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Public Information Treasure (PIT) for Federal Ministries and Parastatals in Nigeria (MDAs)

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Abstract:
This paper demonstrates how judicious use of Information Technology (IT) can be used to provide public information treasure (PIT) to maintain a people-Centric Service in Nigeria's Federal Ministries and Parastatals. In this approach, operational data and data needed for effective Customer Relationship Management (CRM) are processed and made to flow seamlessly in an interconnecting network such that just-in-time information is readily available wherever needed to facilitate effective decision-making. The development of such a system requires an in-depth study and thorough understanding of the organization it is intended for, her customer relationship issues and the operational information-flow bottlenecks that had bedevilled the system in the past.

Keywords: IT, PIT, people-centric service, customer-relationship management, MDAs.

1. Introduction

Information Technology is increasingly being employed in Government Ministries as a means of transforming their old structures that are "muscle bound" and largely ineffective towards achieving greater internal efficiency, operational effectiveness, and customer-centric service. It is the desire of the stakeholders, especially the customers to witness the impact of Information Technologies (IT) in the field of governance, as has been the case in companies. "People know how easy it is to do business over the Internet [with IT in general] and they are demanding the same level of service from government that they have come to expect from the private sector" Schoeniger E. (2000b). Furthermore, the digitization of social interactions and, subsequently, of the governance functions has given birth to ideas about the e-transformation of democracy, Grossman L. (1995), Hague B. H., Loader B.D. (1999), citizenship, Friedland L. (1996), nationhood, Barrett N. (1997) etc. Internal re-structuring towards greater effectiveness, enhanced information flow through the use of IT and faster responsiveness to customer needs are the three-sided objectives of government ministries as they endeavour to bridge the digital gap. How these objectives may be realised in Nigeria is the main focus of this paper.

The departments that are found in every Nigerian Ministry can be classified into two groups namely, administrative departments and professional departments. The departments of:

- Planning, Research and Statistics (PRS)
- Administration and Supplies (DAS)
- Finance and Account (DFA)

constitute the administrative departments and are found in every Federal Ministry. The professional departments include but are not limited to the following:

- Electrical and Mechanical Department
- Building Department
- Architectural Services Department
- Civil Engineering Department, and
- Urban and Regional Development (URD)

These professional departments exist in most Federal Ministries, but there may be one or two additions and perhaps a change of nomenclature as one move from one Federal ministry to the other. The similarity in the way Nigerian Federal Ministries are structured suggests that one can develop a generic Information System model that can be customized for each of the Ministries. This is the approach explored further in this paper.

2. Information Management Philosophy

With the generic information system model in mind, this paper will take specific examples from one Ministry namely the Federal Ministry of Works and Housing (FMW&H) as a case study, with the foreknowledge that what is done for one Ministry can be customized for the others later. The FMW&H is the hub of construction and infrastructure development of the federal government of Nigeria. So it frequently interacts for a variety of reasons with all the social and developmental partners that are involved in any sense of infrastructural activity. Therefore, the effective use of Information Technology by this Ministry connotes the adoption of advanced technologies by both the recipients of the governmental policy as well as the perceived customers of the civil service, namely the wider public. Therefore, a virile information system needs to be put in place to cater for all issues of intercommunication both for internal administration and Civil Service purposes. Fig.1 suggests a basic Intercommunication Structure for the FMW&H which will be developed further as we look at its specific objectives and terms of reference. This includes effective, efficient and transparent communication between the citizens and FMW&H. Fig. 2 is MDAs Information Systems Conceptual view Model and fig.3 is an ICDT model of adding PIT value proposition in the virtual space (adapted and modified from fig.4, Angehrn A. (1997). Information about FMW&H's decisions, achievements, operations and processes as it affects the general public are needed on a dynamic basis so as to build confidence in the citizens (the customers).
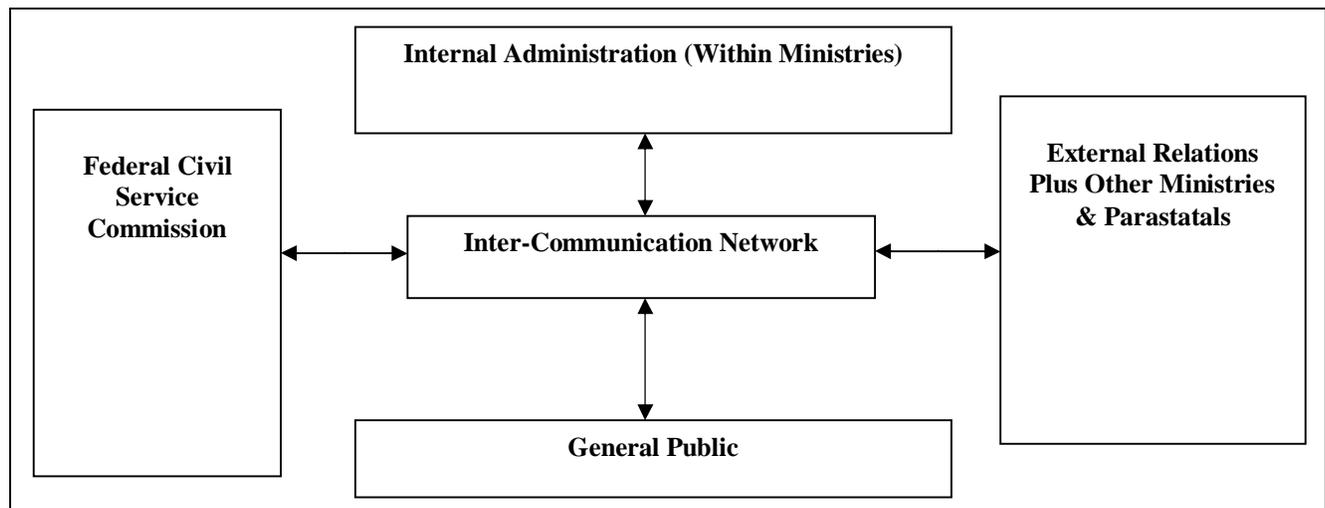

