

**Investigating The Role Of Knowledge Management In The
Development Of Asset Management Practice In Selected Public Sector
Organisations In Nigeria.**

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DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed: Christine Aliyu Makama (candidate)

Date: 29th March 2022

STATEMENT 1

This thesis is the result of my investigations, except where otherwise stated. Where correction services have been used the extent and nature of the correction are clearly marked in a footnote(s). Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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STATEMENT 2

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ABSTRACT

Research Aim: This research explores the conceptualisation of knowledge management in developing asset management practices in a developing country. Nigerian public sector is used as a case because it is a developing country where asset management practices and knowledge management are not fully implemented.

Methodological adoption processes: This study assumes that knowledge is fluid, and based on this assertion, exploratory research was used to investigate how knowledge management can be used to facilitate the development of asset management practices in the public sector and since this research aims to examine a problem driven by the respondents' views as such an interpretivist stance was employed. The study employed a qualitative research method with an inductive approach and used federal government organisations in Nigeria as a case. Using zoom and Microsoft teams, semi-structured interviews were conducted. 30 participants, comprised of asset managers, fixed asset officers, and information technology experts, were interviewed, and guided by open-ended questions. It was purposively ensured that the data reflected the six geo-political zones in Nigeria, and the data were analysed using thematic analysis.

Summary of findings: Applying the system thinking approach, organisational development theory, and institutional theory, this study found that knowledge management is not recognised and established while asset management practice is yet to be at its peak within the various critical institutions and organisations in the public sector in Nigeria. Lack of knowledge of asset management practices, lack of understanding of the relevance of establishing Knowledge

Management and its processes which includes inadequate sources for acquiring knowledge on asset management, consultants' unwillingness to train asset managers effectively, lack of adequate training and development for asset management officers, lack of understanding of public sector asset management, non-existent knowledge repositories, non-established knowledge sharing and exchange culture, lack of IT infrastructure for knowledge management and asset management practices, lack of synergy between Government Integrated Financial and Management Information and various asset management departments in various ministries. Also, the study confirmed that asset management is not developing due to the non-existent of knowledge-oriented leadership, ineffective knowledge governance, lack of continuous capacity building, inadequate funding due to poor political will, lack of legal and operational framework, lack of employees' participation in decision making and unestablished reward systems.

Research contributions: This is the first study that integrates three theoretical concepts, system thinking, organisational development theory and institutional theory, to show how knowledge management and asset management practices are intertwined and related and how they function together to produce enhanced organisational performance. In addition, this study shows the importance of knowledge management and asset management practice in the public sector, specifically in developing nations where such research is dearth and, to some extent, not recognised.

This study also highlights how knowledge management, its processes; knowledge creation, organisation, storage, application, sharing, transfer, and its mechanisms; knowledge management governance, monitoring and evaluation, and knowledge-oriented leadership,

together with other inner organisational dynamics such as organisational culture, crisis management, incentives, sociocultural context, function holistically as an entity to foster the development of asset management practice. Developing a framework that explains how knowledge management can boost asset management growth provides a starting point for examining the challenges of establishing asset management in public sector organisations like those in the Nigerian context.

Similarly, this study points out how the government and policymakers can overhaul and implement a viable asset management practice through established knowledge management by introducing and implementing knowledge management practices, setting, and adopting technology adoption to boost productivity through knowledge management processes that facilitate competitive advantage. Finally, various reward systems were identified and adopted based on asset managers' and fixed asset management officers' needs, which can significantly boost employees' satisfaction, and productivity and ultimately enhance asset management practice within the country.

Keywords: Knowledge Management, Asset Management Practice, Development, Public Sector organisations, Nigerian context.

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ACRONYMS AND ABBREVIATIONS

KM	Knowledge Management
KMP	Knowledge Management Practice
AM	Asset Management
AMP	Asset Management Practice
KOL	Knowledge Oriented Leadership
OD	Organisational Development
OAGF	Office of the Accountant General of the Federation
ATMP	Asset Tracking and Management Program
GIFMIS	Government Integrated Financial and Management Information Systems
IPPIS	Integrated Payroll and Personnel Information System
MDAs	Ministries, Departments and Agencies
FAMO	Fixed Asset Management Officers
AMS	Asset Management System
KMS	Knowledge Management System
FAMU	Fixed Asset Management Unit

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Author

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CHAPTER

1 INTRODUCTION AND ORIENTATION OF THE STUDY

1.1 Introduction

Establishing a rationale in every study is essential because it functions as the point of reference against which assessment of research outcomes are measured. This chapter presents the background of the study, problem statement, aim, objectives and research questions. Also, the research scope and information of methodological research choice will be stated. Limitations, as well as the theoretical contribution and practical implications, will also be elaborated on here. Finally, the structural organisation of the thesis will be explained before the introductory chapter's conclusion is undertaken.

Knowledge Management (KM) is recognised as a strategic element necessary for the survival of organisations in a dynamic business environment (Cerchione *et al.*, 2020; Shashi *et al.*, 2022). This is because KM involves firms engaging in several procedures considered critical to the processes of identifying, developing, capturing, retrieving, sharing, and or investigating knowledge for the attainment of its set goals and objectives (Nonaka and Takeuchi, 2008; Srinivasan and Perwez, 2020; Melati *et al.*, 2021;). The purpose of KM is for efficient handling of current knowledge and perspective knowledge with an exclusive target of building value from the resource both within and outside of an organisation (Perez-Salazar *et al.*, 2019).

KM is also an emerging field that is gaining more and more recognition. It is a vital resource that directly affects, influences, and facilitates the attainment of competitive advantage and improves productivity (Martinez-Conesa *et al.*, 2017; Garcia and Sosa-Fey, 2020). It is also an

enabler of development endowed with a high innovative capacity to enhance efficiency (Jyoti *et al.*, 2011). Similarly, KM is affirmed to have relevance in the public sector, especially in the development of Asset Management (AM) and its practice. This statement is alluded to KM because with the adoption and proper implementation of KM strategies and applications, KM can lead to increased efficiency and effectiveness of the activities of an organisation which ultimately leads to improved performance (Sulistio and Dianawati, 2020; Shashi *et al.*, 2022).

Then for the development of asset management practice to occur, the management of asset knowledge becomes imperative. Asset management can be explained as “structured processes that seek to ensure the best value for money from assets management serving the strategic needs of public sector organisations,” according to RICS (2008, cited in Ngwira and Manase, 2016, p. 2). Accordingly, in the private sector, effective asset management is known to improve profit margin; it measures the ability and capacity of an asset to attain its set objectives while emphasising that an investment could be any item, apparatus, or entity that creates either financial or non-financial value for an organisation (Ngwira and Manase, 2016). AM is considered relevant because it allows asset owners to examine the performance of their assets and associated systems to attain organisational set goals and objectives. In addition, AM competencies are known to enhance and boost the implementation of AM plans, activities, and continual development, and the competencies are processes, possessions, and technologies that enable development (Farghaly *et al.*, 2018). There are also certain knowledge management processes that facilitate asset management development.

Perez-Salazar *et al.* (2019) stated that knowledge management processes deal with retrieving and replacing outdated knowledge within an organisation, which could lead to organisational

advancement. Equally, Srinivasan and Perwez (2020) affirmed that Knowledge Management Practice (KMP) expresses the degree or the extent to which a corporation conceive, extract, capture, organise, store, exchange, share, transfer and or utilises such harnessed knowledge. KM processes can be explained as noticeable activities within a firm related to knowledge management (Olubiyi et al., 2019). KM processes include the procedure used for knowledge formation, organisation and storage, knowledge sharing, knowledge transfer and implementation, which includes having a knowledge-oriented leadership style and knowledge repositories and infrastructures. This is relevant for the management and control of the intellectual properties of an organisation. However, Chang and Lin (2015) argued that organisational culture is the main barrier to a successful KM process. Chong et al. (2014) argue that knowledge acquisition and application play significant roles in technology adoption.

The formation and distribution of knowledge are relevant to the management of learning. Knowledge formation is the creation of new ideas, synthesis of different disciplines, the acknowledgement of previous undiscovered patterns and the establishment of new processes (Olubiyi et al. 2019). However, Jennex (2008) argue that for an organisation to know how to manage knowledge, it must first have the knowledge to work with. This is done by identifying new knowledge. Accordingly, new Knowledge on AM can be reached by hiring unique individuals with relevant knowledge. Also, knowledge could be rented through the hiring of external consultants or by funding AM research conducted by research institutes or by data and text mining (Gupta et al. 2004).

This involves gathering new knowledge on asset management by codifying and arranging new knowledge in an orderly, documented format (Jennex 2008). Organisational knowledge

involves explicit and implicit AM knowledge, which can be transformed and recorded for future references in the form of manuals, email messages, handbooks, data, and archives (Garcia and Sosa-Fey 2020). Also, relevant knowledge on AM must be retained within various government organisations for reference purposes because it acts as a means of avoiding knowledge loss which can occur when an employee leaves an organisation (Nonaka and Takeuchi 1995).

Knowledge sharing has been identified as a fundamental tool for attaining competitive advantage (Jackson et al. 2006), and knowledge sharing behaviour "... facilitates the flow of knowledge and improves organisational performance and sustainability" (Abbasi et al. 2020). An organisation with a culture that encourages knowledge-sharing customs, beliefs, and ideologies do foster an efficient flow of information and knowledge from a holder to a receiver (Abbasi et a. 2020). Organisational culture has been associated with increasing the productivity, performance, and growth of an organisation, and organisational culture also influences knowledge-sharing behaviour (Aquilani et al., 2017). Additionally, the ability of top management to establish interpersonal relationships among employees through close interactions is necessary for effective knowledge sharing, creativity, and innovation (Alavi and Leidner, 2001; Nonaka, 1994).

Argote and Ingram (2000) stated that "Knowledge transfer in organisations is the process through which one unit (e.g., group, department, or division) is affected by the experience of another". (p. 151). Other scholars, such as Ferreira & Carayannis (2019), explained knowledge transfer as the transmission and distribution of stored knowledge from one person to the other,

and it is a way through which the information is processed, and formatted, and expressed in everyday language to those who seek knowledge. The primary function of knowledge transfer is to deliver reports and knowledge to a less experienced person or employees by a skilled individual so that the less experienced employee is prepared and mentored to assume future roles within a firm (Athanasopoulou et al. 2018).

Knowledge implementation here explores the literature on the role of leadership and technological infrastructure required to deploy KM practices adequately. Knowledge-oriented leadership has been identified as a crucial organisational factor that has influenced the impact of KM processes as a determinant of organisational performance (Sadeghi and Rad 2018). Accordingly, Raudeliuniene and Kordab (2019) described knowledge-oriented leadership as a concept that combines both traditional leadership practices that are good with new leadership concepts based on theories of knowledge management practice. This leadership style is relevant in asset management development because it supports and enables workers' capability development. This also focuses on providing a practical knowledge management process, including the reward system that helps facilitate knowledge management practice within an organisation (Shariq et al., 2019).

In today's knowledge-driven economy, organisations understand the relevance of information technology-based knowledge Repositories (Chong et al., 2014). Furthermore, Benitez et al. (2018) explained Information Technology (IT) infrastructure as an organisation's shared set of technical and human resource infrastructures. Knowledge repositories are used for acquiring, accumulating, and disseminating critical information and knowledge within an organisation

(Kankanhalli et al., 2005; Fadel and Durcikova, 2014). Knowledge repositories are also described as enhancers of knowledge management processes. However, their value in the long run thus depends on whether it consists of knowledge that is precise and valuable to the person using it (Zack, 1999).

