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*Optimizing the  
administration,  
control and  
management of  
food and drugs in  
Nigeria using a  
case management  
system*

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**Abstract**

*Optimizing the roles of NAFDAC is one that involves a high-level technological approach in all the units, in order to checkmate illicit and counterfeit products in Nigeria. The task of case management involves a high level of documentation and information processing, storage, and retrieval. Organizations have undergone a revolution in the adoption and application of complex information technology. Determined to solve Nigeria's persistent fake drug problem, the government restructured NAFDAC's management and*

*reorganized the agency in April 2001 (New NAFDAC) through Professor Dora Akunyili, implemented a new measure causing a reduction in the problem. But in all these, technology approaches were not imbibed as to make the management stress free and digital. The information intensiveness of the NAFDAC agency is such that tools and technologies that would speed up the documentation, management, and information Handling are not only important but highly necessary. This research is an opinion paper suggesting a system (Case Management System) for running the administration and management of NAFDAC. The system is Used to input Case-related information and ensure correctness, completeness, and alleviation of information redundancy. It organizes information into a designed sequence, stores data for future reference and use. It also provides a secure platform for information interchange among the members. In addition to the features, the public can easily report events and observations of illegal food grades for quick intervention. Object-Oriented Hypermedia Design Methodology was adopted. Using PHP as the platform, HTML, CSS, and Javascript with MySQL as the database management system. The study recommends that this innovation should be adopted to improve the*

*optimization of their activities for fast action towards the control and management of counterfeit products in Nigeria.*

**Keywords:** Case Management, Information Technology, Organization, NAFADAC

### **Introduction**

The National Agency for food and Drug Administration and control ( NAFDAC) is a Nigerian Government Agency under the federal Ministry of health that is responsible for regulating and controlling the manufacture, importation, exportation, advertisement, distribution, sale and use of drugs, cosmetics, medical devices, chemicals and packages water(Olike,2008). Its creation was inspired by a 1988 World Health Assembly resolution requesting countries help in combating the global health threat possessed by counterfeit and illicit products in Nigeria and amidst growing concerns about the growing problems of fake and poorly regulated drugs in Nigeria (Nigeria first, 2003). NAFDAC has over the years been making continuous efforts against distribution and use of fake drugs with increasing intervention since 2001 in the following areas:

- Inspection Processes
- Drug Product Registration
- Enforcement
- Public Enlightenment
- Deployment of cutting-edge technologies

Their efforts towards closing illegal drug markets which sells either prescribed or over the counter (OTC) drugs nationwide has not yielded much result till date. This is because customer with low accessibility, availability and affordability will always demand for their services.

Information communication technology (ICT) is a pillar term that includes all technologies for the manipulation and communication of information. The value of accuracy, correctness, completeness, relevance and timeliness are characteristics of information which ICT systems do generate to meet information management needs of an agency. The rapid development of technology opens up new opportunities that were unthinkable only a few years ago. Around the world, several statutory reforms have been introduced to allow the use and exchange of electronic data and documents within so many systems and organizations. The availability of web services, the possibility of consulting on-line, remote accessibility to online documents, the use of electronic filing, the electronic exchange of

case documents are only some examples that are stimulating so many agencies around the world to rethink their current functions and activities. Davis (1979) states that computers have replaced manual technology because of its ability to process large volume of data or even handle complex work at a very high speed. It gives out accurate result each time except when it is fed with incorrect data, Garbage-in-garbage-out. Hence, the need for computerization is certified.

This software can be used to enhance efficiency, access, timelines, commitment to services and accountability, helping the agency to provide adequate services. However, many empirical studies have shown that the amount of reports gotten by the agency do not often coincide with the anticipated ones due to the communication slack between the public and the agency.

A case is a compendium of information, processes, advanced analytics, business rules, collaboration and sometimes social computing that relates to a particular party like customer, supplier, patients, students or defendant.

(Creswell,2011) define case managements as a technique used to process cases from one state of the proceedings to another, such as setting deadlines for discovery or

scheduling a series of pretrial conferences. Documentation, file handling, information processing and retrieval, communication and interaction barrier within the agency and the public are the challenges facing so many agencies and NAFDAC is not an exception.

### **Understanding the Term Drug as a Food Grade**

Strictly, a drug is a chemical substance used to treat disease in animal, including man. Tupper, K.W(2012) defines drug as any chemical substance, natural or man-made (usually excluding nutrients, water or oxygen) that by its chemical nature alters biological structure of functioning when administered and absorbed. Today a drug is a pure chemical substance whose structure is known and formulated. This results in the familiar tablets, pills, injections, syrup, ointments, creams and salves, infusions, sprays for inhalation etc.

