

A Model of NAFDAC Real-Time Crime Information System

Ugwuishiwu C.H., Inyama H.C., Ezema M.E.

Abstract - NAFDAC is a government agency that was established to protect and promote public health by ensuring the wholesomeness, quality and safety of food and drugs consumed in Nigeria. The problems of fake and substandard products proliferation in Nigeria have affected the credibility of the healthcare system and can exert very harmful effects on the consumer resulting to illness, disability and even death. These make it imperative to fight against fake and substandard products, hence NAFDAC regulations. The objective of this paper is to design a model that will help to achieve NAFDAC stipulated objectives through digital data capture from informants, timely crime information dissemination (ie. Just-in-time crime information) and efficient crime information sharing by the various branches of NAFDAC offices in Nigeria. This model if adopted will help NAFDAC to a great extent bring crime to its minimal rate through instant flow of information.

Keyword: NAFDAC, Crime, Information system, informant, instant information flow, food and drug regulated product.

I. INTRODUCTION

National Agency for Food and Drug administration and Control (NAFDAC) is the government agency in Nigeria that is fully empowered to regulate and control the importation, exportation, manufacture, advertisement, distribution, sales and use of drugs, food, cosmetics, medical devices, bottled water and chemicals. Under the provisions of government of Nigeria (GON) Decree 19 of 1993 as amended by Decree 20 of 1999 and the accompanying guidelines, no such items should be imported, advertised, sold or distributed in Nigeria unless it has been registered with NAFDAC [1]. These products are called NAFDAC regulated products. Their vision is to safeguard public health, mission is to safeguard public health by ensuring that only the right quality products are manufactured, imported, exported, advertised, distributed, sold and used and current goal is to eradicate fake drugs and other substandard regulated products.

Over the past few years, the management of NAFDAC has increased surveillance to curb widespread adulteration of food products. The main strategy employed by the agency for the enforcement of Nigeria's food and drug laws is the process of product registration. Contravention of the provisions of existing food and drug laws is subject to prosecution and punishment as specified in the code. In theory, any food item not registered with NAFDAC is not legally importable, but in practice, many processed foods and drugs routinely enter Nigeria through neighboring countries without having gone through the registration process [2].

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Despite NAFDAC's commitment to transform the culture of corruption and prosecute the war against counterfeit and fake drugs, our markets are still filled with fake and substandard regulated products. Some of the incidents have resulted in death even among children because quite often the consumers do not know the quality of what they are buying or taking. It is based on this ground that this project was instituted to fight against these crimes of fake and substandard regulated product in Nigeria. The driving force behind the continued application of technology has been an ever increasing need to capture, organize and share data rapidly for the timely performance of activities of NAFDAC.

If the 1980s were about quality and the 1990s were about re-engineering, then the 2000s will be about velocity, about how quickly the nature of information flow will change, about how information access will alter the lifestyle of individuals or nations and their expectations of crime prevention [3]. These changes will occur because of a disarmingly simple idea; the flow of digital information. We have been in the information age for more than thirty years but because of the delay in information dissemination and the method of crime data capture from informers and inefficient crime information sharing by the various NAFDAC branch offices, there has been a problem of efficient crime management among them. Most of the information moving to these agencies have remained on paper form; and the way we give attention to crime cases remains unchanged.

Instant flow of information gives quick and tangible knowledge about what is really happening in the society. We use technology to move the right information quickly to everyone around the world. Getting rich information was prohibitively expensive and the tools for analyzing and disseminating it were not available in the 1980s and even the early 1990s. but here on the edge of the twenty-first century, the tools and connectivity of the digital age now give us a way to easily obtain, share, and act on information in new and remarkable ways. For the first time, all kinds of information numbers, text, sound, video, can be put into a digital form that any computer can store, process and forward. In digital age, connectivity takes on a broader meaning than simply putting two or more people in touch.

Fake and substandard products especially food and drug are a global public health problem. Nigeria is not an exception in the problems of fake regulated products till date. For the reasons that these products for instance are cheap, in close proximity, requires no consultation fees, has flexible payment method, and involves a perception of confidentiality, people continue to patronize them and most often, these products are bought from unlicensed vendors whose product qualities are not certified sure and these fake products contribute immensely to high death rates[4].

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Drug or drug product include any substance of vegetable, animal or mineral origin or any preparation or admixture thereof manufactured, sold or advertised for use in:

The diagnosis, treatment, mitigation, in man or animal;

Restoring, correcting or modifying organic function in man and animals;

Disinfections or the control of vermin, insect or pest or contraception [5]

NAFDAC defines food as any "article manufactured, processed, packaged, sold or advertised for use as food or drink for human consumption, chewing gum and any other ingredient which may be mixed with food for any purpose whatsoever [6].

