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Towards Effective Implementation of Information Management System for TETFund: Evidence from Literature Review

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Abstract

Information management is theorized to involve a continuous cycle of closely related activities such as identification of informational needs, acquisition and creation of information, analysis and interpretation of information, organisation and storage of information, information access and dissemination and information use. This study shows that for Tertiary Education Trust Fund (TETFUND) which is an intervention agency for Nigeria's public tertiary institution to effectively implement information management system it needs to consider both human factor and technical solutions, challenges and possible solutions to the implementation process are also outlined. This study further reveals the lessons from existing literatures for TETFund to learn or draw from in order to implement effective information management system where employees are generally afraid of changes (not only at the operational level but also in the area of process management). MIS implementation goal should align with TETFund organisational goal and it should be ensured that top management supports the project plan, and that TETFund is equipped with the required IT knowledge, and should acknowledge that a properly designed MIS can help the organisation significantly in decision-making process.

Management Information Systems can lead the way for management to support people to achieve overall organizational goal, Staff with necessary knowledge should be trained so that their organisational efficiency could improve significantly.

Keywords: Effective Implementation, Implementation Challenge, Solution, Information Management, Tertiary Education Trust Fund (TETFund) and Quality Management.

1 INTRODUCTION

Information management (IM) is the collection and management of information from one or more sources and the distribution of that information to those who have right to it (Robertson, 2005). The management as used in this context means the organization of and control over the structure, the processes and the delivery of information. Henczel, (2000) Information management is a significant challenge for organisations. This is not only because of the growing number of databases, knowledge bases, web sites, information systems, information representations but also because of the increasing demands of the users for faster, larger, and more capable information systems (Ceruti. 2004). The growth of IT and its considerable effect on increasing productivity of public and private organizations using different types of information systems namely Management Information System (MIS) (Babaei & Beikzad. 2013). As the size and number of data sets, knowledge bases and information systems grow, scalability issues become more and more important. Due to multiple organizations generating data for different purposes, information is stored in a diversity of data formats, knowledge representations, and models. has underscored the need to manage complexity and scalability, this is true bearing in mind the fact that most information systems brought into use has replaced human labor leading to resistances and unrests. (Morreale., Spitzberg, & Barge. 2006). James O. Hicks Jr. (2003) described information systems are commonly perceived as comprising people, equipment, and procedures that collect, organize, analyze, assess, and timely disseminate information to decision-makers. It's often represented as a formalized computer system capable of gathering, processing, and reporting data from diverse sources, facilitating managerial decision-making processes. Management Information Systems (MIS) encompass people, machines, procedures, databases, and data models, working in unison to collect, process, and furnish essential information to aid managers in decision-making Joshi, Girdhar (2013). Lucey, Terry, Lucey & Terence (2004). In essence, an information system can be defined as "The intricate network of communication channels used within an organization, serving as the lifeblood of its functioning". The uniqueness of this studies is that will review existing literature, which mainly are research findings that contribute to understanding the practice of information management, and those reviews will help TETFund to effectively implement a system of information management that will improve its service and achieve its goals and objectives as an organisation.

Tertiary Education Trust Fund (TETFund) was established in 2011 as an intervention agency to provide supplementary support to all levels of public tertiary institutions with the main objective of using funding alongside project management for the rehabilitation, restoration, and consolidation of Tertiary Education in Nigeria. Gidado & Iyamo (2020), tertiary education in Nigeria refers to a gamut of all post-secondary education institutions, it is synonymous with higher education. These include the universities, Polytechnics, and Colleges of Education. Their goals, according to the National Policy on Education (FRN,2014).

TETFund while carrying out its mandate receives so many documents on daily basis, these documents in soft and hard copies are mostly from beneficiary institutions. The documents are usually in large volumes and the collation, storage and processing of the documents on time are usually huge task for TETFund. Rahiman, Nawaz, Kodikal, Hariharasudan (2021) stated that an effective data in an organisation maintains systematic order and operational efficiency. At the end of this study this paper will be able to address the following research questions;

i. How organisation will effectively implement Information Management System according to literature.

ii. What lessons can TETFund learn or draw from literature in implementing effective Information Management System.

