions are completed. A lengthy queue may lead to loss of good will and/or profit, either of which is an unhealthy situation for banks. A lot of managerial efforts are directed towards ameliorating this situation.

Studies made by Salay and Walshan (1995), Chrisanti (1998), Melesse (1998), Morales-Gomez (1998), and Mekwunye (2000) have revealed that banks that had undertaken Information Communication and Technology (ICT) not only out performed on most measures of success, profitability and competitive advantage, but significantly outperformed their own past results as well.

It must be noted, that amidst the importance of Information Communication and Technology (ICT) and considering the fact that Nigerian business environment is fast changing which deserves the means by which future opportunities and problems can be

anticipated by bank executives there is much work on Information Communication and Technology (ICT) in Nigeria and the third world, compared with the Information Communication and Technology (ICT) in industrialized countries. Thus, there is a need for a study of this nature to highlight the effect of Information Communication Technology on organizational performance in the banking industry.

Hence, the contribution of ICT on organizational performance has been investigated in some previous empirical studies. However, most of them are based on managers' subjective perceptions of business performance or contribution of ICT to business performance, as their main dependent variables, and not on objective measures of them. Also, they lack sound theoretical foundations, so they do not include all the fundamental independent variables. Moreover, all these previous empirical studies of the impact of ICT on business performance have been conducted in the context of only a few countries with high levels of economic development and ICT diffusion, and large markets, such as USA and UK. Therefore the results of these studies are conditional on the characteristics of these particular national contexts, since the relevant literature emphasizes that the national context affects all issues and dimensions of ICT business value (OECD, 2003; OECD, 2004; Melville et al, 2004).

This study contributes to filling the above research gaps. It presents an empirical investigation of the effect of ICT investments on business performance in the Nigeria national context. It is quite interesting to investigate the abovementioned research problems in Nigeria, taking into account its differences from the highly developed countries in which most of the empirical studies on this subject have been conducted. Nigeria does not belong to the highly developed countries, though it has made considerable economic progress in the last decade and is becoming a member of the developing economy. It is characterized by smaller size of internal market, smaller average firm size, lower intensity of competition and lower level of ICT penetration and internet usage.

The objectives of this study are: (i) to examine whether computer aided tools enhances organization efficiency in the banking industry, (ii) to examine whether the internet have effect on market shares of banks in the banking industry, (iii) to examine the pattern of relationship and link between Information Communication and Technology and banking operations, and (iv) to examine whether Information Communication and Technology have effect on service delivery in the banking industry

In order to achieve the objectives of this study, the following are the research questions: (i) does computer aided tools enhance organizational efficiency in the banking industry? (ii) to what extent does the internet have effect on market share of banks in the banking industry? (iii) to what extent does Information Communication and Technology enhance customer's service delivery? and (iv) does Information Communication and Technology have effect on organizational performance in the banking industry?

THEORETICAL FRAMEWORK

According to Kosoko (2002), Information is an intangible thing that makes a person or object aware of a set of facts or situation not previously known to him or it. The aim of information is to create a “knowing” in the recipient of the information. Also, Omolaja (1999), define information as processed data that have been communicated. Interpreted and understood by the recipient or user of the message. Aluko et al., (1998) defined information as data that have been processed into a form which is meaningful to the recipient and which is of real or perceived value in current or prospective decisions and actions. It will be seen that data are the raw materials for producing information.

A powerful force drives the world towards a converging commonality, and that force is technology (Levitt, 1992). From the beginning of the human era, technology has been one of the most essential and most important factors for the development of mankind. (Coombs et al., 1987). During the last two hundred years, technological changes have often been related to economic growth in the form of new types of goods and services. Ige, 1995, defined Information Technology (IT) as the modern handling of information by electronic means, which involves its access, storage, processing, transportation or transfer and delivery. According to the Quality Assurance Institution, Information Technology refers to any activity that uses information to fulfill its mission such as those activities whose primary job tasks involve acquiring, building, maintaining, operating and supporting the system that collect and process information.

Information Technology refers to the entire business of gathering, collating, analyzing, transmitting, storage, recalling, accessing or in any way dealing with or making use of information. Thus, research has shown that Information Technology (IT) affects financial institutions by easing enquiry saving time and improving service delivery. (Alu, 2002). It also provides solutions to the needs of modern societies in health care delivery, library services, and education and communication networks within organizations etc. Kosoko (2002) defines technology as the application of technical processes in order to achieve some practical ends. According to Ajonbadi, (2000), technology is said to be the practice of any or all of the applied sciences that have practical value and are of industrial and development use. Applied science in this context refers to the mechanical innovations. In this regards, technology is the means for putting together the information, thing that creates awareness as well as relaying the information to a person or system.