Approved drugs are those which have passed all the stringent tests for safety and efficacy granted by organizations such as the committee on the Safety of Drugs (in UK) and the Federal Drugs Administration (FDA) (in US). Approved drugs ten become listed in National Formularies and pharmacopoeias of various countries. The

designation BP, USP or EP after the name of a drug implies it conforms to the standards described in the British, US, or European pharmacopoeias. Listen to broadcast these days and you are likely to read or hear about drugs – drug problems, drug abuse, drug culture, drug barons, drug smuggling. It is entirely possible for a drug to be a useful therapeutic agent as well as a drug of abuse. Properly used morphine and its derivative heroin are excellent analgesics, which can be used without causing addiction. In former times cocaine was the local anesthetic used by most dentists and currently cannabinoids are being examined for their usefulness in multiple sclerosis.

### **Drug Quality Measures and Safeguards**

According to U.S pharmacopoeia first published in 1820 standard for drugs and tests for their identity, and purity are given and at first revised every 10 years, later every 5 years. The British publish a similar pharmacopoeia. American pharmaceutical Association (2016) gives the composition, description, method of preparation, and dosage for drugs: the physician's Desk Reference is a privately published compilation of information supplied by drugs companies about their drug products, published yearly. The scientific study of

drugs, their actions and effects are pharmacology.

Legislation of safeguard drug purchasers began in the United States with the Pure Food and Drug Act of 1906; this was superseded by the more inclusive and more stringent federal Food, Drug and Cosmetics Act of 1938. Such laws are enforced by the food and Drug Administration. Karntz (1966) points “the 1962 Kefauver-Harris amendments to the Food, Drugs and Cosmetics Act increased the authority of the food and Drug Administration to regulate testing and marketing of new drugs”. There are two marketing classes of drugs; ethical drugs, for which prescriptions are needed, and proprietary drugs, which are sold over the counter without prescription. Many of the latter, such as mouthwashes, gargles and cold preparations are only slightly if at all effective in curing ailments

The regulation of the pharmaceutical sector is vested in the National Agency for Food and Drugs Administration and Control (NAFDAC) and the Pharmacists' Council of Nigeria (PCN). In broad terms, the NAFDAC regulates pharmaceutical products while the PCN regulates the premises and professional practice. Therefore, drug registration, marketing approval, manufacturing, importation, drug



promotion and advertising are controlled by NAFDAC while licensing and practice of pharmacy and pharmaceutical premises are the purview of the PCN, according to promulgated laws. The effective regulation of traditional medicines remains a challenge for the pharmaceutical sector.

NAFDAC issues marketing approval for pharmaceuticals sold in the country after evaluation of safety, efficacy and proof of manufacturing and use in country of origin; in accordance with WHO certification scheme on the Quality of Pharmaceutical Products Moving in International Commerce. To date, there are about 4,363 registered medicines in the country. In 2002, NAFDAC commenced listing of traditional medicines with proof of safety. About 83 have so far been listed. In 2002, WHO supported the computerization of drug registration in NAFDAC to improve the process. NAFDAC also carries out regular inspection of drug manufacturing premises to ensure compliance with Good Manufacturing Practices (GMP) and regularly publishes the list of registered drugs in the official gazette.

NAFDAC also has the responsibility of regulating promotion and advertisement of medicines. The contents of advertisements and promotional materials, well as package inserts are pre-approved by NAFDAC.

There is explicit prohibition of the promotion of prescription medicines in the country.

Monitoring of the adverse effects of both orthodox and traditional medicines is not institutionalized but NAFDAC does collect some information on adverse drug reactions.

To control the quality of medicines, NAFDAC has national laboratories and may also use the services of laboratories in academic institutions.