The implementation of information management system requires consideration of both human factor and technical solutions. In an analysed enterprise the employees were afraid of changes (not only at the operational level but also in the area of process management).

Wyrwicka, Barbara Zasada, & Mrugalska. (2018). The implementation of information management system process should start with the selection of a person responsible for the implementation of the project and "an implementation team" mainly composed of managers of the company then in the later stage of the project, three specialists, who have the knowledge of the system, the organization of product programming should be incorporated in the selection process.

The importance of effective information management can be understood by considering what can happen in its absence. The lack of a clear data-administration policy can lead to syntactic and semantic heterogeneity creating a larger, and in many cases intractable, data-integration challenge downstream. Interoperability is a necessary but insufficient condition for interoperation. Data aggregation can reveal information at a higher level of sensitivity by inference, which poses in general, an unknown and often unpredictable security threat. Failures in data access (e.g. denial of service, fragmented records, lack of referential integrity) lead to duplication of effort, cost inefficiencies, lost business opportunities, medical emergencies and military disasters. For example, the use of redundant primary keys in a database contributed significantly to a tragic accident with multiple fatalities. Ceruti (2004).

This study aims to provide TETFund with a study on how to Effectively Implement Information Management System by evidence from reviewing existing literature, which will contribute to TETFund's understanding and the practice of information management, the research will also help to bridge existing knowledge gap on the effective implementation of information management system within the organisation.

2 MEANING OF INFORMATION MANAGEMENT SYSTEM

A Management Information System (MIS) is a crucial element in modern organizations. Henczel, (2000) and Ravi, (2011) consider information management as the systematic imaginative and responsible management of information in order to create and use information that will contribute strategically to the achievement of an organisation's goals and make sure that groups and individuals have efficient access to and make effective use of the information, they need to do their work and to develop themselves. MIS enables information to flow between departments immediately, shortening the requirement for direct intercommunications between members, thus incrementing the performance and effectiveness of the organization (Nath, & Badgujar, 2013). Information Technology Management Concentration contains the management information systems area, Kohun, Rodi and Delorenzo (2012). MIS is certainly a major tool in each organization, which intends to bring dependable, thorough, available, and accurate data to system's user on time. MIS facilitate tasks mechanization. Mechanization significantly improves organizational workflow (Mamary, Shamsuddin, & Aziati, 2014). It encompasses a set of flow-processing procedures that are computer-based and integrated with other processes to deliver timely and effective information. This information is instrumental in supporting decision-making and other vital management functions. The significance of MIS becomes even more

apparent as the volume of business data and information continues to exponentially grow. Efficient decision-making hinges on the availability of fast, accurate, and high-quality information, often requiring competent staff to manage it effectively. Purkar, Jaiswal & Munot. (2023). MIS is any setup in an organization which, based on identified and perceived needs, collects, collates, stores, retrieves, analyzes and processes data cost effectively into structured, accurate and relevant information and delivers the information promptly to managers to help them to plan, make decisions, control, monitor and evaluate effectively to achieve the strategic goals of all operations of the organization. Again, in many organizations in Nigeria, as also in other developing countries, the overall purpose of MIS is often lost in the thought that it is all about computer operation.

3 PROCESS IN ESTABLISHING IMS IN AN ORGANISATION

The process of developing a functioning management system in an organization generally includes the following steps:

- **i.** Establishing the goals and objectives of the system.
- **ii.** Determining the necessary components of the system.
- **iii.** Developing policies and procedures to ensure that the components work together effectively.
- **iv.** Training employees in how to use the system.
- **v.** Implementing and monitoring the system to ensure that it is meeting its goals and objectives. Soon, D. (2024).