Thus, Information Technology is the technology, which supports activities involving the creation, storage, manipulation and communication of information, together with their related methods, management and application. (Aluko *et al.*, 1998). According to Kosoko (2002), ICT is more than computers it encompasses the data that a business

creates and uses as well as a wide spectrum of increasingly convergent and linked technologies that process such data. Information Technology thus relates to the application of technical processes in the communication of data. ICT is a combination of 'Information Technology' and 'Communication Technology'. It merges computing with high speed communications link carrying data, sound and video (Alabi, 2005).

Information Technology (IT) deals with the collection, storage, manipulation and transfer of information using electronic means. 'Communication Technology' refers to the physical devices and software that link various computer hardware components and transfer data from one physical location to another (Laudon & Laudon, 2001). Various Information and Communication Technology devices have emerged to enhance the speed and quality of service delivery and radically change how banking services are being handled worldwide. Shokan (2005) identified Electronic Fund Transfer, Electronic Fund Transfer at Point of Sale, Electronic Cheque, Electronic Letter of Credit, Electronic Card, Debit Card, Electronic Cash, Electronic

Billing, Automated Teller Machine

Performance is a contextual concept associated with the phenomenon being studied (Hofer, 1983). In the context of organizational financial performance, performance is a measure of the change of the financial state of an organization, or the financial outcomes that result from management decisions and the execution of those decisions by members of the organization. Since the perception of these outcomes is contextual, the measures used to represent performance are selected based upon the circumstances of the organization(s) being observed? The measures selected represent the outcomes achieved, either good or bad. Most management research focuses on the determinants of performance.

For instance, Kunkel (1991) proposed that new venture performance was a function of new venture strategy and industry structure (expressed as a formula as $P = f(VS, IS)$). Kunkel tested the relationship between two independent variables and the dependent construct of new venture performance. The focus of Kunkel's research was on the hypothesized relationship between certain independent variables and certain dependent variables, while the focus of this research is just on the 'P'. The independent variables are proposed as determinants of the changes in the dependent variables. The changes in the dependent measures are considered to represent 'performance' caused by the variations in the independent measures. The critical point here is that performance as a concept involves measurement of the effects of organizational actions.

The Concept of Organizational Performance

In general, the concept of organizational performance is based upon the idea that an organization is the voluntary association of productive assets, including human,

physical and capital resources, for the purpose of achieving a shared purpose (Alchian & Demsetz, 1972; Jensen & Meckling, 1976; Simon, 1976; Barney, 2002). Those providing the assets will only commit them to the organization so long as they are satisfied with the value they receive in exchange, relative to alternative uses of the assets. As a consequence, the essence of performance is the creation of value. So long as the value created by the use of the contributed assets is equal to or greater than the value expected by those contributing the assets, the assets will continue to be made available to the organization and the organization will continue to exist. Therefore, value creation, as defined by the resource provider, is the essential overall performance criterion for any organization. How that value is created is the essence of most empirical research in management. Conversely, how that value is measured is the essence of this research.

Many contemporary theories of economic change acknowledge the significance of information and communication technologies. Among efforts to understand technical innovation, economic development, and social and institutional change, best known is the neo-Schumpeterian theory, which builds on Kondratievs perception of long waves of economic 'boom' and 'bust' and Schumpeter's work in the 1930s on the role of innovative entrepreneur in creating new technical paradigms for future growth. The theory relates the perverseness of certain types of technologies to periods in economic development. Technologies are characterized as 'pervasive' if their application affects almost all sectors of the economy. More specifically, a technology has pervasive economic effect and employment implications if it: (i) generates a wide range of new products and services, (ii) reduces the costs and improve the performance of the processes, services and products of many sectors of the economy, (iii) gains widespread social acceptance; and (iv) generates strong industrial interest as a means for profitability and competitive advantage.

One the basis of such analysis, Information Technology is singled out as being the most pervasive technical innovation of the Post World War II era (Argerou, 1998). It is considered, to be at the center of the present fifth wave of technological change in most industrial countries. It has a wide range of applications that affect basis of new industries of computers, software and telecommunications that produce a great range of new products and services (Avgerou, 1998).