Knowledge is recognised as an essential resource within an organisation (Rahman et al., 2018; Ferreira and Carayannis, 2019; Garcia and Sosa-Fey, 2020), and a prior study depicts Knowledge Management (KM) as an essential tactical component within organisational processes (Martinez-Conesa et al., 2017). Consequently, KM has become critical for organisation success (Srinivasan and Perwez, 2020). Despite its relevance, the KM strategies employed by organisations are usually insufficient and or unreliable (Al-Kurdi et al., 2018), and there is also a lack of literature that investigates how knowledge management practices are implemented, especially in the public sector (Oluikpe, 2012; Henderson et al., 2014; Giglio et al., 2018). Razzaq et al. (2019) assert that “KM in the public sector is quite an ignored area in knowledge management discipline” (p. 925) and called for more investigation to be done to understand how KM is implemented in public sector organisations. This line of inquiry is essential to highlight how KM can further develop its organisation’s capability (Moustaghfir 2009).

Despite the relevance of knowledge management, the strategies employed by organisations on knowledge management are usually insufficient and or unreliable (Al-Kurdi et al., 2018), and there is also a lack of literature that investigates how knowledge management practices are implemented, especially in the public sector (Oluikpe, 2012; Henderson et al., 2014; Giglio et al., 2018). Razzaq et al. (2019) assert that “KM in the public sector is quite an ignored area in

knowledge management discipline” (p. 925) and called for more investigation to be done to understand how KM is implemented in public sector organizations. This line of inquiry is essential to highlight how KM can further develop its organisation’s capability (Moustaghfir 2009).

The lack of understanding of KM practices is even more common in developing countries (Ahmad et al., 2015). The insufficient proof of organisations undertaking and implementing KM has been attributed to a lack of leaders that partake in KM activities, rigid organisational structures, culture, and deficiency of standardised incentive systems (Muqadas et al., 2017; Srinivasan and Perwez, 2020). Okeke (2017) argue that the inability to provide a coherent strategy for KM implementation, lack of understanding of socio-cultural context and the role that top management play are the main challenges of KM practice in Nigeria.

Consequent to this background, the public sector in Nigeria is therefore suitable for this study because the Asset Management Department is presently working on how to establish and implement proper asset management and tracking systems to enable appropriate control and management of all government assets across the nation (Office of the Accountant General of the Federation 2020). Next, the problem statement will be discussed to clarify why this research is necessary.

1.2 Problem Statement

Attempts have been made to investigate public sector asset management practices (AMP in relation to the application of knowledge management by Scholars such as Giglio *et al.* (2018); Henderson *et al.* (2014); Oluikpe (2012); Ibrahim *et al.* (2010). Looking at each of the scholars’

work; Henderson et al. (2014) did identify the benefits that can be derived through the utilisation of the knowledge derived from equipment suppliers to create an integrated asset management partnership that could further enhance: Plant performance, profitability, Costs, Sustainability in terms of increased equipment life, reduced resource utilisation, and improved environmental performance. At the same time, Oluikpe (2012) examined the development of the knowledge management (KM) strategy at the Central Bank of Nigeria (CBN) and how this was embedded in the business processes of the bank.

Giglio *et al.* (2018), in a related study, wrote in a conceptual paper how the lifecycle of an asset could be managed profitably and how this principle could be adopted for use in the public sector because of the benefits that could be derived from managing large-scale investments such as transportation infrastructure cost-effectively to enable cost-effectiveness and greater efficiency because the long-term economic benefit significantly outweighs its disadvantages. In addition, Giglio *et al.* (2018) stated that neglecting maintenance or adopting standard measures of managing an organisation's assets can lead to lower productivity, incurring and inflicting more costs on repairs and replacement.

Ibrahim *et al.* (2010) provided a comprehensive critique and in-depth analysis of the lack of adequate literature necessary to fulfil an identified need for better asset management and replacement. Such needed literature is expected to fuse asset information for predictive maintenance needs and informed decision-making in the public sector in Nigeria. Emphasising the dearth of literature, Gupta *et al.* (2000), Roda and Macchi (2016), Tafazzoli (2017) concluded that this has created a gap in research. Additionally, Arrau (2015) asserts that "...Since its origin, knowledge management research has been carried out in the economic,

social, and cultural context of the rich countries, especially of large companies, while the situation of developing countries has barely been approached or touched...” (p. 3).

Arrau (2015); Bagheri *et al.* (2021) also concurred by stating that limited KM studies about developing countries exist. In their own words, Beitelmal *et al.* (2017, p. 1185) posit that “...there is a dearth of literature desirable to address the implementation of asset management systems in developing countries...”. Collectively, these scholars attributed the barriers to implementation of asset management practice to knowledge shortage by concluding that “lack of shared knowledge of asset management principles and systems across similar governmental units...” (ibid. p. 1186) constitutes a significant problem impediment in the practice of asset management and training.

Giving due cognisance to these scholars’ uniform views, the field of KM about AMP development is visibly under-researched in developing countries, especially in the public sector. Often than not, the practice of asset management in developing countries is predominantly in the private sector relatively and in comparison. Oluikpe (2012) upholds this view. Accordingly, Giglio *et al.* (2018) established that one reason why AM is not a common practice in the public sector broadly alludes to insufficient understanding of this type of knowledge and its management. However, Alhazmi (2018) argued that uncertainty and competitiveness primarily drive asset management practice. They posit that AMP is more attractive to the private sector than the public sector for these two compelling reasons.

Evaluating both AMP and KM as a relevant and practical managerial valuable tools in both sectors isn’t a good enough justification for their viability in effective and efficient managerial economics because most reform measures undertaken by the world’s developed economies

incorporate the attributes of asset management. This posture is proper for the governments of the United States of America, the United Kingdom, Australia, New Zealand, and France (Giglio *et al.*, 2018; Henderson *et al.*, 2014; Oluikpe, 2012; Ibrahim *et al.*, 2010; Beitelmal *et al.*, 2017). To date, most research on the public sector is basically on developed countries relative to developing countries (Arrau, 2015; Ahmad *et al.*, 2015; Bagheri *et al.*, 2021; Oluikpe, 2012; Ibrahim *et al.*, 2010).

Also, considering the statement made by Nonaka and Takeuchi (1995) that “in an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge (p.162)” and considering how asset management is being affected due to concomitants of the ongoing crisis caused by coronavirus globally, knowledge management practice and asset management practice would have to be restructured from an ultramodern perspective. This is because the occurrence and the spread of the coronavirus pandemic have undoubtedly incapacitated the economies globally. It has caused havoc in various aspects of businesses, for example, the collapse of stocks in most world stock markets (Otoc, 2020). Undoubtedly, this affects asset management practice.

In Nigeria, the Federal Government, through the Office of the Accountant General of the Federation (OAGF), is presently working on the implementation of a proper assets management and tracking program which could enable adequate control and management of all government assets across the nation (Office of the Accountant General of the Federation, 2020). So far, AMP has been undertaken manually using spreadsheets. At the time of this research, advanced technology is being considered. Even at this point, the process and progress

of implementation are incalculable. Consequently, it is imperative to consider the whole development process meticulously.

Firstly, it is vital to identify the relevant knowledge management processes and tools that influence asset management practice because, despite KM's importance, it is not widely adopted by organisations (Fullwood and Rowley 2017), especially in developing nations (Ahmad et al. 2015). Accordingly, Okeke (2017) affirms inadequate evidence of firms accepting and applying KM in Africa, specifically Nigeria. For instance, organisations in developing countries are generally characterised by rigid organisational structure and culture, lack of leadership participation in KM activities, little awareness about the benefits of KM and nonexistence of a standardised incentive system.

Furthermore, Okeke (2017) found out that the lack of strategy for KM implementation, lack of understanding of socio-cultural context and the role that top management plays are the main challenges facing KMP in Nigeria. In addition, Dwivedi et al. (2011) reiterate the importance of comprehending the influence cultural context has on knowledge management practice. This same gap requires further research to understand what works best and what works not in the components of KM, precisely the elements that are useful in the development of AMP and using the Nigerian public sector as a case, more insight will be generated and based on this premise, the theoretical background of this study will be discussed next.

1.3 Theoretical Background of the study

The exact origin of Asset Management (AM) cannot be pinpointed with accuracy; it is empirical to mention that asset management can be traced back to the North Sea gas, the oil

sector (Ngwira and Manase, 2016) and the utilities that were privatised in the United Kingdom and the consensus made by scholars marked the evolution of the concept of AM from other disciplines. Furthermore, the development of AM as a process can be traced down to the maintenance stages of certain physical assets in their various and respective lifecycles (Maletic *et al.*, 2020; Campos and Marquez, 2011). The economic value of an asset varies at different stages of its lifecycle. Operational cycles equal abound. These cycles in the procurement, deployment, maintenance, support, retirement, and disposal of physical assets as significant components of the events in the life of an investment. These occurrences are subsumed and or developed into the overall or holistic framework that integrates the whole life cycle of assets (Alhazmi, 2018).

The adoption of AM broadens the scope and complexity. A good example is a development made by the Institute of Asset Management (IAM) in the United Kingdom in collaboration with various stakeholders. They developed a publicly available specification for the optimised management of physical infrastructure assets known as PAS 55, which was published in 2004 and later updated in 2008 with a slightly broader scope (Ma *et al.*, 2014). PAS 55 was widely adopted internationally in numerous sectors as a recognised standard for asset management. But, in 2014, the International Standards Organisation (ISO) published the ISO 5500 series, which has now replaced PAS 55, as Maletic *et al.* (2020); Milina *et al.* (2017) asserted. It is known that assets require regular maintenance if a firm intends to maximise the benefits in assets. This researcher perceives the relevance and potential impact of a managerial tool that is relevant and useful for asset maintenance in Asset Management (AM).

Asset management can be defined as an effective and efficient approach to managing individuals and expertise by allocating available scarce resources to solve the needs of essential assets within an organisation (Kusnawati *et al.*, 2019). At the same time, Maletic *et al.* (2017, cited in Mitchell, 2002) posit that asset management is an all-inclusive, effusively cohesive tactical process and ethos that focuses on attaining the highest lifetime usefulness, effectiveness and return from the asset in its possession. Although critics of asset management view this as a traditional cost to organisations (Henderson *et al.*, 2014), asset management is an all-inclusive strategy that adds value and gives organisations a competitive edge over competitors (Maletic *et al.*, 2020; Giglio *et al.*, 2018).

Van der Lei *et al.* (2012) assert that efforts have been made to uncover new competitive dynamics and concerns vital for establishing superiority in asset-intensive environments. Gavrikova *et al.* (2020) claim that developing resources and capabilities is crucial in attaining competitive advantages, which was earlier discovered and stated by Skinner in 1969. El-Akruti *et al.* (2013) also argued that the asset management system framework is an element that can make or mar organisational functionality, which in turn could directly affect its effectiveness and efficiency. This could also negatively affect production, cost and quality when not sufficiently applied.

Effective and efficient management of an organisation's assets would undoubtedly help the organisation attain their objectives and goals, notwithstanding the size of the organisation. Conversely, poor asset management is frequently mentioned as one of the major causes of an organisation's setbacks and, ultimately, failure (Iluore *et al.*, 2020). Asset management allows organisations to keep a tab on all assets by guaranteeing accurate amortisation rates, availing

avenues for identification, and managing risk. However, factors leading to its effectiveness abound, which cannot be ignored. These factors, in addition to technical know-how, are tacit knowledge.

