Journal of Social Sciences 5(1): 47-51, 2009
ISSN 1549-3652

Strategic Application of Information and Communication Technology for Effective Service Delivery in Banking Industry

[1]O.O. Adeosun, [2]T.H. Adeosun and [3]I.A. Adetunde
[1]Department of Computer Science and Engineering,
Ladoke Akintola University of Technology, Ogbomoso, Nigeria
[2]Department of Banking and Finance,
Osun State College of Technology Esa-Oke, Nigeria
[3]Department of Mathematics, University of Mines and Technology, Tarkwa, Ghana

Abstract: Problem statement: This study deals with strategic application of information and communication technology for effective service delivery in banking industry. **Approach:** This study emphasized on the advantages and disadvantages in using digital ICTs in banking activities for effective service delivery. **Results:** Solving complex problems in banking requires the expertise knowledge of several individuals scattered all over remote areas of the world, resulting in work groups. **Conclusion:** This research considered the problem of providing dependable, high performance and consistent banking services with little or no service interruption.

Key words: Information and communication technology (ICT), effective service delivery, banking industries, data management, managerial decision making

INTRODUCTION

Computer remains relevant and its usefulness cannot be ignored in every sphere of life[1,5]. Banks are increasingly dependent on services provided by computer systems vis-à-vis ICT and vulnerability to effective banking services is growing fast as a result. The beauty therein is that banks are no longer just concerned with the information and the technology to process it; the single most important aspect is to communicate this information. Speed, ever-reducing costs and general availability of communications technology, e-mail and the Internet have revolutionized the way banks work and live.

Literally, ICT means working with computers, but in a more technical way it is a term used to describe technologies that enable us to record, process, retrieve, transmit and receive information. ICT ranges from the oral and traditional types such as speech, drama and prints to recent and modern ones like electrical ICTs (radio and TVs) and digital ICTs. The digital revolution is at the heart of the impending pervasive use of digital ICTs. The ability to store and process numerical, textual, audio and video information in digital form at speeds, in quantities and at costs previously unimaginable and the ability to transmit the digital objects across time and space quickly and at relatively nominal costs are the strengths of the electronic venue of ICTs[2].

Recent banking industries as to do with the systems of people, equipment, inventory and procedures arranged to interact in order to accomplish one or more objectives. Rapid changes due to globalization of banks, technological innovations, social and political changes cum increased awareness and demands from customers are putting pressures on banks which are being countered by new management approaches ranging from telecommuting to bank process reengineering. ICT is at the core of most innovations used today by banks to succeed or survive. ICTs are known for strategic management, communication, collaboration work, customers' access, managerial decision making, data management and knowledge management. In the light of these, this research focused on the advantages and disadvantages in using digital ICTs in banking activities for effective service delivery.

MATERIALS AND METHODS

Advantageous use of digital ICTs: Today's banking industry is undergoing rapid changes due to the introduction of digital ICTs. By using multiple data centers, banks can enhance not only fault-tolerance but

Corresponding Author: O.O. Adeosun, Department of Computer Science and Engineering,
Ladoke Akintola University of Technology, Ogbomoso, Nigeria

also performance. For example, by deploying F5 network's BIG-IP controller in each bank to load balance a farm of web servers as shown below and then F5's 3-DNS product at each bank, Internet traffic will be spread automatically between multiple,

Geographically dispersed sites: The 3-DNS routes web requests to different data centers based on their proximity to the requester, availability and current utilization/response times. This approach can accelerate performance by up to 3 times, ensure that priority applications are served first and offload expensive server cycles.

Most banks with more than one branch have some type of IP-based interoffice communications method. Common connectivity solutions include legacy frame relay lines, private T1 circuits, managed VPN, private IP and unmanaged Internet VPNs. The explosion of low-cost Internet connectivity options provides new opportunities to create affordable, truly fault-tolerant, fully redundant inter-branch connections that seamlessly failover in the event of a single-point breakdown. In the past, the high cost of private T1 lines often exceeded reasonable cost/risk assessments for small banks. But with the diverse selection of low-cost DSL, cable modem and wireless ISP connections now available, banks can craft cost-effective solutions that offer protection from single points of failure. By utilizing the advanced fault-tolerant features available in Cisco's IOS operating system, critical bank services failures can be made invisible to customers. With proper alert mechanisms, banks in-house IT resources or outside consultants can work efficiently to restore primary communications links without working under the intense pressure associated with crippling outages.

The business case for implementing fault-tolerant inter-branch connectivity has never been more compelling[6]. Low-cost DSL links can be configured as a backup to expensive T1 private lines for as little as of the monthly operating cost of the primary link. The availability of business-class wireless links makes it possible to create a banking fault-tolerant communications architecture that completely eliminates the risk of rare but debilitating wired network failures, such as fiber cuts caused by construction work, or traffic accidents that take down utility poles or telephone wiring junction boxes. These solutions are affordably priced and offer acceptable performance in banking failover situations.