Empirical Studies on ICT and Organizational Performance

Several authors have conducted investigation on the impact of ICT on the banking sector of the Nigeria economy. Agboola et al., (2002) discussed the dimensions in which automation in the banking industry manifest in Nigeria. They include: (i) Bankers Automated Clearing Services: This involves the use of Magnetic Ink Character Reader (MICR) for cheque processing. It is capable of encoding, reading and sorting cheques, (ii) Automated Payment Systems: Devices used here include Automatic Teller Machine (ATM), Plastic

Cards and Electronic Funds Transfer, and (iii) Automated Delivery Channels: These include interactive television and the Internet.

Agboola (2001) studied the impact of computer automation on the banking services in Lagos and discovered that Electronic Banking has tremendously improved the services of some banks to their customers in Lagos. The study was however restricted to the commercial nerve center of Nigeria and concentrated on only six banks. He made a comparative analysis between the old and new generation banks and discovered variation in the rate of adoption of the automated devices.

Aragba-Akpore (1998) wrote on the application of information technology in Nigerian banks and pointed out that IT is becoming the backbone of banks' services regeneration in Nigeria. He cited the Diamond Integrated Banking Services (DIBS) of Diamond Bank Limited and Electronic Smart Card Account (ESCA) of All States Bank Limited as efforts geared towards creating sophistication in the banking sector. Ovia (2000) discovered that banking in Nigeria has increasingly depended on the deployment of Information Technology and that the IT budget for banking is by far larger than that of any other industry in Nigeria. He contended that On-line system has facilitated Internet banking in Nigeria as evidenced in some of them launching websites. He found also that banks now offer customers the flexibility of operating an account in any branch irrespective of which branch the account is domiciled.

Woherem (1997) discovered that Nigeria banks since 1980s have performed better in their investment profile and use of ICT systems, than the rest of industrial sector of the economy. An analysis of the study carried out by African Development Consulting Group Ltd. (ADCG) on IT diffusion in Nigeria shows that banks have invested more on IT, have more IT personnel, more installed base for PCs, LANs, and WANs and a better linkage to the Internet than other sectors of the Nigerian economy. The study, however pointed out that whilst most of the banks in the west and other parts of the world have at least one PC per staff, Nigerian banks are lagging seriously behind, with only a PC per capital ratio of 0.18 (Woherem, 2000).

Empirical evidence suggests that organizational changes may improve economic performance of firms through their mutually-reinforcing relationship with ICT. OECD (2002) argues that ICT is key to facilitating new organisational approaches, from lean production to teamwork to customer relations. ICT enable firms to introduce significant organisational changes in the areas of re-engineering, decentralisation, flexible work arrangements and outsourcing. It allows firms to produce with greater flexibility and shortened product cycles to satisfy shifting consumer preferences. In fact, organizational innovation and ICT may be regarded as complementary factors. To be successful, firms typically need to adopt ICT as part of a "system" or "cluster" of mutually reinforcing organizational approaches (Milgrom & Roberts, 1990).

Some studies argue that an explanation for the so-called “productivity paradox” (i.e. Robert Solow’s observation that “you can see the computer age everywhere but in the productivity statistics”) can be attributed to an insufficient response of organizational changes to adapt to changing business environment, to make better use of knowledge, technology and human resources, to respond to new demands from suppliers and customers, and to use ICT effectively (OECD, 2002; Sharpe, 1999). Other studies argue that the extent of firm-level organizational change may be the difference between “old” and “new economy” (OECD, 2002).

According to Gargallo-Castel & Galve-Górriz (2007), the importance of ICT in today’s organizations, in qualitative terms as well as with regard to investment, has led to a wide range of studies on the issue. Much of this research looks briefly at the early literature on ICT (Brynjolfsson and Yang, 1996). Many studies present contradictory evidence, obtaining weak or even no link between ICT and performance (Banker & Kauffman, 1988; Brynjolfsson, 1993; Davenport, 1996; Kettinger et al., 1994; Loveman, 1994; Roach, 1987; Strassmann, 1985, 1990; Weill, 1992; Wilson, 1993, 1995), the so-called Paradox. As Solow (1987) explained, “you can see the computer age everywhere but in the productivity statistics.” Brynjolfsson and Yang (1996), among other authors, suggest several explanations for this apparent lack of relationship: problems measuring productivity or investment, delayed results, over-investment relating to agency costs, or a zero-sum game. (Although there is a positive effect for some firms, for others it is negative and at the industry level there is no change).