This knowledge has so much to do with learning and management (Giglio *et al.*, 2018; Beitelmal *et al.*, 2017), which must be adequately anchored and managed or tailored towards effective and efficient overall management of the organisation. Knowledge Management (KM) is information and knowledge within an organisation. KM facilitates knowledge collection, development, and application (Donnelly and Wickham, 2019). Based on the reviewed literature, KM has recently gained recognition in the business world due to its potent benefits in enabling competitive advantage (Seyr and Hoffer, 2020; Rehman *et al.*, 2015; and Kianto *et al.*, 2014).

However, the examination and application of KM and its proper implementation to enhance a successful asset management practice (AMP) remains a significant impasse, a contemporary managerial obstacle to be exploited (El-Farr and Hosseingholizadeh, 2019). However, the effectiveness of the KM stratagem is a critical and integral component of an organisation's strategy that cannot be overlooked, Sharma (2021); Hislop *et al.* (2018); Hansen *et al.* (1999); Alavi and Leidner (2014) stressed this view further by stating that KM's approach should relate to and emerge from the organisation's strategies, as this applies to both private and public sectors accordingly.

Although strategies that might work in the private sector might not be applicable in the public sector, this visible gap calls for adopting innovative KM tactics that align with the specific industry in focus. Scholars like Elezi and Bamber (2018); Hislop *et al.* (2018); Oluikpe (2012)

assert that limitations abound in KM research when it comes to its application and generalisation. This, they maintained, is in organisations' aims, objectives and strategies. This implies that KM is a managerial tool that needs remodelling based on an organisation's specific strategic plan.

Considering asset management in Nigeria, most studies focused on the Asset Management Corporation of Nigeria, also known as AMCON (Osuji, 2012; Abata, 2015; Adegbola *et al.*, 2019; Mukhopadhyay, 2018; Amaechi *et al.*, 2017). AMCON is an institute established by the federal government of Nigeria to handle non-performing loans of Nigerian banks because of their exposure to the oil and gas sector and capital market (Abata, 2015; Osuji, 2012), and none of the studies mentioned above explicitly explains how the public Nigerian industry practices asset management for more performance and development. In addition, no study shows or indicates the existence of an AM institute in Nigeria that can be a place for training and developing asset managers.

Accordingly, Oluwaremi and Memba (2016) study investigated the association between asset management and financial performance of listed manufacturing firms in Nigeria. They identified different classes of asset management: fixed asset management, cash management, inventory management and accounts receivable management. Based on their discovery after conducting quantitative research, they recommended that companies pay more attention to the management of fixed assets by developing and maintaining an asset management culture with a good depreciation strategy in place, which would enable adequate funds for their replacement

as and when needed. Furthermore, they recommended that account receivable management, which guarantees a good percentage of monies owed to the organisations, are collected quickly.

Evaluating the study by Oluwaremi and Memba (2016), it can be asserted that asset management, specifically fixed, needs more attention for optimising effectiveness and efficiency. However, the generalisation of applying recommendations to the public sector cannot be affirmed because the study is on manufacturing firms listed in Nigeria. In addition, other non-manufacturing companies were not part of the study. This leaves a gap in the field of asset management practice in Nigeria, indicating explicitly a dearth of analysis on Nigerian public sector asset management with no set of legal and operational frameworks to develop AMP. Based on this premise, the research aim will be stated.

1.4 Research Aim

This study aims to investigate how asset management practices can be developed through the application of knowledge management in public sector organizations in Nigeria by concentrating on the following objectives listed below:

1.5 Research Objectives

- To examine the extent to which Knowledge Management has supported the development of asset management practice in Nigeria's public sector.
- To determine the KM approach that could aid in developing a tenable assets management practice.
- To find out the challenges encountered by asset management departments.

- To determine participants' recommendations on how asset management could be developed in the public sector.
- To determine incentives and facilities to encourage knowledge management practice and acceptance for significant performance.
- To develop an innovative and practical framework that could be used to implement knowledge management in asset management practice in public sector organisations.

1.6 Research Questions

- To what extent has KM supported the development of asset management practice in Nigeria's public sector?
- How can knowledge management activities aid in developing a tenable assets management practice?
- What are the challenges encountered by asset management departments?
- What incentives are needed to be employed for a boost in Knowledge management acceptance for higher performance to be achieved?
- What could be the participant's recommendations on how to improve asset management in the public sector?
- What practical and novel framework can be developed for asset management in the public sector?

1.7 Research Scope

The scope of the research focuses on how AMP can be developed through the application of KM in public sector organisations in Nigeria. This study seeks to understand how KM supports AMP's development. It aims to identify various challenges and impediments experienced in the processes of AMP in applying KM in contributing to the attainment of organisational objectives and goals of institutions in the public sectors of developing nations. Specifically, the study will identify appropriate ways that KM can be used to create AMP in Nigeria. This includes identifying and suggesting necessary incentives critical to motivating and sustaining employees, like the asset managers or fixed asset management officers' loyalty towards accepting and utilising KM to develop an efficient and effective AMP. Primarily, the office of the Accountant-General of the Federal Government of Nigeria is used as a cluster.

1.8 Statement of Research Methodological Choice

This research explores the adoption of knowledge management in developing asset management practices in a developing country. The focus would be on Nigeria because it is a developing country where AMP and KM are not fully implemented. Furthermore, this researcher assumes that knowledge is fluid and based on this assumption, exploratory research was conducted to investigate how knowledge management (KM) can be used to facilitate the development of Asset Management Practices (AMP) in the public sector by developing a futuristic and practical framework based on analysis that would be conducted using various perspectives of knowledge champions furthermore since this research aims to solve a problem which the respondents' views would drive as such an interpretivist stance was employed.

Likewise, the research is designed using the qualitative research method (Sampson and Johannessen, 2020; Denny and Weckesser, 2019; Clark and Souse, 2015; and Roberts, 2014) because the researcher wanted to explore how knowledge management would determine asset management practices by considering perspectives of relevant participants. In addition, the researcher also studied to have an in-depth understanding of the constructs because of the knowledge that context plays many roles, too (Kohler *et al.*, 2019).

An inductive approach (Sachiko *et al.*, 2020, David, 2006) was employed and used because understanding the meanings of AMP, KM and the factors that influence employees' engagement in these practices are different. All of these cannot be explained except when people are engaged in conversation separately to see and hear their views and since the researcher intends to allow the theory to emerge from the data (David, 2006) then conducting interviews (May 2018; Marshall *et al.*, 2013) was the best choice.

27 Federal government ministries were used for the study, and the data was collected using the purposive sampling technique (Palmer *et al.*, 2020). Purposive sampling was used because the researcher wanted to have a flavour of the differences that did emerge from the data. Furthermore, the data were purposively collected to reflect the six geo-political zones in Nigeria. Consequently, the research is a case of the Federal government ministries. Thirty semi-structured interviews were conducted, and the criteria for choosing respondents were based on their role in either KM or AMP activities. Anybody involved in AM practice was used as a participant; also, information technology (IT) experts were used as participants because of their role in managing the platform used in the asset management program.

The Interviews were conducted via Zoom or Microsoft teams due to the current covid-19 pandemic, and the conversations were recorded with the participant's consent. In addition, the interview questions were not emotionally worded but were stated clearly and straightforward (Faber *et al.*, 2019; Woods *et al.*, 2016). The analysis of data was further done using thematic analysis. This study also had some limitations, which will be stated in the next section.

1.9 Limitations of the study

This study is not without limitations; the research was only conducted in Nigeria, meaning that the findings from the data collected may not apply to other countries, especially within developed economies. However, considering other developing economies with the same context, it can be stated that Nigeria is a good representation of what is obtainable in the various developing economies. This implies that the findings may be helpful, especially among developing economies (Pepple *et al.*, 2021). Also, the issue of the research validity cannot be overlooked because the study will be conducted using a qualitative research method, and considering the small sample size, the challenge of generalisation was not dismissed (Easterby-Smith *et al.*, 2012; Saunders *et al.*, 2019).

However, the researcher would ensure minimal conflict of interest and bias and that respondents' anonymity was respected. Likewise, using qualitative research allowed the researcher to gather rich and relevant results and information that provided an in-depth understanding of the situation from the various perspectives of the participants. This also allowed for proper and appropriate recommendations to be proffered for developing asset management practice in Nigeria, aided by KM and other inner organisational dynamics. The

data collected was analysed using open codes so that relevant themes emerged, which helped make the study generalised.

1.10 Theoretical Contribution

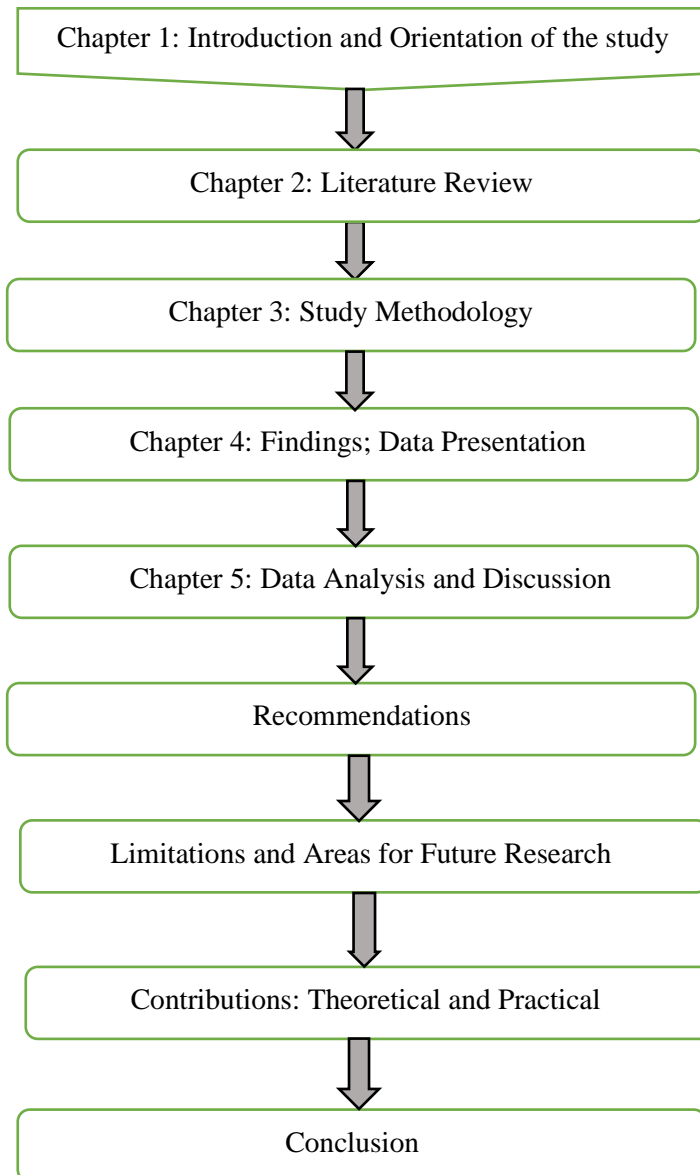
This study adds value to the existing body of literature on studies relating to knowledge management and asset management practice in the public sector of developing countries. Firstly, this study fills in the gap that exists highlighted by Elezi and Bamber (2018); Hislop *et al.* (2018) and Oluikpe (2012) on how the lack of sophistication of KM concepts affects its generalisation. This study provided an alternate, futuristic, and practical framework that would align KM concepts with the inner dynamics of an organisation to validate its conception. Secondly, this research puts forward a new research perspective by combining three theories – institutional theory, organisational development theory and system thinking theory, to foster the development of asset management practice both in the public and private sectors. These discoveries broaden the existing ideas and highlight directions for future studies in AM and KM fields. Finally, this study establishes and shows the relevance of how all these processes and factors (KM creation, KM sharing, KM transfer, KM infrastructure, KM governance, KM monitoring and & evaluation, knowledge-oriented leadership, crisis management, incentives, sociocultural context, organisational culture) function as an entity to aid the development of asset management practice.