Figure1: The Envisaged Intercommunication Structure Framework for MDAs

This innovative approach would correct the hitherto unhealthy situation where citizens are kept in the dark about what is going on as if nobody owes them any information about or an explanation for anything that clearly affects them. This approach would also promote transparency in the FMW&H and enhance goodwill between the government and the governed. This also leads to the concept of ''The Public Information Treasure (PIT)'', useful information that is not secret which when made available to those who need it eliminates hearsay and unnecessary suspicion and promotes mutual understanding among all concerned. This type of information can be made available to the public in a well ordered manner from every Federal Ministry and Parastatal. The general public can as a result air their views, offer advice or useful suggestions or show disaffection in an orderly manner as events unfold. Typical contents of the Public Information Treasure are presented later in section 4 of this paper. Furthermore, appropriate information management strategy has to be in place, whose philosophy and mentality must be diffused into all the decision-making layers so that IT planning, prioritisation and investment are aligned with the customer-centric vision about the relation between government policies, public information and IT(s).
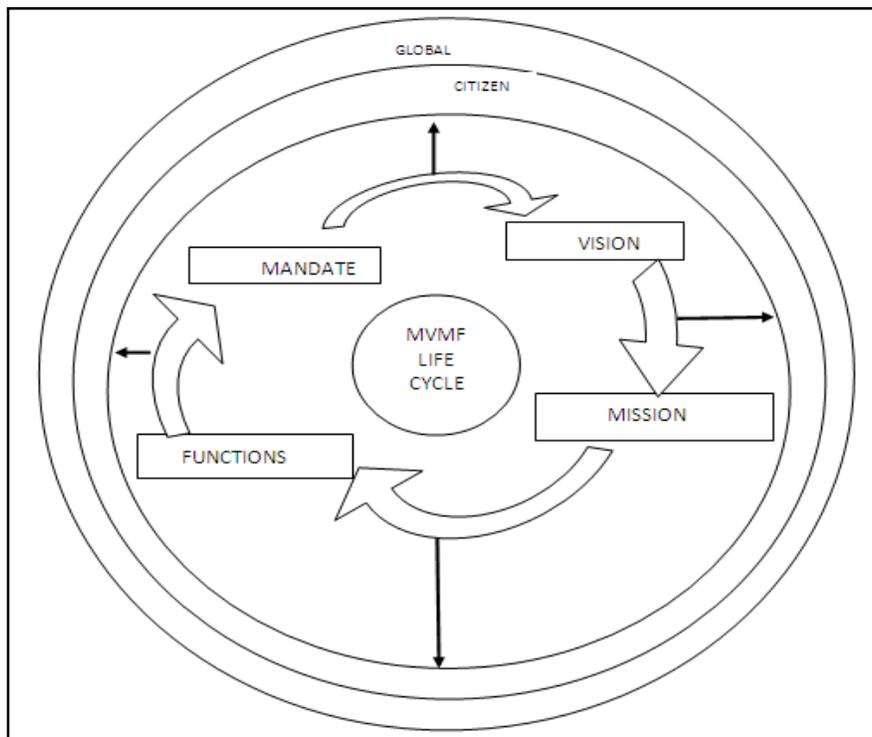
3. MDAs Conceptual View

Figure 2: MDAs Information Systems Conceptual View for IRM Tool

4. Content Development for the Public Information Treasure (PIT)

This section is concerned with the extraction of public information from processes and operations and with optional preservation and exploitation of same.