4 CHALLENGES OF ESTABLISHING INFORMATION MANAGEMENT SYSTEM IN AN ORGANISATION

Babaei & Beikzad (2013); Almalki et al. (2017); Ali et al. (2016) believed that the main disadvantages, causes of loss and use of IMS in public institutions are categorized into humanistic, organizational, and environmental considerations.

EncompaaS - 2024 lists the underlisted thirteen items as the challenges that occur while establishing information management system in an organisation.

4.1 Lack of Unified Best Practices

The lack of unified practices is among the top information management challenges organizations face.If there is no enterprise-wide information management strategy, individuals will often apply what they regard as correct, resulting in information that is poorly managed and making locating and collaborating on it nearly hard.

A solid information management plan will specify how data should be managed from generation through deletion.

4.2 Digitizing Information

Any company must undergo digital transformation and it is now imperative to incorporate digital technologies into all divisions in order to radically alter how they do business.
Apart from having the right information management plan, organization-wide methodology, and change management vision, having the right tool that can help organizations digitize their data and reach high levels of ROI is the most critical consideration for the success of transitioning to digital.

The flow of information and documents is high and depending on paper documents to do business will have a critical impact on the operational track. However, digitizing documents is not a simple process. It takes a significant amount of effort at first, especially if you have been in business for a long time and have mountains of paper documents stored.

In order to convert paper documents to digital, extract critical information, and store them electronically, organizations should invest in high-quality scanners, OCR technology, and a robust document management system.

4.3 Automating Processes

The role of information management is to deliver the correct information to the right audience at the right time and place in order for them to respond fast and make educated business decisions.

That is only possible if your operating procedures are seamless and efficient. Automation is the ultimate technique to ensure that processes run smoothly. When procedures are automated, your company can complete activities more quickly, respond to client demands more effectively, and boost productivity.

Automating processes is also a huge task that needs much work to understand how the process presently operates, identify bottlenecks, and redesign it to perform better.

4.4 Manage Information Growth

According to Statista, the total amount of data created, captured, copied, and consumed globally is forecast to increase rapidly, reaching 64.2 zettabytes in 2020. Over the next five years up to 2025, global data creation is projected to grow to more than 180 zettabytes. More than 80% will be unstructured data.

This in itself is a significant challenge that companies must carefully plan for in order to effectively handle. Only the essential and important information should be saved and stored in order to reduce processing time, and storage costs, and ensure excellent quality.

4.5 Securing Information

We all have sensitive information that only authorized individuals should have access to, and the corporate world is no exception.

To reduce data breaches and retain a good reputation, sensitive information such as customer information, employee information, and financial reports should be safeguarded and only authorized persons should have access to them.

It is simple to grant rights to authorized individuals and withdraw access from others when using a document management system via IRM policy. Most of these solutions provide granular control over the types of permissions and a full audit trail displaying all activities performed on each document which will allow you to control the access control.

4.6 Reducing Information Silos

If you look at any company's business applications portfolio, you will see that there are at least 5 separate systems where information is saved and managed. Employees find it difficult to discover information and manage their lifecycle when there are various information silos.

Organizations should aim to combine or at least integrate these systems with their primary information repository in order to enable enterprise search and allow workers to find information without having to open many apps at the same time.

4.7 Integration With Legacy Applications

Organizations are still dealing with legacy applications that make integration with other systems impossible. Typically, they will manually collect the required information from these programs and input it into others. Employees typically find this to be a time-consuming and monotonous process.

This can be automated using RPA technology, and robots can complete the same precise procedures that your workers do. As a consequence, errors will be reduced and accuracy will improve.

4.8 Poor Quality of Information

Organizations should not manage any of the information they produce or collect. A quality control check should be performed to determine what should be retained or used as part of the information lifecycle.

Enterprise data quality should be maintained at a high level to ensure that managers are dealing with the right information and not making choices based on incorrect information, which may have disastrous consequences.

4.9 Legacy Systems & Replacement

An outdated organizational information management system can hold it back. Using an old system will surely have a big impact on productivity and how to do the job better and faster.

