

## **IMPACT OF DATABASE TECHNOLOGY ON BUSINESS ENTERPRISES IN NIGERIA**

**OKORE NWANKWO AKUMA**  
**School of Computer Science Education,**  
**Abia State College of Education (Technical),**  
**Arochukwu**  
**Phone 08064888208**  
**E-mail [akumanwankwo@yahoo.com](mailto:akumanwankwo@yahoo.com)**

**&**

**IGBOKA GODWINS OKECHUKWU**  
**Abia State College of Education (Technical),**  
**Arochukwu**

### **Abstract**

*Business enterprises in Nigeria are largely based on manual filling system. To a greater extent, this has hindered the way they store their information and do their business whereas data based technology is the acceptable means of storing and doing business transaction. This paper examines the impact of database technology and business enterprises in Nigeria. It addresses key issue in the use of database technology on the business enterprises, economy-effectiveness, cost and sustainability. It discusses the key challenges that inherent in the use of this new technology. It discusses ways of improving database technology in Nigeria. The paper concluded that for the country to fully harness the benefits of database technology every business enterprise in Nigeria should make it as a policy to incorporate database technology in its Modula operandi and should employ the service of knowledgeable and reliable advisers to supervise the planning, implementation and the use of database technology in their business organization.*

### **INTRODUCTION**

Every business and organization has some information needs and they maintain data of different kinds, Greasley (2005). Hospitals keep data about their patients, their various illnesses, and their appointment with doctors and drugs taken, etc.

Companies keep data about its employees and its business transactions.

Universities store data about its their staff, their student, their departments and faculties.

Libraries keep records of every book in their stock (the title, author, publisher, price), books lent out, and due dates of files and their member that borrowed the books.

These data can be stored in various media and different formats. For example, organization can store hard-copy document in a filing cabinet which is manual system or store its data in electronic spreadsheets or in database. Manual system, electronic spreadsheet have their limitations such as inconsistency, data redundancy, time consuming, data security, etc. which gave raise to database.

Databases are compact, fast, easy to use, accurate and secured. In addition to all these, database also allows multiple users to share data and resource which imply that it is cost effective and increases productivity.

### **Concept of Database Technology**

Database is an approach to computerizing (automating) the manual filing system and file-based system. A manual file is set up to hold all external and internal and correspondence relating to a project, task, client or employee.

This paper-based system are kept in files and for safety, they are labeled and stored in one or more cabinets for security, the cabinets may have locks, or may be located in a unsecured areas of the building. Because of the limitations inherent in manual filing system, the file-based system was developed in respond to the needs of business enterprise for more efficient data access. As the information need of business enterprises and their clients increases, the file-based system becomes inadequate for business enterprise. This is due to the problems inherent in the manual or file-base system.

Greasley (2005), point out that these problems include:

- **Duplication of data:** Due to the decentralized approach encouraged and necessitate the uncontrolled duplication of data. It costs time and money to enter the data more than once. Duplication takes up additional storage space. This can be avoided by sharing of data. It leads to loss of data integrity.
- **Data Dependency:** the physical structure of data file and records are defined in the application code. This means that changes to an existing structure are difficult.
- **Incompatible File Formats:** As the structure of files is embedded in the application programs, the structures are dependent on the application programming language. Therefore, the file generated by a programming, say COBOL may be different from the structure of a file generated by a 'C' program.
- **Separation and Isolation of Data:** When data is isolated in separate files, it is more difficult to access data that should be available.

To become more effective, a new approach was required. What emerged were the database and Database Management System (DBMS). Brien (1996), define database and as shared collection of logically related data (and a description of this data) designed to meet the need of the organization. It is a single large repository of data, which is defined once and used simultaneously by many departments and users.

On the other hand, Database Management System can be defined as a software system that enables the user to defined, create and maintain the database and provide controlled access to this database, Wendy (1997). A DBMS provides the following facilities:

- It provides controlled access to the database.
- It provides a security system which prevents unauthorized users from accessing the database.
- It allow user to insert, update, delete and retrieve data from the database
- It allows user to define the database, specify the data type and structure and constraints on the data to be stored in the database.
- It provides a view mechanism to customize the appearance of the database.

#### Component of Databases of Technology

For the modern business to operate effectively, the trends connecting its people and their computers are vital. Ekemezie (2000), state that such as trends include:

- i. **The Network of Computer:** Heichier (1995) defines the computer network as communication system that links two or more computers and peripheral devices and enable transfer of data between the computer components. Computer Networks are themselves connected on different scales such as small scale networks which are found within a work group or single office and large scale which is national and international knows as wide Area networks.
- ii. **Data:** This is a method by which data and information are transmitted between different locations. On a national or global scale, communications technology such as satellite and microwave transmission is important in linking businesses.
- iii. **Software:** The software includes the database Management System Software, Network Software and application software that are needed in the database.
- iv. **People:** These are the people that are involved in the Database Management System. They include the Database Administrator (DBA), Database Designer, Application Programmer, and End-Users.