This public information treasure can be obtained through the Functions, Mandate and Activities of the various Federal Government Ministries like FMW&H whose functions and mandate are analyzed and stated below, FMW&H (2003) using the MDAs Information Systems Conceptual view processes (fig.2)

1. Formulate policy and set standards for housing sector:

The committees that formulate policies and set standards ought to interact among themselves online so that there will not be need for frequent meetings. The continual rubbing of minds online help to minimize both the time spent in a meeting and frequency of meetings that would be necessary. This cuts down expenditure on travels, vehicle maintenance costs, hotel bills, out of station allowance, etc. In addition, these online interactions are duly documented along with the decisions taken at meetings. These form part of the information treasure that tracks how important decisions were reached and are part of the body of knowledge to be husbanded and managed by the Federal Government for future generations.

2. Formulate, monitor and evaluate Government Policies on Housing:

This follows the same procedure as (1) above

3. Coordinate the activities of other agencies of Government in the area of housing:
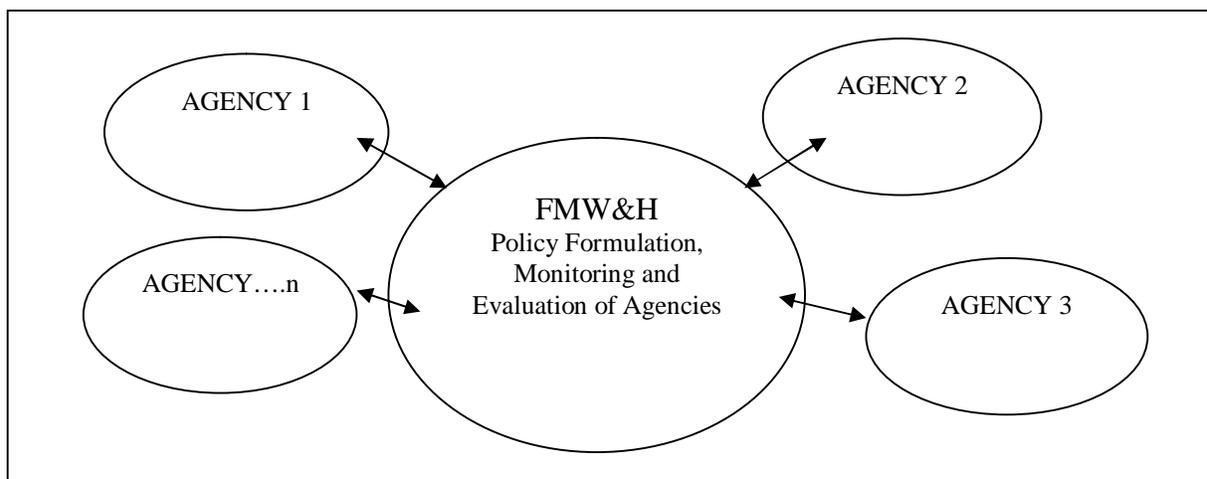

Figure 3: Coordination Activities of FMW&H

IT-based interactions should be taking place between FMW&H and its Agencies before meeting face-to-face to take final decisions on housing matters (Fig. 3)

4. Supervise the Federal Agencies under it; Federal Mortgage Bank of Nigeria,

Federal Housing Authority, National Housing Fund, Urban Development Bank

Limited, etc:

To achieve these objectives by FMW&H, the interactions as in figure 3 above would be followed.

5. Provide and maintain infrastructure for the housing stock including public buildings of Federal Ministries
6. Upgrade and maintain the housing stock including public buildings of Federal Ministries

Functions 5&6 above will involve Database of the housing stock and automated tracking of its maintenance costs and asset status of the housing stock.

7. Develop Database/Data bank of housing needs including:-
    a. Cost effective design for various areas of the country
    b. Cost profiles for various areas of the country.
8. Provide public buildings for Federal Ministries:

Provision of Public Buildings for Federal Ministries involves the following steps:-

    i. Identify the building type and area of need from [7]
    ii. Source for funds from foreign and local investors
    iii. Identify and acquire site for the buildings
    iv. Identify and hire building contractors
    v. Monitor public building development stages
    vi. Monitor adherence to building standards by contractors
    vii. Track all costs.