As technologies evolve, new systems or features are being introduced to aid organizations with their lifecycle. It is extremely important to start planning for a replacement for older systems.

4.10 Regulatory Compliance

Most businesses operate in a regulated industry, and noncompliance with such rules and regulations can cost them money in the form of fines and penalties.

Being GDPR or HIPAA compliant, for example, necessitates the adoption of a whole lifecycle from creation to deletion.

Making certain that unneeded documents or personal information are deleted in accordance with their retention policy, and eventually automating this process, will ensure full compliance.

In addition, it makes sure that information that needs digital preservation are managed properly.

4.11 Lack Of Adequate Resources

Without sufficient financial, technological, and human resources, organizations won't be able to effectively manage their most valuable asset.

Organisations should make sure that they have a well training and skilful IM practitioners that will help them overcome the barriers that will be faced specially when the quantity of information grows.

4.12 Information Accessibility

Information accessibility poses a significant information management difficulty due to its role in ensuring that the right people can access the right information at the right time.

When sensitive information is scattered across multiple repositories, poorly tagged, or lacks critical a holistic overview, it becomes harder for employees to access it to make timely decisions.

4.13 Change Management

Most unsuccessful projects implementation due to resistance to change from within the organization. Key stakeholders should be involved from day 1, train them properly, and ensure their feedback is taken into consideration in order to increase the chances of having an effective implementation.

5 SUGGESTED SOLUTION IN LITERATURE

5.1 AI-Empowered And Cloud-Based Information Management

Information Managers can no longer manage and govern their new information assets with traditional information scale management and governance approaches. AI-empowered and cloud-based information management and governance services are the most viable solution.

While been on the rise with the advent of generative AI and the broadening of collaboration across teams, remote working caused an explosion of content created and stored in a multitude of repositories. (EncompaaS - 2024).

The top challenges in information management are meeting privacy and security requirements while facing an ever-increasing volume of information.

Information management teams can overcome the challenges of information hyperinflation with the use of content cognition. With remote and hybrid work set as the new norm for many organisations, it's likely the number of collaboration tools, digital workplace services, and customer-facing digital services will only grow. In order to keep pace from the explosion in collaboration tools, newer, AI-empowered and cloud-based information management and governance services are gaining a rapid following. (EncompaaS - 2024). Nicho, M. Nicho & Mohan. (2017) in their research proved that a

company with IT/business strategic alignment can be facilitated through the organization's appropriate management practices and strategic IT choices.

5.2 Information Management Ability to Meet Information Management Requirements.

Considering that organisations largely depend on information-sharing platforms like SharePoint, Teams and Exchange, the evolution of these platforms drives much of information management planning. IBRS wanted to determine how this impacts their ability to meet information management requirements. (EncompaaS - 2024).

5.3 Information Management Teams Can Overcome the Challenges of Information Hyperinflation with the Use of Content Cognition.

In order to keep pace from the explosion in collaboration tools, newer, AI-empowered and cloud-based information management and governance services are gaining a rapid following.

The IBRS report shows that 29% of organisations are already considering or experimenting with AI-empowered solutions, and 79% are interested in extracting data from unstructured information. Certainly, the use of AI, and specifically content cognition services, is growing, as demonstrated in the IBRS report. IBRS classifies content cognition as the ability of AI to automatically inspect documents at scale and extract specific data. (EncompaaS - 2024).

6 LESSONS FOR TETFUND ACCORDING TO LITERATURE

The knowledge economy has fundamentally altered the nature of work and the means by which it is carried out within organisations across all industries (Drucker, 1992). Information is now a central and strategic resource, a factor of production and in some instances the core deliverable (Daven-port and Marchand, 2000; Dilnutt, 2006; Earl, 2000; Evans, 2000; Feraud, 2000).