1.11 Practical Implication

The findings from this research also have implications for practice, mainly concerning how the government and decision-makers can overhaul and implement a viable asset management practice through established knowledge management. This is necessary to avoid organisational failure due to poor asset management (Iluore *et al.*, 2020). Firstly, the government could focus on introducing and implementing KM that could benefit the public sector. Secondly, the adoption of technology would have to be considered and taken seriously for both KM and AM for the Nigerian government to meet up to international standards. Finally, the establishment of KM in AMP would boost productivity due to knowledge management processes that facilitate competitive advantage. Following Okolai's (2017) organisation of the thesis as a guide, this dissertation would follow the structure illustrated on the next page in figure 1.

1.12 Organisation of the Dissertation

Figure 1: Thesis Structure



Chapter 1: This introductory section includes the problem statement, background of the study, the scope of the research, the study aim, objective, and questions. Similarly, the potential limitations, contributions, and theoretical and practical implications are being stated here. This section explains the key concepts, definitions, the influence of the Nigerian context on KM and AMP and thesis structure.

Chapter 2: The literature review section covers various subsections on KM, AMP, Crisis Management, Incentives, System thinking and Organisational development theories. This is done to understand the areas covered in studies related to KM and AMP associated with a global and Nigerian perspective. Also, this provided an avenue to identify existing gaps in the literature reviewed, and after that, a conceptual framework was developed.

Chapter 3: The methodology discusses and analyses the approach employed with relevant justification for the selected procedures. This explains the underpinning philosophy of the study, strategy, process, sampling technique, and the method used in conducting the semi-structured interview.

Chapter 4: The findings and data presentation section gave a detailed explanation and analysis of the findings from the semi-structured interviews.

Chapter 5: The data analysis and discussion section did analyse the findings based on the study's research questions, and references were made based on the literature reviewed. Also, the summary of the recommendations was elucidated in this section, and the limitations and areas for future research were also stated here. Furthermore, the study is rich with relevant and insightful findings that could be useful to private and public sector organisations. Both

theoretical contributions, including the theoretical framework and the study's practical implications, were stated in this section. Also, the applicability of the study was justified in this section. Finally, the summary of the study was noted in this section. The conclusion was made followed by the references, appendix which consisted of the ethical approval form, consent form and interview questions, organisation's approval letter and sample of transcribed interview.

1.13 Conclusion of the Introductory Chapter

In conclusion, the introductory chapter enabled the researcher to understand what has been done in knowledge management and asset management practice. That provided an avenue for identifying gaps in the previous studies, leading to the rationale for this study. A problem statement highlighting the present situation in the Nigerian federal government provides an avenue for valuable contributions to be made in asset management development. The next chapter will review relevant literature extensively by understanding what has been done so far by other scholars before highlighting the gaps in the previous studies.

2 LITERATURE REVIEW

2.1 Introduction

According to Inkinen (2016); Roldan *et al.* (2018), KM practices are KM programs and activities with a distinctive operational nature, such as working approaches and techniques. The practice of KM aids organisations in planning, organising and implementing decisions to enable organisations to achieve its objective through the effective and ordained management of the organisation's resources, such as knowledge. In addition, the application of knowledge management enables organisations to identify, develop, capture, retrieve, share, and investigate relevant, valuable expertise to the firm to attain their set goals and objectives (Srinivasan and Perwez, 2020; Melati *et al.*, 2021; Nonaka and Takeuchi, 2008). Fundamentally, knowledge management enables resourceful tackling of prospective and present knowledge to create value from the internal and external resources of the organisation (Perez-Salazar *et al.*, 2019). Knowledge management is an emerging area that is acquiring more recognition and ground. However, KM is mainly found and used in theory, especially in textbooks, seminars, and conferences, and regularly used in papers in academia rather than commonly used organisational knowledge (Hammoud, 2020).

Notwithstanding the arguments and misunderstandings between organisational knowledge and knowledge management, KM remains an essential resource that provides and enables organisations to achieve competitive advantage and ultimately record higher productivity (Garcia and Sosa-Fey, 2020; Martinez-Conesa *et al.*, 2017). Similarly, knowledge management is critical in developing asset management in public sectors, not just in the private sector. When KM is introduced and implemented effectively, efficiency is attained, and success is

guaranteed, which precludes increased productive organisational productivity. Also, various scholars have different definitions for knowledge management practice. For instance, Srinivasan and Perwez (2020) claimed that knowledge management practice is the degree to which a corporation conceives, extract, capture, organise, store, exchange, share, transfer and utilise knowledge. Pérez-Salazar *et al.* (2019) affirmed their conviction that the knowledge acquisition process is at the stage of understanding organisational competence for gaining and gathering knowledge through cognitive processes and social interactions done alongside collaborations, as cited by knowledge management gurus; Alavi and Leidner (2001). However, it can be argued further that knowledge management as a process, such as knowledge sharing, encompasses how knowledge is being retrieved and processed and to the extent to which ancient wisdom is being discarded within an organisation toward attaining set goals.

Even though it is recognised that management of organisational resources such as knowledge provides and supports innovation, competency, value, adeptness, and good customer service (Garcia and Sosa-Fey, 2020), empirical evidence about the relevance of knowledge management processes remains elusive. Nonaka (1994) divides knowledge into explicit and implicit. According to the scholar, tacit knowledge is valuable and the most challenging type of knowledge to process and transfer because individuals own it. The high employee resistance rate to sharing this knowledge makes it more difficult to obtain.

The mere fact that employees are unwilling to share their knowledge, also known as knowledge hoarding, is an impasse that needs dressing. This employee unwillingness is a common feature within the formal settings of the public sector. Ultimately, the consequential effect of this has a direct bearing on major tasks accomplished within the system or organisations. Similarly,

Srinivasan and Perwez (2020) concurred with this possibility, arguing further that the effective management of knowledge through or within a working system guarantees enhanced performance and not the mere existence of expertise within the firm that could yield achievement. An in-depth discussion of KM, its history, and processes is imperative for a broader perspective and understanding.

2.2 Key Definitions and Concepts

- Knowledge Management (KM) is selecting, acquiring, learning, creating, spreading, constructing, and saving knowledge. The whole process brings rise to the knowledge management system, which ultimately becomes the cultural practice and procedure of management within an organisation (Colomeischia and Colomeischia, 2014; Hsin-Ming Hsieh and Maritz, 2021).
- Knowledge Management Processes are noticeable activities within an organisation associated with knowledge management (Olubiyi *et al.*, 2019).
- Knowledge Management Practice (KMP) is the degree to which a corporation conceive, extract, capture, organise, store, exchange, share, transfer and utilise knowledge Srinivasan and Perwez (2020).
- Asset management (AM) can be defined as the organised and synchronised actions and practices undertaken by an organisation to ensure optimal and sustainable management of its assets and asset systems, their related functionality, dangers, and expenses over their life phases for the intention of attaining its organisational strategic plan (Stretton, 2021; Gambo and Musonda, 2021).

- An asset is a resource monitored by a firm made possible from past transactions expected to contribute towards attaining future benefits with reasonable probability (Petkov, 2011).
- Public Sector organisations are governmental representations of various divisions of local populations (Alang *et al.*, 2020).

2.3 Institutional theory and the Nigerian context

Key elements that are most likely to mould how asset managers and fixed asset management officers (FAMO) in the Nigerian public sector react include socio-cultural factors and economic conditions that try to explain how social structures shapes and control human behaviour, and this is related to the institutional theory which puts forward that personal behaviour is mimic and reflected by values, beliefs, norms, and conventions present within a society (Ituma and Simpson, 2007). The theory also highlights three pillars of institutional processes that affect development: cognitive, normative, and regulative pillars. Accordingly, the theory assumes that individuals hardly take rational decisions. Rather behaviours, actions, and findings are caused and moulded by specific presupposed expectations. In turn, these expectations legitimise personal actions and regulate behaviour. In addition, the lack of established welfare systems and uncertainties about how Nigerian workers view and handle AMP. Looking at the regulative pillar, how they carry out their official responsibilities.

Considering the normative pillar proposed by Scott and the socio-cultural context of Nigeria, it can be stated that Nigeria has a rich cultural heritage. One of the critical attributes of Nigeria's unique culture is the relevance placed on the extended family system, which serves as a source

of social insurance. This comprehensive family system strengthens the values set on devotion to social obligations, the desire to maintain tenable individual and societal relationships, and the need to share knowledge and support the maintenance of government assets. The normative value in place thus helps enhance the commitment and obligation of asset managers and FAMO. Finally, applying the cognitive pillar to the Nigerian asset manager and FAMO, it can be stated that the membership of workers in extended family institutions influences how they would be committed and feel obligated to carry out their responsibilities effectively and efficiently (Ituma and Simpson, 2007). Next, organisational development theory will be discussed for more insight into how the ideas are related and applicable in this study.

2.4 Organisational Development Theory (ODT), knowledge management and asset management practices

Levin *et al.* (2013) claim that many definitions exist in organisational development theory, but the most popularly used purpose is the one provided by Richard Burkhard. Organisational Development Theory uses behavioural sciences to enhance organisational effectiveness by generating “planned, organisation-wide, and top-to-bottom intervention” within an organisation (Burkhard, 1972; Rubin and Burkhard, 1972). The theory describes the inner dynamics within an organisation and how it occurs when a group of individuals try to function, which is also applicable in the public sector. The development of asset management practice is imperative for productivity to be enhanced, which is also the main objective of Organisational Development (OD) which is to improve productivity and bring about changes in the organisation’s culture, abilities, procedures, and practices, as a whole (Wu and Chu, 2015). And one major asset known as knowledge has been proven to impact OD positively.

Accordingly, ODT is divided into three main concepts: “organisation capacity, organisation culture and organisational climate” (Pillay *et al.*, 2018, pp 14-15; Wu and Chu, 2015, pp. 203-213). Organisational capacity is the function of an organisation, and it involves the production of goods and services and the upkeep of organisational operations (Glanz *et al.* 2002). While Organisational Culture can be explained as the shared value, beliefs and assumptions within an organisation practised and taught to recruits as the proper way of doing things such as communication, thinking and feeling (Schneider *et al.*, 2013). Organisational climate is described as the perception of experience that employees have and the meaning they attach to the processes, policies, practices, and procedures undertaken within an organisation (Pillay *et al.*, 2018; Schneider *et al.*, 2013). Furthermore, Wu and Chu (2015) argue that inconsistencies in procedures and policies can cause a weak organisational climate.

This theory is also relevant for KM and AMP in the public sector. It can be used to improve its efficiency and productivity because it explains the internal dynamics of how asset management practice can be developed through knowledge management. OD’s ability to adjust structures and cultural traditions are also associated with enhanced effectiveness (Wu and Chu, 2015). Suppose the strategies and techniques used within the public sector to manage knowledge and other assets have inconsistencies. In that case, this can lead to an unfavourably work climate which can cause poor performance. Levin *et al.* (2013, pp.526-527) describe that OD is frequently drawn from action research, asserting that intervention should be considered only when a thorough organisational diagnosis has been made. Operational changes don’t be holiday tic evaluation of the entire process take place. This would lead us to the discussion on the following theory relevant to this study, the system thinking approach.