One can use Expert System feedback to handle the issue of siting the buildings according to criteria for various parties. The body of knowledge in (i) to (vii) is part of the information treasure in the Database/Data Bank that can flow to wherever required via the intercommunication network.

9. Establish building standards and codes for effective housing delivery and safety in collaboration with relevant professional bodies (Fig. 4)

This will involve creation of a database tracking the development of a building from architectural drawing to detailed finishing. The aim is to know whom to blame for what in case anything goes wrong like the collapsing of a building.
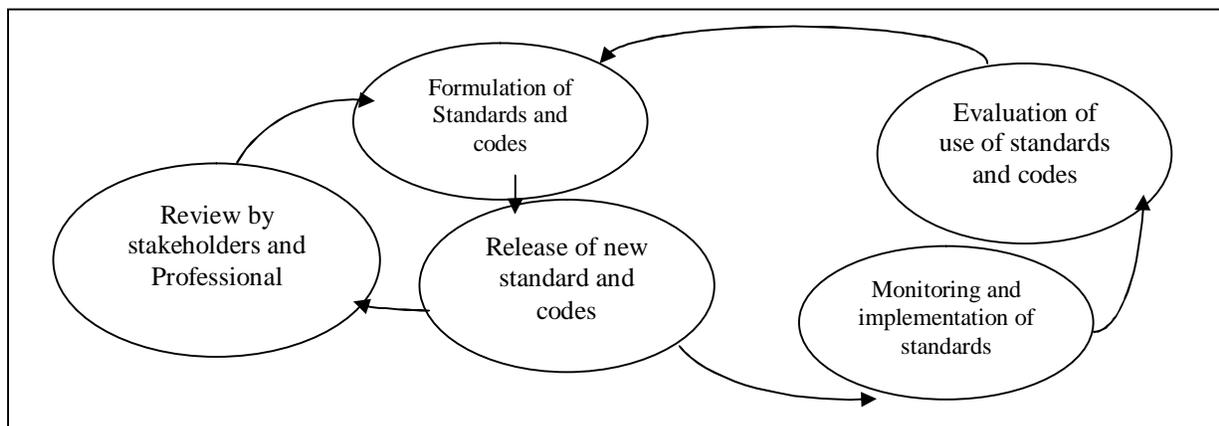

Figure 4: Building Standards Formulation

10. Supervise the Registration Boards of Relevant professional bodies:

This involves the creation of database of necessary professional bodies involved in building activities

11. Provide access to home ownership for all Nigerians:

The process to achieve this will involve:-

    a. Land acquisition and layout
    b. Advert for ownership application
    c. Standard application form design and dissemination
    d. Application form processing
    e. Plot allocation
    f. Provision of infrastructure
    g. Security
    h. Minimize physical contact through online application form filling and web-based plot allocation information dissemination

Generally effort is made to cut down on manual method for (a-h) above. Effort must also be made to ensure customer-centric service. Therefore, one can classify the candidates into groups according to their levels of priority. This can be done automatically using an Artificial Neural Network (ANN). The information to be captured via the form to be filled online by every candidate includes:

i. Personal ID
ii. Town, LGA, State
iii. Reason for Application
iv. Type of House
v. Income Bracket
vi. Age Range
vii. Priority Level (Natural Disaster affected areas score higher. Also, crisis ridden or war torn zones score higher)

Items ii – vii are weighted and an average score is computed for each person in each sub-group. This score determines when each member of a sub-group can have an allocation depending on availability. Suppose someone says, why did my application for home ownership not succeed? The system response can be ''100 houses of the type you applied for was provided. You are number 120 in order of priority. So you will be attended to in future''.