World Health Organization defines a "counterfeit" as "A medicine, which is deliberately and fraudulently mislabeled with respect to identity and/or source. Counterfeiting can apply to both branded and generic products and counterfeit products may include products with the correct ingredients or with the wrong ingredients, without active ingredients, with insufficient active ingredients or with fake packaging" [7].

There is no universal definition of fake drug as every country has different meaning for this same concept. In this paper the definition of fake drug as defined by the Nigerian Counterfeit and Fake Drugs and Unwholesome Processed Foods (Miscellaneous Provisions) will be used which is:

- Any drug product which is purported to be; or
- Any drug or drug product which is so colored, coated, powdered or polished that their damage is concealed or which is made to appear to be better or of greater therapeutic value than it really is, which is not labeled in the prescribed manner or which label or container or anything accompanying the drug bears any statement, design, or device which makes a false claim for the drug or which is false or misleading; or

Any drug or drug product whose container is so made, formed or filled as to be misleading; or

Any drug product whose label does not bear adequate directions for use and such adequate warning against use in those pathological conditions or by children where its use may be dangerous to health or against unsafe dosage or methods or duration of use; or

Any drug product which is not registered by the Agency in accordance with the provisions of the Food, Drugs and Related Products (Registration, etc) Decree 1993, as amended. [7].

The rest of this paper is organised as follows: section 2 provides design of the model of NAFDAC crime information system. Section 3 discussed a brief of the system model description and finally section 4 discussed conclusion and future work.

II. THE DESIGN OF MODEL OF NAFDAC CRIME INFORMATION SYSTEM

Modeling is a process that produces a graphical representation of a concept or processes that systems developers can analyze, text and modify [6]

The model of this system defines the key components of the proposed system together with the interactions between these products. Depending on the type of report or information you want to give, for instance opinion, observation, criticism, feedback, and tip-off reports, this system is going to have different table format for each of these reports. An informant can send the information in any format into a NAFDAC

temporary database but it is before storing it in the main NAFDAC database. With faster access to information on crime by crime information consumers such as any Nigeria Law Enforcement Agencies, this will enable them react faster to problems and opportunities.

The overall function structure of the model is summarised as shown in Fig.1.

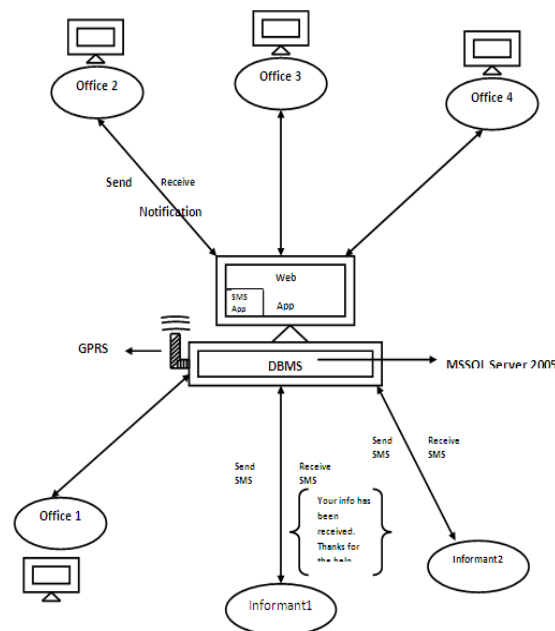


Figure 1. The Model of the NAFDAC Crime Information System

An informant can be anybody in the country who can detect crime and send to any NAFDAC office in the country. Informants can still be any of the law enforcement agencies or any NAFDAC branch office in the country. This is consisting of a web application, a database management system, and NAFDAC administrator and the various NAFDAC offices in Nigeria connecting together for the purpose of sharing digital information at an appropriate time.

NAFDAC is saddled with the responsibility of making foods, drugs and allied product safe for use. It is tasked with prevention of wrong practices such as:

1. Production of fake/counterfeit and substandard NAFDAC regulated products
2. Importation, exportation, production, use, advertisement and distribution of an unregistered products among those regulated by NAFDAC.
3. Selling or distribution or use of expired products
4. Bribery and corruption by NAFDAC personnel/staff of the country

These are the nature of these crime reports from an informant. The report can be inform of:

1. opinion
 2. observation
 3. criticism to improve the system
 4. feedback
 5. tip-off
- Observation-e.g. report of drugs reaction experienced.