Considering the various challenges faced by organisation in the process of establishing information management systems as mentioned among others earlier in this study and, below are some lessons to be learned and considered by TETFund from literatures on how it can effectively implement information management system that will help to achieve its goals and objectives, although each organisation will have to decide what method works and aligns best with its corporate culture.Sheriff, Bouchleghem, Yeomans & El- Hamalawi. (2023). Implementation of information management system is still achievable in TETFund. AL-Mammary, Shamsuddin. & Nor Aziati (2014) pointed out that the quality of the system and quality of the information are considered as a key factor affecting information System's acceptance and the improve organizational performance. Chowdhury & Salahuddin (2024) states three factors that play a major role when an organization wants to implement MIS. These are organization factors, technological factors, and management factors. These factors are interrelated, and they work in an integrated way. When an organization decides to implement MIS and ensure that the following needs to in place;

i. MIS implementation goal is aligned with their organization goal or not.

ii. Ensuring that top management must support the project plan.

iii. The organisation equips is with the required IT knowledge.

iv. Acknowledge that a properly designed MIS can help organisation significantly in decision-making process.

v. Management Information Systems can lead the way for management to support people to achieve overall organizational goal the

vi. Allocation of necessary resources for the MIS implementation.

vii. Train users with the necessary knowledge so that their organisational efficiency will improve significantly.

Nicho, M. Nicho & Mohan. (2017) in their research said that a company proved that IT/business strategic alignment can be facilitated through the organization's appropriate management practices and strategic IT choices. The implementation of information management system requires consideration of both human factor and technical solutions. Wyrwicka, Zasada, & Mrugalska, (2018) also analysed that enterprise employees were afraid of changes (not only at the operational level but also in the area of process management).

Sheriff, Bouchleghem, Yeomans & El- Hamalawi, (2023) in their book Seven lessons for developing and implementing effective information management drew the following seven lessons;

6.1 LESSON 1: UNDERSTAND BUSINESS NEEDS

To develop an 'appropriate' strategy, a thorough review of the organisation is required to define and understand its overall needs. Understanding business needs also implies that solutions emerge because the business sees a need for it. Such an approach will create a fitting and dynamic strategy strongly aligned with the organisations' operation and its long-term business strategy.

6.2 LESSON 2: DEVELOP A UNIFIED APPROACH NOT A SINGLE APPROACH

Organisations with diverse user needs should not aim for a single approach to managing information but for a 'unified' approach which effectively integrates its diverse needs. This requires a clearly defined common baseline on top of which any specific customisation can be carried out to ensure consistency is obtained while accommodating the day-to-day operational variations required within the different segments of the organisation. Achieving this relies on seeking consensus from units across the organisation on working practices 'if the strategy is not right and you don't have consensus on the strategy, whatever you put in place won't work'. It requires different facets of the business to effectively work together including quality managers, technologists, designers, project teams, etc. to develop the strategy; implement it, manage the change and support it through its life cycle.

6.3 LESSON 3: DEVELOP AND DEPLOY CONTENT STANDARDS

Standards are required to provide a consistent federated approach to managing content across various projects, locations and technological platforms. With the diversity of projects and disciplines across the industry, it is observed that a single technological platform for managing all types of content may not be appropriate for the various types of information created, shared and managed. An effective strategy,

although unified to accommodate such diversity, must be underpinned by consistent standards to ensure all the parts work together as a whole.

6.4 LESSON 4: DEVELOP A BROAD STRATEGY NOT FOCUSED ON TECHNOLOGY

To be effective, a good strategy should be much broader than software implementation. Thus, to be effective, organisations should view the IM strategy holistically to include a clear understanding of process alignment, the nature of content, metadata, taxonomy (defined as the hierarchical structuring of information or content in a repository, e.g. folder structure), change management and suitable technologies (as enablers).