From the Resource-Based View (Rumelt, 1983; Wernerfelt, 1984; Peteraf, 1993; Barney, 1991) it is argued that a resource is strategic when it is scarce. Information and communication technologies are accessible to all firms, but the assets and capabilities required to bring about changes, in both organizational design and in other elements, are not. Herein lies the source of the differences in firms’ success or failure when they introduce new technologies. In this respect, Powell and Dent-Micallef (1997) maintain that ICT alone does not provide sustainable competitive advantages: its use along with complementary human and organizational resources such as a flexible culture, the integration of ICT and the firm’s strategy, is what allows firms to obtain competitive advantages.

METHODOLOGY

The survey research method was employed in this study. Two banks were selected to evaluate the standard of service in the banking industry as at February 2010. The stratified sampling technique was adopted in this study. The workers in the two banks were stratified into their respective department and the simple random sampling technique was used to select the sample size. A sample size of 100 was drawn from the

population of study. The questionnaire was the major research instrument used to collect information from the respondents. Analysis of variance (ANOVA), standard deviation, and mean were used to analyze the data. The SPSS statistical package was used for the analysis in order to minimize any intended error.

The whole gamut of data collected through the administered questionnaires was subjected to detail analysis in this section. A total of 100 copies of questionnaire were distributed and 85 copies were returned back. These represents a questionnaire return rate of (85%) and were used for the analysis.

Descriptive Statistics of ICT Development and Effects on Banking Industry

S/N	Description	Mean	SD
1.	ICT is really helping the bank.	4.68	0.978
2.	Effect of ICT on productivity.	4.47	1.150
3.	Computer aided tools and organizational efficiency.	4.81	1.018
4.	ICT adoption and time management.	3.62	1.058
5.	Effect of ICT on customer service delivery.	4.85	0.838
6.	Effect of ICT on speed of transaction.	4.27	0.993
7.	Effect of ICT on error rate reduction	4.09	1.191
8.	Effect of ICT breakdown on time consumption.	4.65	0.896
9.	Effect of ICT on bank operations.	4.66	0.825
10.	Effect of ICT on growth of the bank.	4.67	0.777
11.	Effect of E-banking on service delivery.	4.38	1.123
12.	Effect of ICT on bank transaction delivery.	4.53	0.971
13.	Effect of ICT on reduction of frauds and other banks illegalities.	4.82	0.727
14.	Effect of ICT on corporate objectives.	4.61	0.757
15.	Effect of ICT network deployment on service delivery.	4.62	0.913
16.	Effect on internet on market share.	4.58	0.822
17.	Effect of ICT on profitability of bank.	4.67	0.697
18.	Effect of ICT on organizational performance.	4.48	0.717
19.	Improvement of IT in the bank.	4.19	0.764

Source: Computer SPSS Output

Question one

Some	Df	Sum of Squares	Means	F-ratio	Sig
Between Groups	4	4.396	4.099 5.065	0.03	
Within Groups	80	82.592	5.032		
Total	84	86.988			

Source: Computer SPSS Output

The analysis showed that computer aided tools enhances organizational efficiency in the banking industry at (P = 0.05) confidence interval. This revealed that statistically the values of the responses were different at F-probability value of 0.03 hence the null hypothesis was rejected.

Question two

Some	Df	Sum of Squares	Means	F-ratio	Sig
Between Groups	4	4.949	2.237	3.744	0.008
Within Groups	80	47.804	0.598		
Total	84	56.753			

Source: Computer SPSS Output

This hypothesis was intended to identify the directional effect of internet on market share of banks in the banking industry. In response to the hypothesis, the above table shows that internet significantly affect positively market share of banks in the banking industry at (P = 0.05) since the F-value is 0.008. The null hypothesis was rejected.

Question three

Some	Df	Sum of Squares	Means	F-ratio	Sig
Between Groups	4	8.238	2.059	3.245	0.016
Within Groups	80	50.774	0.635		
Total	84	59.012			

Source: Computer SPSS Output

The hypothesis was intended to identify the significant impact of information and communication technology on customers' service delivery. In response to the hypothesis the above table shows that information and communication technology enhances customers' service delivery at confidence interval of (P= 0.05). Following the ANOVA result shows that at F-value of 0.016, the null hypothesis was rejected.

Question four

Some	Df	Sum of Squares	Means	F-ratio	F-probability
Between Groups	4	11.910	2.977	7.607	0.000
Within Groups	80	31.314	0.391	-	-
Total	84	43.224	-	-	-

Source: Computer SPSS Output

This hypothesis was intended to identify the directional effect of ICT on organizational performance in the banking industry. Following the result of ANOVA at ($P = 0.05$) confidence interval, it was revealed that information and communication technology has significant effect on organizational performance at F – probability (0.000). Therefore, null hypothesis was rejected.