12. Setup the National Housing Fund (NHF) and source funds for it. This involves:
    i. Create database to manage contributions for NHF.
    ii. Set terms and conditions that qualifies one for the fund would all who qualified get a mortgage loan? If not, why not.
    iii. Information in (ii & iii) must be disseminated to all stakeholders in a convenient manner
    iv. Suitable application form for mortgage loan must be designed and made available electronically for the populace.
13. Monitor the implementation of the housing and urban development policy:
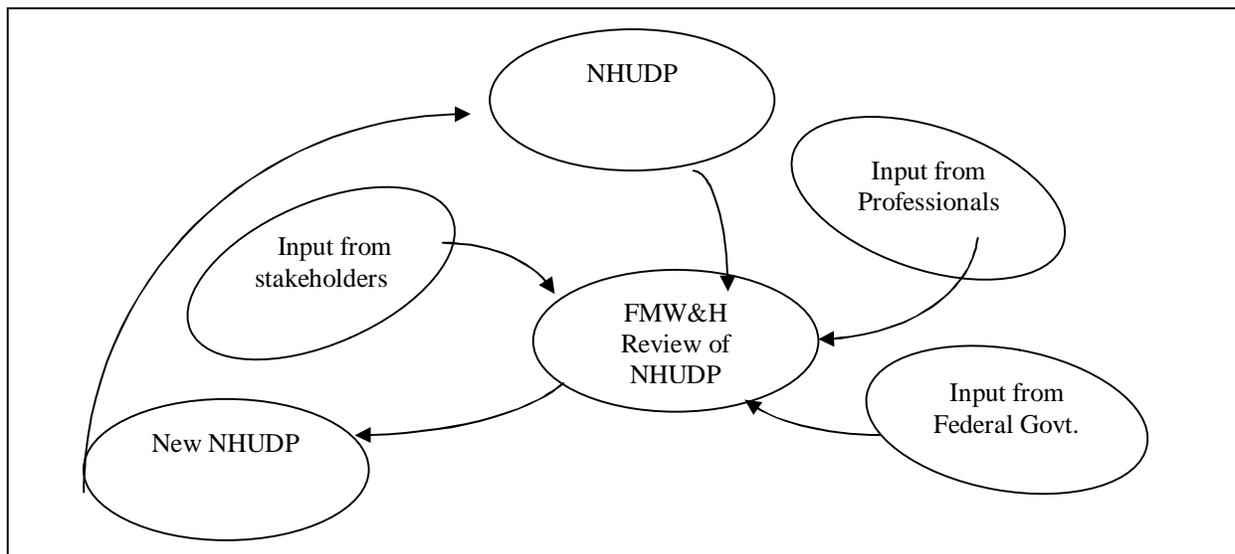14. Prepare National Housing and Urban Development Plan and review it from time to time (Fig. 5)

Figure 5: National Housing & Urban Development Plan Review

15. Assist in the mobilization of contributors and enforce the collection of funds into the National Housing Fund (NHF):
16. Supervise the Federal Mortgage Bank of Nigeria (FMBN) in the collection and disbursement of the National Housing Fund:
17. Enforce the provisions of the National Housing Fund (NHF) with particular reference to penalties:
18. Prepare and submit, from time to time, to the Federal Government, proposals for National Housing as well as Urban Development programmes and plans:
19. Develop Data Bank for housing needs in the country:
20. Ensure that the National Housing and Urban Development Plans are strictly implemented:
21. Review all existing legislation in the housing as well as Urban Development sectors to achieve the goal of adequate housing for all Nigerians in conducive and liveable environment, and other functions as may be assigned to it from time to time:

Items 8 and 11 above in the National Mandate given to FMW&H involves land acquisition for Federal Housing Projects. The populace would be interested to know how the siting of the structures was determined. The following criteria
(each of which is weighted according to its level of importance) can be used to automate the issue of siting:

i. Land availability
ii. Willingness to release land by community
iii. Unit cost of land
iv. Target population
v. Number of units
vi. Urgency

The site that scores highest on average becomes the favoured site. If a citizen seeks to know why his/her area is not favoured, the system can provide a feedback such as: the criteria (i - vi) above was used to select the site, and your preferred site ranked 4th based on the listed criteria, etc.

Refining these principles in the context of the FMW&H Information System's application field, a set of conclusions can be derived in which the whole philosophy and mentality about the public information and the ICTs is epitomized.

It has been said that

    a. A public information system processes and manages not only public resources but also the public information treasure;

    b. First and foremost, objective of the operation of Public Information Systems is to support effectively, the mission of the government and the civil service and to leverage the role that the government has chosen to play within the society, according to its political stance.

    c. Within the framework of the above foundational objective, the administration and management of the public information treasure must be optimised for maximum quality of service, taking for granted the time, money and people availability restrictions.

5. Overview of Envisaged System

The proposed system will attempt to correct all the short comings of the existing system in the Ministry of our case study. This will take into consideration the road map and the methodology adopted in this study to arrive at a new system that will overcome all the shortcomings of the existing systems in the Ministries and Parastatals so as to achieve a people-centric service to the Nigerian populace and beyond.