2.5 Integration of institutional and organisational development theories in the System thinking approach

In this study, KM is considered a significant determinant for the successful development of asset management practice in the public sector. Likewise, based on the literature reviewed on institutional and organisational development theories, it becomes evident that various elements function together to enhance productivity—for instance, evaluation of approaches, precisely, organisation capacity, climate, and culture. Firstly, organisation capacity is responsible for the services the organisation renders to the government. Secondly, organisation culture, which has to do with the norms, values, and beliefs of the organisation and the kind of knowledge-sharing culture practised within the organisation, and thirdly, an organisational climate which deals with the perception of employees based on their experience all come together to function as an entity to increase productivity. Hence, since knowledge has a significant role in the effective development of asset management practice, a holistic consideration of these interrelated components is vital because these various components that function collectively as an entity can lead to the successful development of asset management practice in the Nigerian government. Based on this assertion, the only theory that can help explain this relationship is the system thinking theory.

McMahon and Patton (2018) defined system thinking as viewing the universe as a collection of interconnected organs that make up the whole entity. In general, the theory is about handling complex situations by taking a holistic perspective of a situation in a complex system while considering contributing factors (Ryan and Tomlin, 2010; McMahon, 2014). Furthermore, Morin (2019); Collin (2006) argue that system thinking is intriguing and complex because it

highlights important influences and tensions and displays a complex web of associations. In addition, Sexton (2012, p. 61) stated that “system thinking is about looking inside the ‘space between these parts and the interaction between them to understand the phenomena”. This implies that even the theory this thesis considers functions properly based on specified knowledge management mechanisms.

In addition, the study by Gatarik (2019) confirms that tenable OD is determined by adequately implementing and managing these main knowledge constituents: expertise, competence, and capabilities. Since system thinking is a theoretical framework for problem-solving and considers problems in their entirety, the power and relevance of knowledge management initiatives in developing asset management practice can be appreciated when placed in a system thinking context. For KM initiatives to be effectively utilised for the development of asset management practice in the public sector, the individuals, employees’ knowledge, how they acquire, organise, store, share, exchange, and transfer it; the effect of organisational culture on knowledge sharing; business strategy of the organisation; technological infrastructures, knowledge repositories, socio-cultural context of Nigerian workers, incentive mechanisms, and crisis management mechanisms would all have to be considered as an entity. And based on this discovery and premise, a conceptual framework was generated using Zhang *et al.* (2012) as a guide.

2.6 Knowledge Management (KM)

Knowledge Management (KM) is a complex concept with no agreed definition. Mitrovic *et al.* (2018) state that KM perspectives and ideas are elusive. v. This view was upheld by Melati *et al.* (2021); Hammoud (2020); Gaspar *et al.* (2016); Alavi and Leinder (2001); and Nonaka &

Konno (1998). This group of scholars maintains that KM's effectiveness in the private sector has significant implications for its efficacy in the main enclaves of the public sector, especially in asset management development. To replicate this position, KM was also investigated as an essential element in strategic management and a vital tool in developing innovative techniques, as Barley *et al.* (2018) asserted.

Additionally, KM is described as a multidisciplinary method for attaining firms' aims and objectives (Girard *et al.*, 2015). In another approach, KM is defined as a process of conceiving, acquiring, gathering, exchanging, renewing, and handling data, materials, and knowledge within an organisation for improved productivity, efficiency, cost reduction, and improved performance (Mehta and Tariq, 2020; Hammoud, 2020; Meihami and Meihami, 2014). Therefore, the practical or proper application of KM can foster the development of asset management, given that its efficacy has an overall effect on the general performance of an organisation.

KM is attested to be relevant in boosting the capability of management in strategic decision-making, as Gao *et al.* (2018) stated. Although there are arguments that knowledge cannot be created without action (Cook and Brown, 1999), this implies that the transformation of knowledge is essential. In addition, Scholars; Nonaka and Takeuchi (1995) did an extensive study on the process of how knowledge can be created. Knowledge creation is a crucial stage in the development of asset management if continuity is to be realised. And basically, knowledge has been categorised as either explicit or implicit knowledge (Massingham and Massingham, 2014). Detailed knowledge is explained as a kind of knowledge that can be recovered with the aid of strategies that are task-oriented or goal-related vide metacognitively,

which is primarily the understanding of the patterns behind them. Implicit knowledge can be acquired through deliberate studies. IM is analysable (Toomer and Elgort, 2019).

Explicit knowledge is described as straightforward when it comes to implementations. It is easier to implement and succeed. Implicit knowledge, on the other hand, depends on various activities and actions shared during collaborations and is challenging to transfer, according to Ragab *et al.* (2013). However, the inherent hindrances to effective knowledge transfer can be mitigated by setting objective parameters, standards, and techniques for extracting knowledge. It is pertinent to note that implicit knowledge is that knowledge that form of learning or knowledge that is acquired through experience. It is intuitive and cannot be composed, Toomer and Elgort claimed. Accordingly, Garcia and Sosa-Fey (2020); Mitrovic *et al.* (2018) argued that tacit knowledge, which is knowledge gotten from experience, is the most difficult to transfer and articulate because it is deeply rooted in context. Due to the unwillingness of employees to share their perceived knowledge or lack of time to share the knowledge in their possession.

Chang and Lin (2015), in an empirical study on the development of KM functionality, argued that the transformation of tacit knowledge into explicit knowledge should be undertaken with caution as it presents a risk of losing the implicit understanding that is already available. They also acknowledged that the cause of failure of the knowledge transfer system is associated with organisational cultural elements rather than technological factors. In the case of the development of asset management practice in the federal republic of Nigeria, a proper understanding of how knowledge is managed to start from its acquisition to its transfer and sharing among employees is imperative, and this would be treated under the processes of

knowledge management in a different section, following insight into how KM evolved would be considered.

2.6.1 History of Knowledge Management

The history and progression of knowledge management are not straightforward because the field has developed from various disciplines and spheres (Gupta, 2004; Jennex, 2008). And scholars such as Peter Drucker (Badea *et al.*, 2015; Flaherty, 1999), Peter Senge (Adrianis Gomez Degraives, 2012; Kermally, 2005), and Paul Strassman (Strassman, 1988) have contributed to the development of knowledge management and Peter Drucker emphasised the importance of a knowledge worker (Tzortzaki and Mihiotis, 2014). Together with Strassman, they highlighted the relevance of knowledge as a resource in a firm. While Peter Senge concentrated on the importance of an organisation's learning culture, scholars of Harvard Business School, Leonard-Barton Dorathy, Bartlett Christopher, and Argyris Chris investigated the different aspects of knowledge management.

The work of Dorathy Leonard-Barton on Chaparral Steel also illustrates the growth of knowledge management in the mid-1970s (Gupta, 2004). And in the late 1970s, the understanding of how knowledge was created, shared, and distributed within an organisation was made known by Everett Roger at Stanford and Thomas Allen's research at MIT (Jennex, 2008). As the years progressed, the adoption and use of computers became known as a domain for information management. Doug Engelbart, in 1978 introduced a groupware application with the ability to interface with other systems and applications. Even though, with the progress made at that time still, organisations did not know how to manage knowledge assets. And in the 1980s, an open hypermedia tool for knowledge management systems was introduced by

Rob Acksyn and Don Mccracken (ibid.). In the 80s, the rise of knowledge management systems using artificial intelligence began. It is important to note that it was during that period that the concepts of knowledge-based systems, knowledge acquisition, and engineering in knowledge emerged. It was also in the 80s that knowledge management was recognised more in the business environment, and the management of knowledge as an asset started in 1989 by a group of companies based in America (Gupta *et al.*, 2004).

By and large, articles on knowledge management started getting acceptance in journals such as Harvard Business Review, Sloan Management Review, and MIT. Even now, we have the Journal of Knowledge Management which has risen to the rank of a high-quality journal. Early books on knowledge management were mainly on organisational learning by Senge and v. The 1990s recorded a rise in the activities and programs of knowledge management within organisations. Tom Stewart was the first to work on knowledge management which was later introduced into the popular press for the first time. However, Nonaka, Ikujiro, and Takeuchi, Hirotaka's work in 1995 on the knowledge-creating company have now become the most referenced work in knowledge management to explain knowledge creation (Nonaka and Takeuchi, 1995).

The computer age made the recognition and advancement in knowledge management initiatives possible. Jennex (2008) stated that International Knowledge Management Network (IKMN) that began in 1989 across Europe eventually polarised KM. By 1994 and soon enough, this trend had gone viral to see the U.S.-based Knowledge Management Forum and other KM-related groups and publications onboard. Now, the recognition of knowledge management as a source of strength and agent of competitive advantage is adjudged established; this view is a

fact agreed upon by many scholars like Melati *et al.* (2021); Hammoud (2020); Seyr and Hoffer (2020); Rehman *et al.*, (2015); Gaspar *et al.*, 2016; Alavi and Lender, 2001). Currently, more studies are ongoing to gain more insight into the relevance of knowledge management and its processes in enhancing the various aspects of an organisation's business operations, considering how government indulges in activities such as training employees, setting up relevant knowledge infrastructure, implementing, and applying regular maintenance of assets through servicing and continuous employee development, it could be convenient to state that the government is involved in the practice of knowledge management. Further still, and given the number of years gone by, it can be rightly said that the importance of KM has long been recognised in the public sector in Nigeria. However, how deliberately and formally this practice is incorporated as a component of the organisation or government's strategic plan remains an area that is rarely explored. The following discussion will shed more light on knowledge management processes and how they can aid in developing a virile asset management system.

2.6.2 Knowledge Management Processes

Olubiyi *et al.* (2019) described knowledge management processes as noticeable activities within an organisation associated with knowledge management. This set of processes has so much to do with groups and group dynamics within the formal setting. Some set procedures deliberately created in firms with specific objectives meant to build, transfer, store, and implement the knowledge therein. Conversely, the primary aim of developing KM is to manage and control the intellectual properties considered assets peculiar to the firm or organisation. Knowledge is critical to undergoing a series of procedures.

Knowledge must be acquired, organised, summarised, analysed, synthesised, and utilised for effective and efficient decision making; knowledge processes subsume developing, creating, reusing, and sharing. Semantically upturned, KM involves. The following are KM processes as identified: knowledge creation, transferring, storing, sharing, and utilisation. However, Chang and Lin (2015) argued that v. A detailed explanation of KM processes and how they relate to asset management development would be considered hereunder.

2.6.2.1 Knowledge Creation

Knowledge Creation (KC) is the act of making knowledge created by individuals available, amplifying it in social contexts, and selectively connecting it to the existing knowledge in the organisation (Nonaka and Von Krogh, 2009). Knowledge is created through practice, collaboration, interaction, and education as the different knowledge types are shared and converted. Supporting this process is relevant information and data that can improve decisions and serve as building blocks in creating new knowledge—exploring knowledge creation as a source of organisational learning. Creating, capturing, and distributing information are essential elements in managing knowledge, which is the common understanding of the processed information into knowledge (Jennex, 2008). Accordingly, Olubiyi *et al.* (2019, p. 30) stated, “Knowledge creation is the generation of new ideas, the recognition of previously unseen patterns, the synthesis of separate disciplines, and the development of new processes”.