These are the available fields

1. product Name
2. what is meant to cure

3. the kind of reaction experience
4. effect of reactions
5. location of incidence
6. NAFDAC Reg. Number
7. date of the experience
8. product batch no
9. expiry date
10. phone number

Tip-off e.g. report for a vehicle importing fake products.

The fields are:

11. company's name
12. location of incidence
13. company's address
14. vehicle type
15. vehicle number
16. product name
17. time and date of the suspect
18. phone number

Criticism/observation of staff misconduct. The fields are;

1. Personel type
2. Staff identity
3. Check point/location/station
4. Date and time of incidence
5. Suspected crime
6. Staff name
7. Phone number

NAFDAC feedback report to the public

1. whom the information is meant for
2. the type of information (product ban/warning)
3. date and time
4. effective date
5. the actual information
6. penalty for defaulter & offenders
7. note/advice to public in case of any suspect

III. SYSTEM MODEL DESCRIPTION

When an informant detects any of the NAFDAC related crimes from any part of the country, the person has to send the information to NAFDAC temporary database where a NAFDAC administrator will restructure the report if not properly structured and send it to the main NAFDAC database and to the NAFDAC office closer to the scene of incidence for an appropriate action. The informant can send the information through SMS or an email address. The system administrator can capture this information in the computer in NAFDAC office and through mobile phone to enable them take appropriate actions when the need arises. These various NAFDAC offices can also access this crime database when necessary but access is limited to administrative users.

This system also has a part where NAFDAC policies, guidelines and achievements will be displayed, this is where you can see the policies of NAFDAC and rules and regulations guiding manufacture, importation, exportation, advertisement, distribution, sales and use of regulated products. The achievement section dealt with some of the NAFDAC achievements for people to see and appreciate what they do and will be able to encourage them to fight crime by giving them the necessary information at an appropriate time. In this section of the application, you can only see a headline of the policies, guidelines or achievements and a website that will take you to the source of information where you can see the information in full to have the full knowledge of dos and

donts of NAFDAC. This will help the public to minimize the rate of crime they commit especially those who commit it ignorantly. These achievements, among others, will awaken consciousness that Nigeria is no longer a dumping ground for fake drugs, and other substandard regulated products.

The essence of this system is to fight against NAFDAC related crime through a just-in-time crime information flow. This system should also enable product consumer to check if a product he or she is consuming is genuine by using the NAFDAC registration number on the label of the product to confirm if the product is fully registered with NAFDAC or not.

IV. CONCLUSION AND FUTURE WORK

Implementation of this system model will to a great extent alleviate crime in a developing country like Nigeria if properly practiced. However, for this crime to be properly eradicated, there is need for the Federal Government to have a well defined laws that must be compulsorily implemented by every government administration that comes to power and by every arm of the legislation such as the judiciary that handles cases of violators, without fear or favor of any. It is discouraging that the Agency makes so much efforts to arrest offender, but the cases will be delayed or denied in the court of law.

Drug and food offence should be taken more seriously because it involves human lives; anyone that violates the laws resulting to death of people should as well receive stiff penalty or life imprisonment as the maximum punishment. Without a full and continuous support by government, NAFDAC cannot be successful even with the good effort to sanitise the society by implementing its stipulated guidelines and laws.

The government should have a clear, firm and equitable legislation that addresses all important issues with appropriate sanctions for drug and food violators, provide financial support to the agency especially in areas of staffing, Good manufacturing practise (GMP) inspection quality control laboratories and enforcement, should stand its ground in defense of situation concerning public health. In addition, give full support when legislated sanctions are given to these product offenders [9]

Every one must play his/her role if this fight must be won in Nigeria. From the authorities in charge of drug and food control, the Federal Government, International Committees, drug manufacturers and pharmacist, all sectors, the health system down to the consuming public irrespective of ones status should stand together. The general public are encouraged to report issues or individuals with questionable charcater(s) in this business to the appropriate authorities. Consumers are advised to form the habit of scrutinizing their drugs, food, and other regulated products for genuineness by checking expiry dates and the NAFDAC registration numbers before purchase and use. These will help in achievement of NAFDAC set objectives or mandates in safeguarding the health of the nation.

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Feature work should involve application of data mining concept to extract hidden information on the large crime database of the agency. Integration of other law enforcement agencies should also be incorporated such as Custom department, Nigeria Drug Law Enforcement Agencies (NDLEA), Police department and Independent corruption practices corporation (ICPC). This integration should enable these agencies to share instant information as soon as a crime is committed.

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