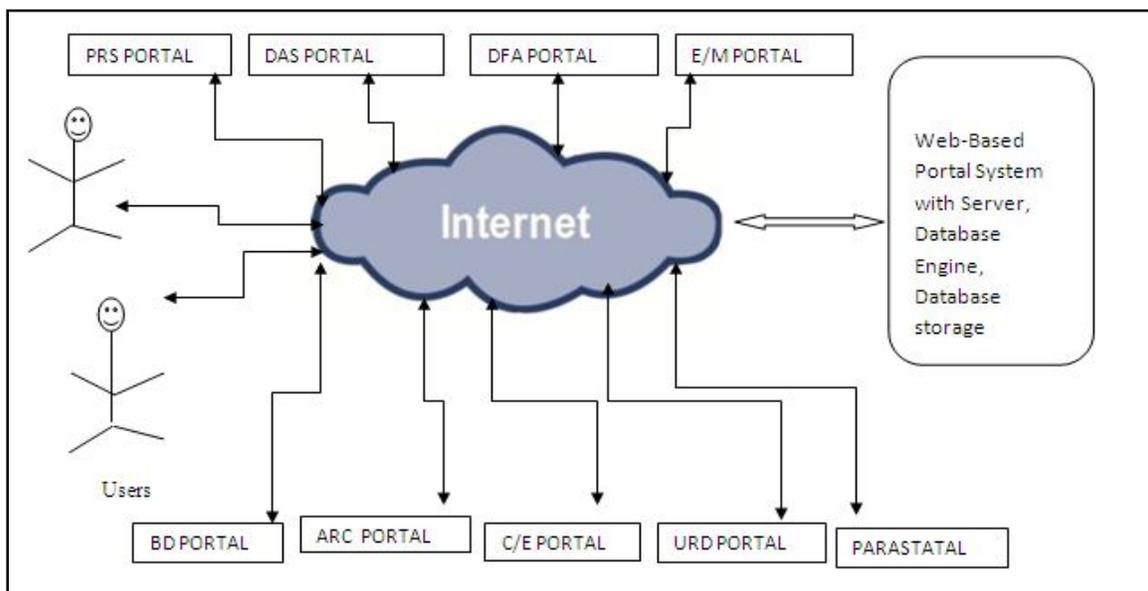Fig.6 is the structure of the envisaged information system of the case MDA.

Figure 6: The Structure of the Envisaged Information System Software of FMLHUD

Key:

- PRS DEPT – Planning, Research and Statistics Department
- DAS DEPT –Director of Administration and Supply Department
- DFA DEPT – Director of Finance and Accounts Department
- E/M DEPT – Electrical/Mechanical Department
- BD DEPT – Building Department
- ARC SERV DEPT – Architectural Services Department
- C/E DEPT – Civil Engineering Department
- URD DEPT – Urban & Regional Department

6. Using the ICDT Model to Explain the Internet Business Strategy of the MDAs PIT

The MDAs conceptual information system view projects (fig.2) in conjunction with the ICDT model infrastructure access point (fig.7) form the appropriate foundations for FMW&H to get involved into digital age initiatives where internet is used to provide quick and quality services with the speed of light. According to international best practice, ''government going into digital age should take a building block approach and start with rudimentary, easily understandable processes; then coordinate those activities into an overarching strategic vision for how digital age will serve the people, enterprises and other agencies'' Schoeniger E (2000a), Friedland L (19996). This approach was adopted in the design and development of the PIT for the public sector.

To explain the Internet 'activity' strategy of the FMW&H, the ICDT model will be used, named after Information, Communication, Distribution and Transaction concepts, which define four (4) types of virtual spaces, according to the model, Angehrn A. (1997), Barret N. (1997). To each of these spaces, some ICDT services can be attributed, showing the diversity of offered services that cover the whole range of the virtual space.

6.1. Virtual Information Space
- Reliable information feedback
- Posts
- Contact us

6.2. Virtual Communication Space
- Dynamic applications
- Request for contribution
- Comments

6.3. Virtual Distribution Space
- Speed & Reliability of information distribution
- Accuracy, efficiency and effectiveness of information

6.4. Virtual Transaction Space
- DBMS
- EMS
- Security/ privilege restriction

The virtual space of the Internet activity is represented with a circle fig.7 and the quadrants represent one of the virtual information, communication, distribution and transaction spaces according to the aforementioned ICDT spiral model, Angehrn A (1997), Barret N (1997). The process of adding value to the Internet access point for the FMW&H customers was depicted as a spiral model that unwinds around this circle towards providing more valuable PIT propositions to the people.