In ICT we have adequate disaster recovery planning that would enable IT resources needed to maintain banking services continuity and restore full network functionality with minimal loss of productivity. The ICT should anticipate a broad variety of disaster scenarios such as fires, storms, earthquakes, chemical accidents, flooding, loss of key personnel, equipment or system failure and cyber crime.

ICTs for strategic management in banking industry: In modern times, strategic management in the banking sector is being associated with long range planning, response management and innovation. Long range planning document outlines strategies and plans for 5 or even 10 years. From this plan, banks derive their shorter period planning, budgeting and resources allocation. Response management is a strategy that focuses on a bank quick reaction to protect itself against a competitor's action or some changes in the environment. In contrast to response management, banks introduce innovative changes that give them a competitive advantage in the short run.

ICT contributes to strategic management in banking industry in many ways. For example, ICT create applications that provide direct strategic advantage to banks. It supports strategic changes such as reengineering, for example, in allowance of efficient decentralization by providing speedy communication lines and streamlining and shortening service design time with the use of computer-aided engineering tools. It also provides service intelligence by collection and analysis of information about innovation, customers, competitors and environmental changes. Such information provides strategic advantage because, if a bank knows something important before its competitors or if it can make the correct interpretation of the information before its competitors, then it can introduce changes and benefit from them.

ICTs for communication and collaboration: The need for all branches of a bank to communicate with each other and with other branches of other banks effectively and efficiently is critical to banking operations. Some important banking trends that require extensive communication are the need to reduce the time-to-serve customer, the need to globalize banks and the need to explore both internal and external data of a customer continuously and constantly, frequently in real time. These trends tend to two important needs:

- The need to support staff who are working together in the same bank and those working at dispersed locations (branches) cum other branches of other banks
- The need for better, faster and cheaper communication among individual bank (intra-bank) and other banks (inter-bank)

RESULTS AND DISCUSSION

Collaborative work is a feature of modern day technology in computing. Most major decisions in banking industry are made by groups of people working in a collaborative manner from remote locations. Solving complex problems in banking requires the expertise knowledge of several individuals scattered all over remote areas of the world, resulting in work groups. The term work group refers to two or more individuals who act as one unit in order to perform some task. A group, whether permanent or temporary, in one place or several locations, meet concurrently or at different times, can be a committee, a review panel, a task force an executive board or a department. Groupware are used by groups for their group activity facilitation. The term groupware refers to software products that supports group of people engaged with a common task or goal. The software provides a mechanism to share opinions and resources. Examples of groupware that aid in the collaborative efforts of organizations include teleconferencing, video teleconferencing and e-mail.

Teleconferencing is an ICT for the collaborative efforts of different parties in different locations. It cut down considerable on the cost of traveling and completely eliminates the risk of such trips. It enhances speedier decision making. The oldest and simplest is a telephone conference, where several people talk to each other from three or more locations.

Video teleconferencing is an improvement on teleconferencing allowing participants in one location to see participants at another location or in several locations. Originally, video teleconferencing was the transmission of live, compressed TV sessions between two or more points. Video teleconferencing today, however, is a digital technology capable of linking various types of computers. Once conferences are digitized and transmitted over networks, they become a computer application. Therefore in video conferencing, data, voice, pictures, graphics and animation can be presented.

Electronic mail (e-mail) is a multiple access communication which allows sending of letters to anyone connected to the system. When a message is sent, it enters an individual mail box. The receiver when connected to the network is notified that he has a mail. He/She can then read the mail, sends a reply, edits the mail or forwards the mail to another person. The e-mail can be used as an important communication tool in banks. The primary advantages of e-mail include: ability to send and receive messages very quickly, ability to send messages to many users in a very short time, ability to trace any correspondence (who sent, to whom, when and so on) and ability to work with others on the same task.

The Electronic Data Interchange (EDI) can also be used to communicate electronically within all branches of a bank and supporting services organizations. EDI uses a structured machine retrievable data format that permits data to be transferred without re-keying. Like e-mail, EDI enables the sending and receiving of messages between computers connected by a communication link such as a telephone line or electromagnetic technology. However, this is not to say that electronic collaboration is a substitute for face-to-face meeting. It is a way to ensure that most work gets done ahead of time so that meetings in person will more productive[3].

Public network services and bulletin boards: Public network services, which are accessible via the telephone line (and electromagnetic spectrum) allow people with personal computers to access large amounts of specialized information. Examples of major type of network services, many of which are tied to the Internet are:

Commercial databases: An on-line (commercial) database service sells access to large (usually nation-wide) databases. Such service can be used to add external data to bank information system in a timely manner and at reasonable cost

Comprehensive interactive services: Several banks provide interactive communication for customers to communicate with their banks. Capabilities range from saving and withdrawing money to loan requests

Electronic bulletin boards: Electronic Bulletin Boards (EBBs) are public e-mail in which users can leave messages for other people and receive masses of information including large amounts of free software. Some of the EBBs specialize in certain topics while others are general. Special interest groups, especially users of specific software, display messages on the boards and exchange experiences about the software

Telecommuting: With telecommuting, people do not have to work at their bank's premises; they can work at home. Bank staff can work at home, at the customer's premises or while traveling, using a computer linked to their place of bank.