Garcia and Sosa-Fey (2020) claimed that Knowledge creation is a way of acquiring novel understanding from research and development, which could be explained as a process of learning, categorising, and capturing essential knowledge from sources that are external and transforming same into valuable assets for present and future use which is eventually adopted

and implemented within an organisation. Knowledge creation is attaining an innovative insight, which develops new knowledge and ways of carrying out managerial activities. And Jyoti *et al.*'s (2011) study on the impact of KM on innovative capacity pointed out the relevance of KM using quantitative research conducted in the telecommunication sector. But its applicability to the public sector might take a different dimension.

In the same vein, Jennex (2008) argued that for an organisation to know how to manage knowledge, it must first have the ability to work with it, and numerous ways of acquiring it and creating new knowledge within an organisation have been identified. Accordingly, New Knowledge can be reached by purchasing the organisation with the relevant expertise, or organisations could hire individuals with the appropriate knowledge needed. Although, Nonaka and Takeuchi (1995) did state that, in the event of acquisition by an organisation, there is no guarantee that the knowledge and the people that possess such knowledge will remain in the organisation long enough. However, a significant portion of that Knowledge that is so acquired may be retained. Other factors worthy of consideration include a better understanding of how cultural and political dynamics influence how new knowledge is integrated into the organisation.

In furtherance of this view, Gupta *et al.* (2004) stated that knowledge could be rented through hiring external consultants or an organisation to help fund research conducted by research institutions and universities with the agreement of benefiting in future vide the invention of technologies for commercial purposes. Another way of acquiring knowledge is establishing a research centre within the company's premise to generate new ideas and technologies. An example of a company that adopted this method is Xerox in invented the graphic user interface.

Going further, there are other ways of acquiring new knowledge in an organisation. This includes knowledge elicitation, data, and text mining (Andronis *et al.*, 2020). Knowledge elicitation is obtaining information from a knowledgeable source through interviews in specific areas and then codifying and storing the information in a form others can retrieve when needed. Although Gupta *et al.* (2004) argue that knowledge elicitation is a complex process and is often seen as a barrier to knowledge acquisition and the problem is due to the inability of experts to express their methods of reasoning and thoughts, which is referred to as “paradox of expertise” (p. 11). At the same time, data mining is a technique used to obtain and extract important structures, changes, and associations from data. Using data mining, firms can screen, choose, relate and filter data automatically, which is helpful in fraud detection.

2.6.2.2 Knowledge Organisation and Storage

Knowledge Organisation and Storage are very significant aspects of knowledge management processing. This dovetails the process of gathering new knowledge, codifying the supposed knowledge, and arranging it in an orderly format or design made available for use in the firm as organisational knowledge (Lim *et al.*, 2017). KO is the organisation of information; it also involves activities such as document description, indexing, and classification that provide systems of representation and order for knowledge and information objectives—performed in libraries, databases, archives, etc., as is done by librarians, archivists, subject specialists as well as by computer algorithms. This covers explicit and implicit knowledge, which are transformed and documented for future references in the form of manuals, email messages, handbooks, data, and archives, as Garcia and Sosa-Fey (2020) stated. Relevant knowledge must be retained within the organisation for reference purposes, and it acts as a means of avoiding knowledge

loss which can occur when the appropriate individual dies, leaves, or is unavailable. And to retain knowledge, codification is used because it enables the conversion of knowledge into manageable and relevant formats (Jennex, 2008).

An organisation decides the following: which organisational goals or purpose the coded information will serve; how the knowledge would be used to achieve set goals and objectives; how to select the relevant knowledge to be codified, and the medium through which to pass most efficiently and effectively. Additionally, different types of knowledge can be codified from specific knowledge, known as explicit or detailed knowledge, which has much to do with skills. This is also known as tacit knowledge (Nonaka and Takeuchi, 1995). Tacit knowledge is one of the significant challenging aspects of knowledge management because it is difficult to codify this type of knowledge in the database or on paper.

2.6.2.3 Knowledge Sharing

Knowledge sharing has been identified as a fundamental tool for attaining competitive advantage (Jackson *et al.*, 2006). A study conducted on the indirect relationship between clan organisational culture and knowledge sharing opportunity carried out in Pakistan shows that knowledge sharing behaviour (KSB) “is a behaviour that facilitates the flow of knowledge and improves organisational performance and sustainability” (Abbasi *et al.*, 2020). And knowledge sharing is explained as the process of consulting and encouraging associates or co-workers to share their intellectual capital, according to Lin (2007, cited in Aljuwaiber, 2018). Since knowledge sharing is positively associated with a competitive advantage, then knowledge sharing is a necessary process that cannot be neglected if asset management practice is to be developed significantly. But Huang *et al.* (2013) argue that the lack of adoption of control

mechanisms to foster efficient knowledge governance and scarcity of knowledge sharing opportunities within an organisation hinder knowledge sharing. This issue is also experienced in the public sector; what can be done to mitigate these barriers of knowledge sharing within the Nigerian public sector for effective asset management practice to take place through knowledge management?

Abbasi *et al.* (2020) highlighted an essential element within an organisation that helps foster knowledge sharing. They claim that an organisation with a culture that encourages knowledge-sharing customs, beliefs, and ideologies do foster an efficient flow of information and knowledge from a holder to a receiver. And the organisational culture has been associated with increasing an organisation's productivity, performance, and growth (Bendak *et al.*, 2020; Ramirez *et al.*, 2019). Furthermore, organisational culture is significantly and positively correlated with knowledge-sharing behaviour (Abbasi *et al.*, 2020; Aquilani *et al.*, pp.447-459).

In addition, Bagheri *et al.* (2021) suggest that the main aim of having employees share their knowledge is to enable and encourage knowledge transfer from experienced individuals to fewer professional employees to become a valuable organisational resource or asset which promotes organisational efficiency and productivity. Knowledge sharing provides an avenue for knowledge creation and utilisation within an organisation, and when applied in the development of asset management, the extracted and codified information obtained can be utilised to attain growth, enjoyment of the entire asset life span due to regular maintenance of assets accomplished with the help of knowledge retained and used within the organisation.

Another important factor that facilitates knowledge sharing is the organisational leadership style adopted by the top management team. The ability of top management to establish interpersonal relationships among employees through close interactions and communication are necessary infrastructure for effective knowledge sharing, enabling an environment for creativity and innovation (Alavi and Leidner, 2001). Accordingly, Nonaka (1994) reiterates the critical function and role top management play in knowledge sharing. And knowledge-oriented leadership is a transformed leadership that significantly impacts knowledge management processes that are valuable elements in the developing asset management practice.

2.6.2.3.1 Knowledge Oriented Leadership

Knowledge-oriented leadership has been identified as a crucial organisational factor that has influenced and significantly impacted knowledge management processes which are determinants of enhanced organisational performance according to Shujahat *et al.* (2017); Ramezani *et al.* (2017); Naqshbandi and Jasimuddin (2018); Sadeghi and Rad (2018); Raudeliuniene and Kordab (2019). Accordingly, Raudeliuniene and Kordab (2019) described knowledge-oriented leadership as a transmuted leadership concept that combines both traditional leadership practices that are good with new leadership concepts based on theories of knowledge management practice. And for the development of asset management to occur, Von Ah (2021, p.13) advocates that “Organizational leadership should clearly articulate its support for asset management and provide the necessary resources for asset management to succeed”.

Knowledge-oriented leadership style is relevant in asset management development because it provides support and is concerned with workers’ capability development; it focuses on

delivering effective knowledge management processes, including the reward system that helps facilitate knowledge management practice within an organisation for effective knowledge management strategy to be selected and implemented which enables the attainment of organisational performance which ultimately impact asset management development and continuity (Shariq *et al.*, 2019; Shamim *et al.*, 2019; Donate and de Pablo, (2015).

In addition to addressing continuity of asset management practice, knowledge sharing must be encouraged because it is critical to knowledge creation, organisational learning, and realising performance attainment. Aljuwaiber (2018) described knowledge sharing based on individual perspectives and organisation. For an individual who could be a knowledge worker, knowledge sharing includes learning how to solve and do a task more efficiently and effectively, which saves time from their colleagues, while to an organisation, knowledge sharing involves the acquisition, arrangement, utilisation, and transfer of knowledge that is experience-based as Willem and Buelens (2007) assert. And this has so much to do with knowledge exchange and transfer.

Olubiyi *et al.* (2019) stated that “Knowledge sharing in the context of a firm’s succession involves a situation where the knowledge of the older generation, often learned during a long time of work, is to be shared with the younger generation” (p. 31). To sustain succession and continuity, predecessors must share valuable knowledge and technical know-how with successors (Nonaka and Takeuchi, 1995). Therefore, sharing knowledge is a means of transferring knowledge. It is a fundamental organ in KMP because it spreads and makes learning accessible and usable in and out of an organisation that is also relevant to the public sector.

Furthermore, continuous capacity building (Tanucan and Uytico, 2021) should not be overlooked. For instance, webinar capacity building provides training platforms for asset managers to acquire new knowledge. With the present pandemic, even when workers are restricted from having access to training, webinar-based capacity building can be used to overcome challenges presented by the coronavirus pandemic. The difference between face-to-face seminars and webinars is that webinars are conducted over the internet via audio and virtual means, either on zoom or Microsoft teams (Toquero *et al.*, 2020).

2.6.2.4 Knowledge Transfer

Argote and Ingram (2000, p. 151) stated that “Knowledge transfer in organisations is the process through which one unit (examples are group, department, or division) is affected by the experience of another”. They conceptualised knowledge transfer as the deployment, integration, and utilisation of knowledge resources available in an organisation. While other scholars explained Knowledge transfer as the transmission and distribution of stored knowledge from one person to the other and a way through which the information is formatted and expressed in a common language to those seeking knowledge (Rahman *et al.*, 2018).

The primary function of knowledge transfer is to deliver reports and knowledge to a less experienced person or employees by a skilled individual so that the less experienced employee is prepared and mentored to assume future roles within a firm (Athanasopoulou *et al.*, 2018). And in the public sector, the knowledge transfer determinant depends on the relationship quality between the experienced employees and the less experienced person or employees (Olubiyi *et al.*, 2019; Garcia and Sosa-Fey, 2020). Jennex (2008) affirm that organisations should achieve a tenable competitive advantage through transferable knowledge available

within the organisation. This is an essential aspect of organisations because once proficiency has been acquired, there must be an avenue to share the knowledge with employees. Accordingly, Nancy Dixon elucidated five significant kinds of knowledge transfer: “serial transfer, near transfer, far transfer, strategic transfer, and expert transfer” (Dixon, 2000, pp. 33-127). The various types of knowledge transfer differ in the aim, procedure, and avenues used to implement them.

The first to be discussed would be the Serial Transfer. In Serial Transfer, knowledge gained from one set is transferred to the subsequent use when executed in a different setting. An example is when a group apply specific knowledge learnt from a task earlier performed to another job at a later period. This technique includes the management of implicit and explicit knowledge and is usually carried out through frequent meetings and having all the group members participate. (Dixon, 2000).

The next type of knowledge transfer is Near Transfer, which is explicit and best used for a task that is everyday routines and usually similar when repeated. Here, the primary information needed in carrying out jobs is transferred from one group to another that is expected to undertake a comparable task. The data is usually concise, brief, and explicit, and this information is generally transferred through electronic means (Jennex, 2008). For instance, steps and methods of performing a specific accounting procedure that a particular group of accountants has mastered can be recorded electronically, either using email or word document. They can be transferred to other accountants within the organisation. This is done to enhance the performance and productivity of the receiving group.