The strategy deployed and services developed according to this spiral model, complies with the aforementioned best practice statement which called for launching ''rudimentary, easily understandable processes'' to educate the populace and create the habit in the citizen to have confidence of directly interacting and interfacing with the MDAs online.

The use of the concept of the ICDT spiral model in this research to achieve the aim and objectives of this project is a wonderful coincidence in the real world situation.
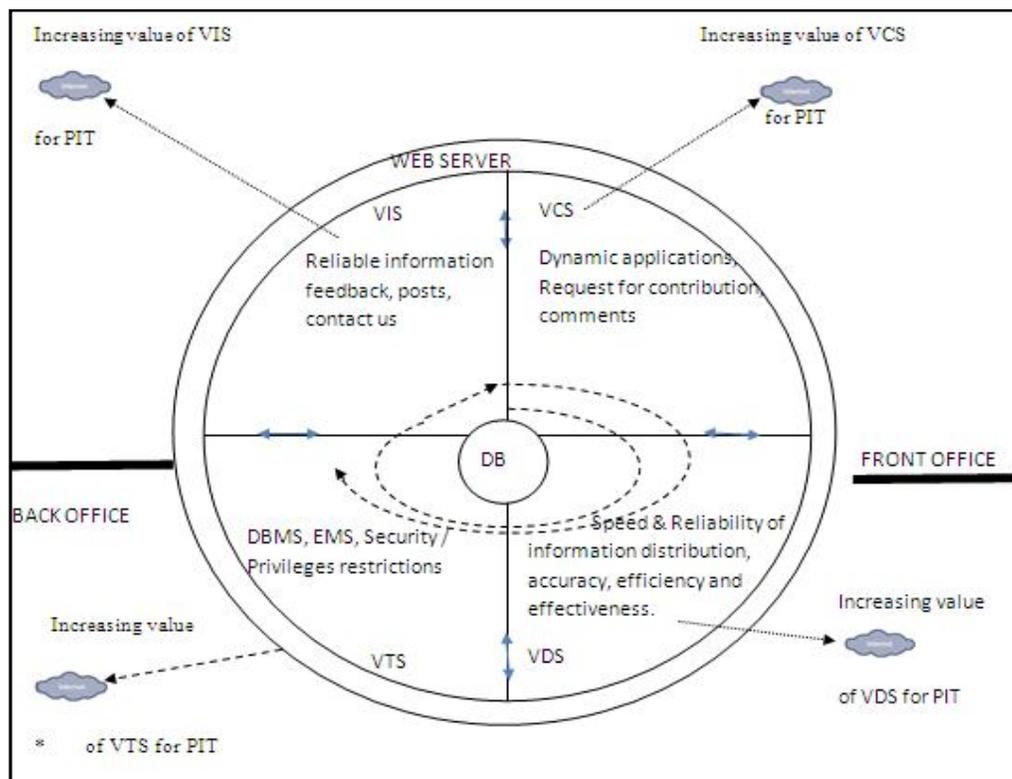

Figure 7: An ICDT model of adding PIT value proposition in the virtual space (adapted and modified from fig.4 Angehrn A (1997).

The bidirectional arrows in all the axes in the ICDT spiral model shows that the information content (PIT) shown to the populace is the same as the one contained in the MDA database to show uniqueness.

In conclusion, an independent observer can identify some prevailing trends in the use of on-line services to access the activities of the MDAs in the developing nation across the globe and the trend is ever increasing on daily basis. FMW&H Information System developed the business strategies to be adopted, implements both introvert and extrovert information systems and enriches the digital interfaces connecting it with the social partners. The use of the virtual spaces ICDT spiral model shows that the FMW&H's approach uses a theoretically proven way of penetrating its potential citizen's base. This approach would also promote transparency and accountability in the FMW&H and enhance goodwill between the government and the governed.

The proposed system will attempt to correct all the short comings of the existing system in the Ministry of our case study. This will take into consideration the road map and the methodology adopted in this study to arrive at a new system that will overcome all the shortcomings of the existing systems in the Ministries and Parastatals so as to achieve a people-centric service to the Nigerian populace and beyond.

As stated earlier, the case study Ministry, FMW&H that is made up of eight (8) departments and two parastatals is envisaged to have portals via which they supply their sharable information and also receive information from the system customized to them. That all sharable information are stored in the database and officers would have a browser based graphical user interface (GUI) where only what concerns an officer is present on his/her menu. Menu items would serve as hyperlinks to wherever the information of interest is stored. Sensitive information not meant for public consumption need not be uploaded to the web based system by any participating department and that each parastatal would be treated as though it were a department in the ministry to which it belongs.