RESULTS AND DISCUSSION

In this study, both sexes were studied. The study revealed that more males (54.1%) responded to the study than females (45.9%). This is because the male form the greater bulk of those involved in socio-economic activities.

The study also reveals that the respondents between 36-45 years recorded highest participation with (42.4%) in the study because they make up the bulk and active participant in the study area. Furthermore, respondents in the age between 26-35 years recorded second to the highest. Majority of the respondents were degree or equivalent holders (34.1%) OND/NCE accounted (16.5%), masters accounted (31.8%) while respondents with other certificates accounted for 17.6%.

The above table 4.5 shows the descriptive statistics of information and communication deployment and effects on banking industry in Nigeria. From the table above, the highest mean point of (4.85) for implement in customer service delivery was indicated by the respondents as one of the most impact of information communication and technology. This is followed by (4.82) for ICT assists the bank to achieve its corporate objectives. Banking is a service delivery business in which information is pivotal, whether in the honouring of cheques or other withdrawals demands or in the granting of facilities. Information technology conduces to faster execution of transactions through the integration of front and back office function. ICT enhances product and service delivery, extend business reach beyond “bricks” and “mortars” and consequently, leads to increase in transaction value.

These are followed by (4.81) for computer aided tools enhances organizational efficiency in the banking industry; (4.68) for ICT is really helping the bank; (4.67) for electronic banking product and services delivery; (4.66) for ICT has a great positive

impact on the growth of the bank; (4.65) for a significant relationship exist between ICT and banking operations; (4.62) for information technology network deployed by the bank assist in reaching majority of customers nationwide; (4.61) for internet has effects on the market share of banks in the banking industry; (4.58) for level of literacy of respondents has impact on ICT in banking operations; (4.53) for ICT has been able to checkmate fraud and any other illegality in banking operations; (4.48) for ICT has effect on organizational performance in the banking industry; (4.47) for ICT enhances productivity in the banking industry; (4.38) for ICT improves the transactions dealings of the organization; (4.27) for ICT devices has influence an error rate reduction; (4.19) for the need to improve IT services rendered by the bank; (4.09) for ICT breakdown normally cause delay and also lead to time consuming in attending to customers and (3.62) for adoption of ICT by banks have effect on time saving.

The result of the analysis on table above shows that all the effect variables were positive; indicative of the fact that ICT affect organizational performance and service delivery. The details are shown in the analysis. The conclusion is supported by Aragba-Akpore (1998) that ICT is becoming a backbone of banks' services regeneration in Nigeria. Woherem (1997) also affirmed that Nigerian banks since 1980s have performed better in their investment profile and use of ICT systems, than the rest of industrial sector of the economy. Similarly, a study carried out by African Development Counselling Group Ltd (ADCG) on ICT diffusion in Nigeria confirmed that Nigerian banks have invested more on ICT, have more ICT personnel's, more installed base for PCs, LANS, and WANs and a better linkage to the internet than other sectors of the Nigerian economy. Thus, various studies have found that ICT investment has more effect on output when it is complemented by a high level of skill among the workers, and that the effect of ICT is greater when it is combined with an increase in the number of better-qualified workers and a reduction in the number of less-qualified ones (Powell & Dent-Micallef, 1997; Pinsonneault & Kraemer, 1997; Francalanci & Galal, 1998 & Bresnahan *et al.*, 2002).

CONCLUSION AND RECOMMENDATIONS

Owing to the dynamism and flexibility of the economy, there has been the need to include the activities that characterize the new global economy as constituted in the emerging technologies. These emerging technologies play a crucial role in the globalization of economic and social activities and are fundamentally transforming the society by influencing every aspect of our lives and work. The future of all business, particularly those in the service industry lie in Information Communication & Technology.

Infact, ICT has been changing the way companies compete. Banks are companies engaged in banking business and thus linked to the pervasive influence of ICT. Banks play a very significant role in any modern economy, particularly in relation to

the payment system. Hence, base on the dynamic and rapidly changing environment in which most organization must compete, it is important that, organization effectively manage their ICT so that it remains relevant in the banking industry.

Thus, it is recommended that for the country to be effective in the use of ICT in the banking industry as well grow in an appropriate way; there is a need for the Nigerian government to find a solution to the epileptic supply of electricity throughout the country. It is recommended that infrastructure of Information Technology should be improved by providing the enabling environment for emerging technologies. Effort should be made to checkmate the activities of fraudsters in the banking sector so as to ensure efficiency in the use of electronic banking.

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