#### The Roles of Information and Communication Technology in Business Enterprises

The ICT plays a vital role in business enterprise. They include:

- a. **The role of Communication in Business Enterprises:** Information and Communication Technology (ICT) is vital to business in the sense that it serves as cost saving and improve communications that may arise from internal network. It helps a business reach out and connect with its customers, suppliers, and collaborators. Through doing this a company can make raw materials quickly and cheaply from its suppliers and can keep in touch with the needs of its customers.
- b. **The benefits of Network in a Business enterprise:** when computer and telecommunications are integrated, they can provide many advantages. For instance, a humble e-mail sent to a colleague over the internet, it costs only a few nairas and can be sent to any location in the world in a few minutes as well as the low cost and fast delivery.

### **Application of Database Technology on Business Enterprises in Nigeria**

These are some of the application of database technology on business enterprises in Nigeria:

- i. **Data Processing:** This could mean the transformation of the large volume of data that arise from organizations daily activities into information for decision making. For instance, consider a situation whereby a manager encounter a problems at the strategic level of an organization. Hence, most of these problems are unstructured, it is then necessary for the manager to make use of facilities such as experience and judgment. In such case, computer-base technologies are less common at these organization levels.
- ii. **Transaction Processing:** This is defined as the processing of sales and purchase transaction that an organization carries out in the course of its normal activities in their process control. Example of such is Banks handling million of deposit and withdrawal such day.
- iii. **Process Control System:** These are system which manages manufacturing and other production processes. It also deals with the large volume of data generated by production process. For instance a machine producing a precision component might take hundreds of measurement and use these to adjust the manufacturing process.

### **Impact of Database Technology on Business Enterprises in Nigeria**

In Nigeria, the database technology has made a tremendous impact on business enterprise which includes:

- i. **Sharing of Data:** typically, files are owned by the people or departments that use them on the other hand, the database belongs to the entire organization and can be shared by all authorized users. Due to the database technology business enterprises in Nigeria can now share information with their customers; on the other hand can place order for products and service from company online; a company can place orders with a supplier for components from which to make its products; a customer can ring a call centre of a bank to pay his bills; a customer can withdraw money from an auto-teller machine. The benefits gained by sharing data across a business enterprise and the ability to combine data from several different source have helped in improving the production and the services rendered by these business enterprises.
- ii. **Economy of Scale:** Combining all the organizational data into one database and creating a set of application that work on this one sources of data can result in cost savings. In this case, the budget that would normally be allocated to each department for the development and maintenance of their file-based system can be combined, thereby result in a lower total cost, leading to an economy of scale.
- iii. **Control of Data Redundancy:** The manual filling system waste space by storing the same information in more than one file. In contrast, the database approach eliminates the redundancy by integrating the files so that several copies of the same data are not stored. This is turn improves the performance of the business enterprise since the unnecessary duplication of information is minimized, the cost involved in maintaining records are reduced.
- iv. **Data Consistency:** By eliminating or controlling redundancy the risk of inconsistency occurring is reduces. If a data is stored only once in the database, any update to its value is performed once and the new value is immediately available to all users. The client and customers of the business enterprise will have trust on the information provided by the business enterprise. Hence, improving its image and having a competitive advantage over its rival.
- v. **Improved Security:** the database technology provides a security system which prevents unauthorized users from accessing the database. The access that an authorized is allowed on the data may be restricted by the operation type (retrieval, insert, update, delete). This may take the form of user names and passwords to identify people authorized to use the database technology. This in general improves the security of data or information of a business enterprise, hence increasing the confidence that customers have on it. And as such, more customers will be willing to do business with the enterprise to that effect, the enterprise make more profit.
- vi. **Improved Data Accessibility and Responsiveness:** As a result of integration, data that crosses departmental boundaries is directly accessible to the end-users. This provide a system with potentially much more functionality that can be used to provided better services to the end-user or the organization's clients.
- vii. **Improving Operational Efficiency:** One of the most common ways of using computer-based information technology (database) system to achieve competitive advantages is by using them to improve operational efficiency. The management or managers of business enterprises achieved a

high level of productivity through the introduction of office automation systems (database). Definitely the organization might also realize additional benefits from this kind of approach such as improved customer's service.

- viii. **Linking Customers and Suppliers:** Linking an organization's computer-based technology system to those of its customers can help to strengthen business relationship. This type of computer based information can result in a number of business benefits, which includes:
- The availability of raw materials.
  - Suppliers are less likely to abandon the business relationship.
  - Cost saving can also be realized
  - The organization can negotiate favorable terms and prices.
  - Competitors are excluded from business relationship
- ix. **Promotion Of Business Innovation:** Investing in computer based technology (database) often helps to stimulate business innovation introducing a new process control system is also effective, computer-based technology are well placed to support business innovation, such organizations are likely to have established a resource based that can be drawn on to develop new ideas.