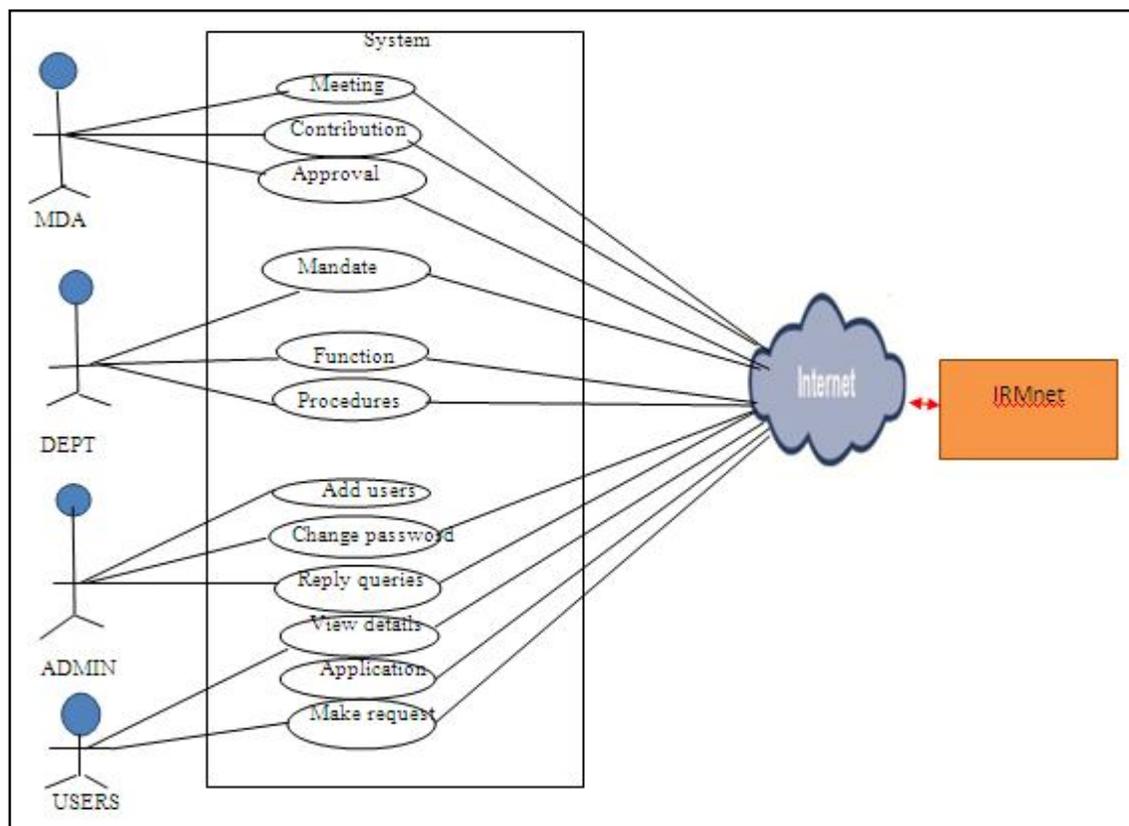Fig.8 is a Use-case tool diagram showing how the different stakeholders will use the proposed system.

Figure 8: Main Use-case for FMW&H PIT

 Use-case diagram is a diagram that depicts the interactions between the system and external systems and users. In other words, it graphically describes who will use the system and in what ways the user expects to interact with the system.

- External User or Actor - The Actors are not part of the system – they represent anyone or anything that must interact with the system – the UML (Unified or Universal Modeling Language) symbol for an Actor is a stick figure as shown in the Use-case diagram.

An A-ctor may:
1. Only input information to the system
2. Only receive information from the system
3. Input and receive information to and from the system.

7. Conclusion

Emphasizing the exploitation of the public information treasure instead of passively responding to social partners' requests shapes a new philosophy in public information management, where a proactive attitude against customer expectations prevail over the usual reactive way of carrying out civil service work. The sacking of the government of President Ben Ali of Tunisia (January, 2011 and more recent ones) by civil unrest shows the probable outcome in any country where government continues to rule from an ivory tower without respect for people's feelings and without transparency. Therefore, the outcome of this paradigm shift of public administration mentality could be transformed into two action areas namely:

- To offer services seamlessly and reliably through a variety of electronic channels at the customer's choice; and
- To re-engineer the Ministry's once internally focused only information systems to a customer-centric services provider.

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