The third type of knowledge transfer is Far Transfer. This type of transfer deals with how tacit knowledge is shared between teams which invariably leads to collaborations. This is carried out face-to-face or using other available means. The information here is not quickly recorded and transmitted. An example is when a team is assigned a new project and invites another group with experience in this type of task to exchange knowledge and complete the task by developing a solution to the problem and ensuring that the key used is viable. The fourth type is Strategic Transfer; this type of transfer is usually used by top management for knowledge to be transferred, which can impact the whole organisation. An example is a knowledge required for mergers and acquisitions, which involves both implicit and explicit knowledge. The specific knowledge is identified by top management and then gathered and interpreted by knowledge experts (Dixon, 2000).

The final type of transfer is Expert transfer; this is valuable because it involves gathering explicit knowledge from professionals when the scope of the task is outside the team working on a project. The detailed information is usually transferred electronically on bulletin boards with questions answered by various experts knowledgeable in the specified field. Here, a network of experts is necessary for issues to be promptly attended to as they arise (Dixon, 2000). Another form of knowledge transfer is communities of practice; technicians use this at Xerox Corporation to repair copy machines (Wenger, 1999). It is a type of transfer that occurs within a group of individuals with a standard set of problems or concerns, or topics that expand and enhance their expert knowledge through ongoing interactions. (Wenger *et al.*, 2002). The following vital aspect being considered are knowledge repositories and infrastructure, tools that could help disseminate information and knowledge gathered, codified, and stored.

2.6.3 Knowledge Repositories and infrastructure

In today's knowledge-driven economy, organisations understand the need to manage knowledge assets through implementing and applying information technology-based knowledge repositories (KRs). KRs are used for acquiring, accumulating, and disseminating critical information and knowledge within an organisation (Fadel and Durcikova, 2014). And KRs are described as enhancers of knowledge management processes. However, its value in the long run thus depends on whether it consists of knowledge that is precise and valuable to the person using it, as Zack (1999) stated. Furthermore, for organisations to ensure the proper acquisition of relevant command into the repositories occurs, the following would have to be done; firstly, knowledge would have to be contributed by employees that use the knowledge source (Watson and Hewett, 2006) and then the contributed knowledge would have to be validated to ensure its correctness and minimise the rate of keeping information with little value to the organisation (Soo *et al.*, 2002)

.Kankanhalli *et al.* (2005) defined Knowledge Repository as information technology-based systems designed to provide and aid the storage and reprocessing of an organisation's knowledge assets. Alavi and Leidner (2001) assert that Knowledge Repository (KR) substantially boost the transfer of knowledge in an organisation by facilitating understanding sharing from those who provide it to those who need it. However, Fadel and Durcikova (2014) argue that a comprehensive examination of factors influencing knowledge contribution to the knowledge repositories is imperative.

However, knowledge management is an area of study with no precise definition due to its broadness and because it emerges from numerous disciplines. And KM comprises management approaches, procedures, concepts, diverse computers and relevant technologies. This would usher us to the following discussion on appropriate technologies useful in KM practice. According to Jennex (2008), the internet is a known knowledge infrastructure. However, Ezingard *et al.* (2000) argue that the main challenge encountered when using the internet is the complexity in arranging, investigating, and recovering unstructured knowledge artefacts and cited an example of a company in the United– Ernest and Young that has millions of documents in its knowledge management system (KMS).

Cross and Baird (2000) pointed out the concern of having the system made redundant that is not being put into use, but they still emphasised the importance of having knowledge repositories. In addition, (Jennex *et al.*, 2018, p. 758) stated, “Knowledge systems refer to those systems that foster creativity and innovation by facilitating collaboration and knowledge capture, storage, transfer, flow, and use”. There are two main applications - groupware and lotus notes - mainly used in the computer-supported collaborative work (CSCW) community to address issues related to the shared development of knowledge in the past years. Although, there are other helpful groupware applications, such as Netscape’s Collabra Share, including the intranet (Jennex 2008).

Furthermore, Sternmark (2002) argue that the internet is said to be pictured as a system that fosters awareness of knowledge and knowledge management system, used for storing and sharing knowledge, and used to improve communication and collaboration between individuals and teams or groups or among professionals and users, then when used as a knowledge

management system it should be successful. He further affirms that scholars, most of the time, experiment with technologies to enhance the tackling of unstructured knowledge. Likewise, Abramowicz *et al.* (2002), Eppler (2001), and Smolnik and Nastansky (2002) recommended the use of knowledge maps (also known as topic maps and skill maps) to explicitly demonstrate knowledge architecture. Here “clickable hypertext maps” is an intranet displaying knowledge domain architecture. Likewise, knowledge maps provide an easier way for intranet users to utilise standardised graphic interfaces.

Another knowledge repository uses ontologies and taxonomies for the group and arranges knowledge domains (Jennex 2008). And Zhou *et al.* (2002) suggested using rapid ontology development to create and develop undeveloped knowledge domains. Although, it is argued that making meaning out of unrelated structured information, knowledge, or data is challenging. Then, to conclude the discussion on knowledge repositories and infrastructure, it would be vital to reiterate the importance of technology adoption.

Furthermore, Benitez *et al.* (2018, p. 26) defined Information Technology (IT) infrastructure as the organisation’s shared set of technical and human IT resource infrastructures that grants the foundation on which specific IT applications are run. The main components of IT technical infrastructure include communication networks, IT applications, hardware, operating systems (computing platforms), and data, according to Byrd and Turner (2000). Also, IT human infrastructure exists, which refers to IT personnel’s skills (Byrd and Turner, 2001). And Matook and Maruping (2014) argue that the Flexibility of IT infrastructure aids the adoption of environmental changes through the enablement of rapid development and implementation of IT applications. Next, the benefits of technology adoption will be elucidated.

2.6.3.1 Technology Adoption and KM

Many organisations seek to be competitive by establishing information (Chong *et al.*, 2014; Martinez-Caro and Cegarra-Navarro, 2010). In addition, Williams and Dickinson (2010) affirm that technology adoption is essential for organisational development. They defined technology adoption as the procedures or processes integrated into an innovation's successful establishment, application and spread. And this can be applied to the Nigerian public sector setting for the development of asset management. Likewise, technology adoption can be used to develop KM, AMP, and electronic support, such as customised software that suits Nigerian public sector assets.

Furthermore, for the development of AMP to be accomplished in Nigeria's public sector, the adoption of a customised Knowledge Management System (KMS) and Asset Management System (AMS) is imperative. According to Kuo and Lee (2011), KMS is a powerful source of competitive advantage. And this has a relevant role in managing relevant public sector knowledge on asset management. Similarly, Chong *et al.* (2014) argue that KM processes, specifically knowledge acquisition and application, play significant roles in technology adoption. However, their study was conducted in Malaysia using about 136 firms that were not organisations in the public sector, making it difficult to conclude if the same result could be obtained in the public sector in Nigeria. Next, KM governance would be considered to understand how it affects organisational KM and AM development.

2.6.4 Knowledge Management Governance

Wiig (1997) appears to be the first to point out the relevance of governance about KM, the function of government as a mechanism for monitoring and facilitating knowledge-related activities within a firm. However, he failed to specify how KM governance can be established within an organisation, nor did he give any empirical evidence to support the assertion. And based on this discovery, Zyngier and Burstein (2012) conducted a study to investigate how constructs of KM governance and its leadership can enhance performance, using a qualitative research method using semi-structured interviews, and they concluded that KM governance maximises strategic benefits when appropriately established in more prominent organisations and can lead to organisational successes. This implies that when KM governance is well implemented, enhanced performance is achieved but can be applied in the public sector. Specifically, in the public sector of Nigeria, asset management practice development can KM governance lead to sustainability and success? This is a question that needs to be answered.

Furthermore, Knowledge Management Governance is rarely mentioned in KM literature (Zyngier and Venkitachalam, 2011; Schroeder and Pauleen, 2007; Foss, 2007). Even though it is a relevant aspect of KM because it considers the long and short-term strategies in place by measuring the usefulness and productivity of all the elements of KM as a tool to confirm that KM goals and gains are realised. Likewise, perception, return on investment calculations, and balanced scorecards are elements usually used in measuring KM governance (Zyngier and Burstein, 2012). Furthermore, KM governance is an organ of organisational governance. Also, all KM strategies developed are controlled by and are under the KM governance body. And KM governance fosters the alignment of policies designed to a company's strategic aims and

objectives. It ensures that risk management is handled appropriately. Since KM governance appears to have a significant function in organisation governance, understanding how it can be planned, organised, utilised, and applied in asset management development is imperative.

Bagheri *et al.* (2021) study did examine the indirect relationship between clan organisational culture and knowledge-sharing opportunities using university professors in both public and private institutions. It showed that informal knowledge governance mechanisms strengthen the relationship between corporate culture and knowledge-sharing behaviour. This is useful and could be applied when tackling knowledge hoarding among employees in the Nigerian public sector and could invariably aid asset management development. Zyngier (2013) examined the result of a global survey of people involved in the development and implementation of KM strategies and found that KM governance supports the capacity of KM governance to realise and reveal the value (return on investment) of KM. However, the research participants were not evenly distributed to reflect a global picture.

Novak (2017) presented a paper on Knowledge Management (KM) and Organizational performance – Literature Review at an International Conference in 2017 in Poland. The researcher identified relevant literature relevant to the relationship between KM and organisational performance; he did define the terminologies and identified various performance indicators from financial to non-financial performance measures. He further pointed out areas for future research, mainly on KM and specific performance indicators. Key Performance Indicators (KPIs) have been in use for a long as means of monitoring and evaluating performance, although there is criticism of their reliability. KPIs are relevant, but certain

factors should also be considered in measuring performance. Furthermore, performance goes beyond just KPIs. Another element, such as leadership styles, also contributes to the implementation of organisations. One of the famous founders of KM, Nonaka (2016), stated that wise leadership and KM lead to innovative performance.

2.6.5 Knowledge Management Practice in various Countries

Understanding how other countries apply and practice knowledge management is essential because having an insight into this information will guide how knowledge management can be implemented to aid the development of asset management. Similarly, Mitrovic et al. (2018) reiterate why countries adopt knowledge management practice because of its usefulness as a vital managerial tool. Based on this premise, various literature will be reviewed to understand how diverse countries practice knowledge management.

In the Arab world, specifically in Saudi Arabia, KM systems are well established from the federal public sector to the local government level (Albassam, 2019). This advancement is made solely for the benefit of foreign investments. In their study on Dubai, Millar et al. (2018) also concurred on the importance of KM because it facilitates a new public management paradigm and enables good governance. Studies on KM have gained substantial ground (Dalkir, 2013). As such, Valentim et al. (2016 cited in Loon, 2019) study focused on the role KM plays in Portugal's small and medium-sized enterprises, and their emphasis was based on standards and the relevance of KM context. McNulty (2002) also researched the role of KM in United Kingdom healthcare, while Collinson (2001 cited in Loon 2019) also concentrated their research on the standard and context of KM in America and China. At the same time, Sing (2013) conducted a study on the role of KM on e-governance in the public sector in India. The

author emphasised the importance of KM in information exchange and its effect on knowledge sharing because it facilitates productivity improvement. Matei and Salvulescu's (2014) study also reiterated how KM could contribute to improving public sector transparency, productivity and quality, which ultimately leads to an increase in the capacity for innovation in the public service.