6.5 LESSON 5: DEVELOP AN EFFECTIVE IMPLEMENTATION PROCESS

Even the most elaborate strategies will fail if poorly implemented. Workshops with end users at various stages throughout the process helped to create engagement and partnership. In one organisation, a series of workshops enabled users to grasp the gravity of the problem, spurring a focused discussion around possible solutions. To get staff aware of the systems information need to be created. Training, both at the outset and on an ongoing basis, enables employees to understand what is required of them and make them comfortable with the process. In some organisations, day-long events were carried out in every office, where it was mandatory for employees to attend. Others commissioned promotional videos, e-learning training modules, posters, commercial items, books, etc., all of which helped to communicate the importance of the new strategies developed and provide support to users. Implementation is a continual and incremental process which takes time and effort. The lesson learnt is that it takes time and putting in the effort upfront in terms of getting the buy-in and the consensus and a clear direction, vision for where you want to go. This effort is required to ensure that solutions implemented are appropriate. New solutions will also result in changes to the way tasks are carried out, it takes a while to bring about the change and human beings are quite resistant to change.

6.6 LESSON 6: GAIN SENIOR MANAGEMENT SUPPORT

Successful development and implementation of a holistic strategy requires buy-in and clear support from senior management within the organisation ‘get buy-in from the business. Make sure that they’re on your side and they actually want to see improvements’. Only a sustained eagerness to see through those improvements will ensure any solution developed is consolidated. This support should extend beyond tacit approval to actual explicit involvement throughout the process. For example, in one organisation where direct value was obtained from such direct involvement, several presentations done by directors on our Information Management strategy to the whole company, and if your graduate engineer or design engineer or senior engineer sees one of the directors standing up to sing its praises, they would want to be involved.

6.7 LESSON 7: ACTIVELY DEMONSTRATE VALUE TO USERS

An effective IM strategy will often require an organisation to rethink its working methods. Such changes need to be managed effectively, with confidence built up over time. An expert explained It is important to recognise it’s a change in the way people work, and you can’t just swap over overnight. I mean you can’t expect people to just come in the next day and use the solutions. You can’t impose it on them overnight. Although there may be resistance to change at the outset, the experts observed that, ‘gradually

as you talk to people it could see improve overall performance. Often though, compliance may be best obtained through enforcement. They get told that they have to use it, not by the IT team but by their supervisors, who are responsible for quality management.

Adding value to each individual's day-to-day tasks can ease acceptance. The definition of 'value', however, differs depending on the specific context of the employee and the type of work being carried out. For example, senior management may focus on solutions that improve the overall business while more junior employees may focus on solutions which enable them to better perform their particular tasks.

6.8 RECOMMENDATION AND CONCLUSIONS

Information management is theorized to involve a continuous cycle of closely related activities such as identification of informational needs, acquisition and creation of information, analysis and interpretation of information, organisation and storage of information, information access and dissemination and information use (Henczel, 2000; Robertson, 2005; Ravi, 2011). This study shows that for an organisation to effectively implement information management system it needs to consider both human factor and technical solutions. The implementation process should start with the selection of a person responsible for the implementation of the project. Establishing the goals and objectives of the system, determining the necessary components of the system. Developing policies and procedures to ensure that the components work together effectively. Training employees on how to use the system. Implementing and monitoring the system to ensure that it meets its goals and objectives.

This study also came up with lessons from existing literatures for TETFund to learn or draw from in order to implement effective information management system as thus; Employees are generally afraid of changes (not only at the operational level but also in the area of process management). MIS implementation goal should align with TETFund organisational goal. Ensure that top management supports the project plan, that TETFund is equipped with the required IT knowledge, and should acknowledge that a properly designed MIS can help the organisation significantly in decision-making process, management Information Systems can lead the way for management to support people to achieve overall organizational goal. Necessary resources should be allocated for the implementation of MIS. Staff with necessary knowledge should be trained so that their organisational efficiency could improve significantly. Further studies into the process of implementing of effective information management system is required to shade more light to the implementation process.

In conclusion, adhering the mentioned process of implementation of information management systems and lessons learned from review of existing literation will help TETFund implement an effective information management system that will help in managing its information and achieving its goals and objectives.

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