### **Computer and Information Management**

An information specialist (lucy, 1991) defines computer-based management information systems as the combination of human and computer-based resources that results in the collection, storage, retrieval, communication and use of large data for purpose of efficient management of operations and for business planning. Computer-based information system is a feature of all large organizations nowadays. The literature identifies four kinds of computer- based information system:

- a) **Transaction Processing System (TPS):** This system records day-to-day transactions such as customer orders; bills,

inventory and production output.

b) **Management Information System (MIS):**

This summarizes the detailed data of transaction processing system standard reports might include production schedules and budget summaries.

c) **Decision Support System (DSS):**

The decision support system provides a flexible tool for analysis. The DSS helps middle-level managers and others in the organization analyze a wide range of problems, such as effect of events and trends outside the organization. Like the MIS, the DSS draws on the detailed data of transaction processing system.

d) **Executive Support System (ESS):**

The ESS is an easy to use system that presents information in a very highly summarized form. It helps top-level managements oversee the company's operations and develop strategic plans. The ESS

combines internal data from TPS and MIS with external data

### **Database as a Data Management Tool**

In the early days of computerization, it was normal to maintain specific files for individual applications. Data were processed centrally in batches and there was little or no online interrogation of data.

This approach is wholly inefficient for most of today's data processing systems. Supporting this Vossen (1991) enumerates the problems that result from organizing data using the file system:

- There exists a high redundancy between files which results from the fact that the information is replicated in different places, and that replications are not controlled by a central monitor
- Inflexibility against changes in the application
- Inconsistency might result from the possibility that a program makes changes on the files it uses without these changes being made (at the same time) by other programs that use the file.
- There is a problem of adopting and maintain standards, which is important for exchanging data or for migration to a new operating system

release, or even on a new computer system.

Specifying the need for database, O'Leary & O'Leary (1996) listed some few advantages:

Sharing, security, fewer files, data integrity.

### **Views on Data Storage and Retrieval**

Henry (2002) commented that a typical organization has a large number of files, many of which may be stored on a computer device. We call these data machine readable because one can use computer to process them. Paper files on the other hand are much less accessible. Computer entirely replaces the manual system. In Barba (1979) in his contribution says that computerization does not only involve computer technology consisting of only hardware and software but also the communication links, that establishes the link for data communication devices to interact and share data as well as transferring data/information from one location to another. In an agency like NAFADAC computerization can help to make accurate documentation of accused's case file.

Since complex files are processed in the database, a complex software system

called database management system is required for construction, expansion and maintaining of the database. It provides the controlled interface between the user and the data in the database. The DBMS allocates storage of data. Kent (1983) presents a set of guiding to make NORMALIZATION more intensive. Firstly, normal form requires that all occurrence of a record type contain the same number of fields. As a result, record cannot contain a repeating group.

Second Normal Forms require the design to examine the relationship between key field and other fields in the record. In general, normalization creates a database in which there is minimum redundancy of data and risk of demanding the database through update is minimized.

### **Impact of Technology in Organization management**

Technology is the practical application of science to commerce or industry. It is the study of or a collection of technique; a particular technology concept; the body of tools and other implements produced by a given society (Luck, M,2010). Technology is constantly evolving and its required for a successful business.

Back in the early days, the use of technology within an organization was the preserve of technically-skilled professionals, relegated to the basement and struggling to validate their contribution to the companies' bottom line. But that has all changed. With decades technology innovation, we can now see that the use of technology is much more pervasive across all parts of the business and the dependency on technology to perform has increased.

The following are the key impacts that technologies can have upon organizations. The list is by no means complete, as there are simply too many facets to cover in any scoping study: however, the intention is to give an overview of some of the key issues impacting on organizations.

- Performance and Productivity
- Manpower levels and organizational size
- Information Management and policy
- Impact at the individual and Group level
- Impact of technology on human resources
- Impact of technology on quality
- Impact on functions of management

- Impact of technology on risk management

### **Advantage of the Proposed System Design**

- Issues of misplacing files are eliminated
- It reduces cost for the organization: funds spend in printing and reprinting paper from year to year is saved
- Provides online communication platform for the agency
- Making the task of case documentation easier
- It saves time
- Provides large space for saving documents
- Reduces work stress
- Easy to fine, explore, analyze, exchange and present information

### **Conclusion**

Information communication technology (ICT) is a pillar term that includes all technologies for the manipulation and communication of information. NAFDAC case management involves a high level of documentation and information processing, storage and retrieval, therefore requires ICT. The information intensiveness of NAFDAC agency responsibility is such that



tools and technologies that would speed up the documentation, management and information handling are not only important but professionally necessary. The value of accuracy, correctness, completeness, relevance and timeliness are characteristics of information which ICT system do generate to meet the agency's information needs.

### **Recommendation**

Considering the rate of technological development in our society and its benefits to mankind. I recommend that NAFDAC agency acquire more information technology infrastructure for the efficient use of the new system. They should also consider the network provider that will give them best service for fast and speedy connection to the internet since the application is web base.

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