### **Problems of Database Technology on Business Enterprise in Nigeria.**

The problems associated with database technology on business enterprise in Nigeria are:

- Complexity:** the functionality provided by DBMS makes it extremely complex piece of software. The database administrators, Database designer, and developers and the end-users must understand this functionality to take full advantage of it. Failure to understand the consequences for an organization.
- Cost of DBMS:** The cost of DBMS varies significantly, depending on the environment and functionality provided. Some business enterprises find it expensive to acquire. There is also the recurrent annual maintenance cost, which is typically a percentage of the list price
- Additional Hardware Costs:** The disk storage requirements for the DBMS and the database may necessitate the purchase of additional of additional storage space. Furthermore, to achieve the purchase a large machine, perhaps even a machine dedicated to running the DBMS. The procurement of additional hardware results in further expenditure which some business enterprise are not willing to undertake.
- Cost of Conversion:** in some situations, the cost of the DBMS and extra hardware with the cost of converting existing applications to run on the new DBMS and hardware. This cost also includes the cost of training staff to use these new systems, and possibly the employment of specialist staff to do the conversion and running of the system. This cost is one of the main reasons why some business enterprises feel tired of their current systems and cannot switch to more modern database technology.
- Higher Impact Failure:** the centralization of resources increases the vulnerability of the system, since all users and application rely on the availability of the DBMS, the failure of any component can bring operations to a halt. Therefore, some business enterprise are reluctant to acquire DBMS.
- Performance:** typically, a file-based system is written for a specific application such as invoicing. As a result performance is generally very good. However, the DBMS is written to do more general to cater for more applications rather than just one. The effect is that some applications may not run as fast as it should.

### **Ways of Improving Database Technology in Nigeria**

A move towards incorporating database technology in the business enterprises in Nigeria will mean an extension of the intellectual, attitudinal and psycho-production abilities in appreciating and embracing database technology by these business enterprises. These call for the need to set reoriented goals which should be as follows:

- **Creating time table for changes:** The CEOs, Managers, and Directors of business enterprises have to create a time for changes which will include the period from the acquisition of databases technology facilities to the implementation/usage of these facilities. This time table should be made available to everyone in the organization so that they will be aware on how and when it is likely to be disrupted and for a reference point against which to see if things are progressing too slow or too fast. The time table and the main policies should be communicated to all members of staff. So that they do not become alienated from the process of change and so that they can provide feedback to help improve plans and policies of the management.

- **Establishment of a Help-Desk Unit:** Wendy (1997), suggested that to tackle the problem of system failure and problems encountered by computer users such as mysterious disappearance of mouse, network connection failure, database failure, e-mail not working, and printer failure, a help-desk unit should be established. It should be centrally located in the organization and equipped with the help desk facilities.
- **ICT Policy and Planning:** Hecks (1987) pointed out that a number of studies have found that good productivity and improvements can be achieved through new technology but only when there has been careful planning and implementation. Good planning and sound policy is the bedrock of any organization. Therefore, a sound ICT policies and planning should be put in place to ensure the success of database technology.

### **Summary**

Database technology has a great impact on business enterprises in Nigeria and it is still having till date. This paper provides overviews on how to restructure business enterprises in Nigeria on the area of Database Management System, the impact, problems, the ways of improving database technology on business enterprises in Nigeria.

### **Conclusion**

We are in the information age and the worlds is now a global village. The business enterprises in Nigeria have to enter the process of globalization via database technology now or will be left in perpetual darkness. I call on the Federal Government to increase the budgetary allocation to the information and telecommunication sector and to reduce the tariff on the importation of ICT facilities.

The Managers and Director of business enterprises should ensure they take the advantage that database technology provides by incorporating it in their business.

### **Recommendations**

To transform business enterprises in Nigeria into a global enterprise, to make the ICT compliant and to attract national and foreign clients and customers, and incorporate themselves into the global market, the following recommendations are made to ensure that the business enterprises in Nigeria grasp this magnificent opportunity provided by database technology and stay in the process of globalization:

1. Every business enterprise in Nigeria should make it as a policy to incorporate database technology in its Modula operadi.
2. Train their staff or their staff should be made to acquire computer skill as a basic element in their profession
3. A business enterprise should employ the service of knowledgeable and reliable advisers to supervise the planning, implementation and use of database technology.

### **References**

- Brien, J. A. (1996). *Management Information System: Manager Information Technology in the Networked Enterprise* (3<sup>rd</sup> edition). London: McGraw-Hall Companies, INE
- Ekememezie, W. A. & Ngene, N. J. (2004). *Computers and Information Technology*. Enugu: Kinsman Publisher Ltd.
- Greasley, A. Boci, P., Chaffey, D. & Hickie, S. (2005). *Business Information Systems: Technology, Development and Management for the E-business* (3<sup>rd</sup> edition). London: Financial Time Prentice Hall.
- Heichier, Elizabeth (1995). *Move to Groupware Sparks User Resistance* Framingham: Computer World, Inc.
- Wendy Robson (1997). *Strategic management and Information System* (2<sup>nd</sup> edition). London: Financial Times, Pitman Publishing Management.