Telecommuting forces managers to manage by results instead of by overseeing. Telecommuting forces both staff and managers to ask some serious question about the real purpose of a job.

This process, although difficult, could make both the manager and staff reduces misunderstandings about work. The staff will have a clear understanding of his responsibilities and will be held accountable for his actions.

ICT for managerial decision saking: The success of management depends on the execution of management functions such as planning, organizing, directing and controlling. To carry out these functions, bank managers engage in the continuous process of making decisions. Information is needed for decision making. In fact, it is a vital organ in decision making. As a matter of fact, it is impossible to make decisions without information. Information is needed for every step in the decision making process in banking industry. Making decision from manually processed information is becoming increasingly difficult due to the following trends:

- The number of alternatives to be considered is increasing on daily basis due to innovations in technology, improved communication and the development of global markets
- Many decisions must be made within time limit. Most of the time it is not possible to manually process the needed information within the stipulated time
- Manually processed information is usually characterized by uncertainty in the decision environment, it is thereby recommended that a sophisticated analysis using electronic means be used to make a good decision

ICTs for data management: Banks are increasingly dependent on information. They must be able to get the information as at when needed, where it is needed and in the form in which it is needed. To get complete and useful information, data must be well organized, stored and managed.

The modern approach to data organization is a database. A database is a subset of related files. Precisely, a database is collection of related records. In it, data are integrated and related so that one set of software program provides access to all the data. In database, data redundancy is minimized, data can be shared among users and data inconsistency is minimized as well.

ICTs for knowledge management in banking industry: Knowledge management in banking industry can be defined as a bank strategic mechanism for creating, identifying, gathering, processing and sharing its employees and related collective experience and expertise their knowledge capital following well defined principles to measure and reap tangible benefits, such as improved responsiveness, efficiency and productivity, greater competency and less redundancy, enhanced innovativeness and competitive advantage and, ultimately, improving the bank's bottom line[4]. Knowledge Management involves optimizing the value obtained form a bank's knowledge-based assets[5].

Typically, banks are interested in four critical variables as they map their knowledge activities to sharply defined strategic goals and ICTs are being employed in these variables:

Innovation: Finding and nurturing new ideas, bringing people together in virtual development teams, creating fora for brainstorming and collaboration. Here various type of groupware is being used.

Responsiveness: Giving people access to information they need when they need it, so they can solve customer problems more quickly, make better decision faster and respond more quickly to changing market conditions. Here the intranet, extranet and the Internet are being used.

Competency: Developing the skills and expertise of employees through on-the-job training and distance learning. Here, multimedia applications, virtual reality and the Internet are being used.

ICT disadvantages: The foremost disadvantages in employing ICTs in Banks are security risks. The introduction of ICT infrastructures, for example, computer network, raises the possibility of external access to classified proprietary information. Telecommuting also presents potential disadvantages to banks, such as potential data security problem, difficulties in work supervision, training costs and high cost of equipping and maintaining telecommuters home. In the case of Electronic Bulletin Boards (EBBs), some of the large amounts of free software have been found to be infected with viruses.

ICTs can lead to unemployment as many of the jobs are taken over by the machine.

CONCLUSION

The growing reliance on online services accessible on the automated banking system demands highly-available systems that provide correct banking services without interruptions was the purpose for this study. This research considered the problem of providing dependable, high performance and consistent banking services with little or no service interruption. The approach adopted covered the development of fault-

tolerant platforms to enhance the productivity of banking system.

REFERENCES

1. Adeosun, O.O., E.R. Adagunodo, I.A. Adetunde and T.H. Adeosun, 2007. Strategic modeling and analysis of internet connectivity using markov process to enhance Internet performance. Asian J. Inform. Technol., 6: 379-384. http://scialert.net/asci/ascidetail.php?doi=ajit.2007.379.384&kw=
2. Lan, F.S., 1997. Information and communication technologies, social processes and organizational change. ADEA News Lett., 9: 10-12.
3. Gates, W.H., 1999. Business @ the Speed of Thought. 2nd Edn., Warner Books, United States, ISBN: 10: 0446525685, pp: 496.
4. Aiyepeku, M., 1996. Grafting marketable KM skills into education for information in Africa. Educ. Inform., 19: 19-33.
5. Adeosun, O.O., E.R. Adagunodo, I.A. Adetunde, T.H. Adeosun and E.O. Omidiora, 2007. Strategic approach to the selection of appropriate replication technique to model a fault-tolerant internet connectivity. Asian J. Inform. Technol., 6: 455-461. http://www.medwelljournals.com/fulltext/ajit/2007/455-461.pdf
6. Adeosun, O.O., E.R. Adagunodo, I.A. Adetunde and T.H. Adeosun, 2008. Strategic planning for fault-tolerant internet connectivity using basic fault-tolerant architectural design as platform. Asian J. Scientific Res., 1: 90-102. http://scialert.net/asci/ascidetail.php?doi=ajsr.2008.90.102&kw=