Even though the ineffective introduction and implementation of knowledge management have been highlighted by all the literature reviewed on KM in various countries, Albassam (2019) highlighted how corruption and not allowing the rule of law on systems to take precedence had hindered the development of KM in Saudi Arabia. In Dubai, Millar *et al.* point out a dearth of research on the relevance of KM in how it facilitates good governance. Also, Matei and Salvulescu (2014) study recommended the introduction and implementation of KM in Romania because of its favourable effect on reducing administrative load, decreasing risk, and how it can enhance the working conditions in the public sector of Romania. This shows that KM implementation is still a contemporary management issue.

Massaro *et al.* (2015), after reviewing 180 papers published in ten journals, discovered that most studies on KM are fragmented and most concentrated in unrelated research in the education and research sector. Also, some of the areas are over-researched while others are under-researched. This points out the need for a balance in KM studies. Desta (2009) study on indigenous knowledge within Ethiopia's sustainability of natural resources revealed some relevant gaps in innovative studies. As such, he advocated for the recognition and popularisation of indigenous innovation both empirically and theoretically. He also stated how

limited studies on KM are in the public sector compared to those undertaken on KM in private firms and the private sector.

Furthermore, other scholars, Nogueira and Dias (2018), conducted a study to understand if the international convention's tenants of Brazil's Public Sector Knowledge Management practice are the global way. The authors examined and evaluated articles published on KM practices from 2005 to 2015. Using bibliometrics, they categorised their study and found that most publications are in a specific area, but a few did emphasise the government and public sector. In contrast, others focused on strategy and information technology. In concluding the study, the authors affirm that KM needs to be given urgent attention in Brazil because of its relevance in developing good practices and governance in the public sector. Sarker (2016) showed how electronic governance impacts activities undertaken in the public sector in Bangladesh. While Pontnis (2010) and United Nations (2019) also emphasised the importance of KM and e-governance because it leads to substantial development within the public sector.

Evaluating the whole pieces of literature reviewed, studies on the importance of KM in the public sector are ongoing, especially in the developed nations; the United Kingdom, Portugal, America, China, Romania, and Brazil also in emerging countries such as India, Bangladesh, Ethiopia, and Malaysia. However, the literature reviewed reveals that studies on developing countries' public sector on KM and governance are under-investigated, and conclusively it can be stated that KM in the public sector demands more investigation. Next, knowledge management practice in the private sector will be analysed for more insight into the subject matter.

2.6.6 Knowledge Management Practice in the Private Sector

Soniewicki and Wawrowski (2015) examined the differences between the external knowledge sources of differences between private and state-owned companies. They discovered that privately-owned companies are more concerned about the market-related knowledge sources which have so much to do with their customers, suppliers, and competitors. While state-owned companies appreciate scientific knowledge to a greater extent, they acquire knowledge from scientific institutions and are more engaged in research and development. And the rate of interactions with consulting companies and networking associations is significant. Although, state-owned companies also appreciate market research.

However, Sharif and Al-Karaghoul (2011) argue that the study of the difference and similarities between private and public sectors has long been a classic subject in management and theories of organisations. And they stated that both sectors do not differ in all unimportant aspects, but when it comes to essential areas, they are pretty different. They claim that private companies and management differ from the public sector in terms of functions, objectives, structure, investments, technology facilities, stakeholders, size and expected outcomes. Nonetheless, they affirm that organisations would have to adhere to the broad goals of knowledge management. They also reiterate the importance of establishing organisational memory, a lifecycle of knowledge production, integration, and validity. Evaluating the study by Sharif and colleagues, it can be deduced that knowledge management application in the private sector is modified to align with the company's goals and objectives.

Another study carried out by Bate and Robert (2002) highlighted that most knowledge management experiences in the United Kingdom exist in the private sector and tend to focus

on the expansion and delivery of Information Technology solutions mainly used to solve challenges with knowledge storage and accessibility. And they argue that knowledge management problems, also called softer issues, that deal with the functions and value of communities of practice, are less explored and receive attention. They also acknowledge the limited literature on implementing and evaluating KM in the public sector. This research highlights that KM application towards the development of AMP would have to be tailored toward Nigerian public sector aims and objectives. This implies that obtaining and uncovering the relevant information on the sector's target and attention is vital to developing AMP in the country.

2.6.7 Knowledge Management in Public Sector

For the past two decades, KM has been the relevant and most discussed subject in public sector management (Mitrovi *et al.*, 2018). Metali *et al.* (2021) stated that KM facilitates the ability to undertake various activities within the public sector, and Mitrovic and colleagues assert that even with the recognition of KM as an essential resource still, public sector organisations (Moussa *et al.*, 2018; Ngoma, 2021) are yet to explore the benefits of applying KM in their practices. Bate and Robert (2002) argue that there is almost no reference to KM in the public sector. Furthermore, Mitrovic and his colleagues researched Serbian's local government to assess the current KMP in the local government. They examined because the lack of a systematic approach to the development of KM can contribute to the inability of the local government to improve their performance and compete in a highly competitive environment. They further argued that preliminary study in the KM field results from its unclear boundaries and no clear areas of what it entails.

Evaluating the research done by Mitovic *et al.* (2018), there is an issue of generalisation because the authors affirm that KM practice in the public sector depends on the firm's structure and culture. This implies that a proper review of the country or firm's KMP is imperative for adequate examination of KM practice in an organisation or government. Furthermore, it can be inferred from his literature review that most KMP done is in developed countries. Then what method of KMP are developing countries implementing mainly in African countries? An organisation needs to examine KM infrastructure and KM processes to know the extent to which KMP is developed.

Mitrovic *et al.* (2018) also assert that implementing KM is challenging in the public sector because of the qualities possessed by public sector organisations. They mentioned organisational culture, insufficient information technology infrastructure, bureaucratic firm structure, challenges in forming and making collaborations and the role of employees in making KM work as some of the characteristics of the public sector that make KM implementation difficult. Likewise, "KM processes have also been proved to positively influence the operational, quality and innovation performance of the public sector" (Al Ahabbi *et al.*, 2019, p.). The following subsection under KM in the public sector would be a discussion explaining how KM and E-Governance are practised in various countries.

2.7 Knowledge Management Practice (KMP) in Nigeria

Despite the augmented importance of KM (Al-Kurdi *et al.*, 2018), KM strategies adopted by organisations are either inadequate or inconsistent (Fullwood and Rowley, 2017), specifically in developing countries (Ahmad *et al.*, 2015; Okeke (2017) also affirm that there is inadequate proof of firms accepting and applying KM in African, specifically Nigeria. For instance,

organisations in developing countries are generally characterised by individualistic culture, rigid organisational structure, lack of leadership participation in KM activities, little awareness about the benefits of KM and nonexistence of a standardised incentive system (Ahmad *et al.*, 2015; Muqadas *et al.*, 2017; and Ramjeawon and Rowley, 2017; Srinivasan and Perwez, 2020).

However, Okeke (2017) argues that the inability to state strategy for KM implementation, lack of understanding of socio-cultural context and top management's role are the main challenges in KMP in Nigeria. In addition, Dwivedi *et al.* (2011) also concurred by reiterating the importance of comprehending the influence cultural context has on KMP. Similarly, Adeyinka's (2015) study focused on information professionals and factors that determine their knowledge-sharing intention by conducting quantitative research in Nigeria using only two geo-political zones and exploring the concept of organisational citizenship behaviour. His study showed that citizenship behaviour had been induced into KM to explain knowledge-sharing willingness; it has been discovered that citizenship behaviour is an essential factor that could encourage people to share their knowledge or experience (Adeyinka, 2015). Next, a review of Nigeria's socio-cultural context will be carried out to highlight its importance in the development of asset management practice.

2.7.1 Socio-cultural context of Nigeria

Socio-cultural, economic, political, and technological factors are intertwined forces that keep creating challenges to businesses (Johnson *et al.*, 2014), and these challenges are also experienced in the development of asset management due to a lack of understanding of the diversity that exists in employees which invariably affect the application of knowledge management negatively. Akinyemi *et al.* (2020); Wetherly and Otter (2011) explained socio-

cultural context as a set comprising various activities and the relationship people engage in their individual and societal lives, which also has so much to do with their beliefs, values, lifestyle, and associates.

In this research, giving proper attention to the socio-cultural context of Nigerians in the development of asset management is vital because, without an understanding of the differences between employees, it would be difficult to properly implement knowledge management processes, specifically the adoption of a knowledge-sharing culture. To confirm this assertion, Johnson *et al.* (2014) explained: “Culture as the software of the mind and the collective mental programming of the people” (p. 91). This quotation is accurate and looks at Nigeria; the country has six geo-political zones: Northeast, Northwest, Southeast, South-South, Southwest, and Northcentral (Olatomiwa *et al.*, 2016).

In addition, there are 36 states in Nigeria under these zones. And within each state, there are about 374 ethnic groups with other cultures, customs, beliefs, and values (Nwabunike and Tenkorang, 2017). And the public sector is made up of this diverse collection of individuals from different backgrounds and socio-cultural groups. Then, for practical knowledge sharing to occur, there is a need to understand how people behave from each of these ethnic groups and the need to find out what would encourage them to be willing to share and exchange knowledge for asset management development feasible. Next, you will conduct a detailed literature review on asset management practice to gain more insight and understanding of the subject.

2.8 Asset Management Practices

Asset management can be defined as an effective and efficient approach used in managing individuals and expertise by allocating available scarce resources to solve the needs of essential assets within an organisation (Kusnawati *et al.*, 2019). While Maletic *et al.* (2017) expound that asset management is an all-inclusive, effusively cohesive tactical process and ethos focused on attaining the highest lifetime usefulness, effectiveness and return from an asset. Although critics of asset management view it as a traditional cost to organisations (Henderson *et al.*, 2014), asset management is an inclusive strategy that adds value and gives organisations a competitive edge over competitors (Maletic *et al.*, 2020; Giglio *et al.*, 2018).

Furthermore, Van der Lei *et al.* (2012) assert that efforts have been made to discover new competitive dynamics and concerns that are vital for superiority in asset-intensive environments. Gavrikova *et al.* (2020) claim that developing resources and capabilities is crucial in attaining competitive advantages, which was earlier discovered and stated by Skinner in 1969. El-Akruti *et al.* (2013) also argue that the asset management system framework is an element that can lead to adverse effects on production, cost and quality if not sufficiently applied.

In addition, Petkov (2011) defined an asset as a resource monitored by a firm and made possible from past transactions expected to contribute towards reasonably attaining future benefits. Furthermore, the asset is generally categorised into two; tangible and intangible Lee *et al.* (2018), although there is a new type of asset known as the digital asset (Toygar *et al.*, 2013). Examples of tangible assets are equipment, cash, vehicles, buildings, and inventory (Greco *et al.*, 2013). While intangible assets are broadly categorised into three; firstly, we have

computerised information examples: software and database. Secondly, innovative property and its examples are designs, branding, knowledge, patents, trademarks, licensing, and copyrights. The final category of an intangible asset is economic competence, and its examples are market research, training of staff and management consulting, according to Thum-Thyssen *et al.* (2019).

Even though asset management enables organisations to keep a tab on all their assets, guarantees accurate amortisation rates, and identifies and manages risk. Factors that lead to its effectiveness cannot be ignored; this has much to do with knowledge and management (Giglio *et al.*, 2018; Beitelmal *et al.*, 2017). El-Farr and Hosseingholizadeh (2019) affirm that properly implementing asset management using technology to enable a successful asset management practice (AMP) remains a major contemporary management issue. Also, Kaganova and Telgarsky (2018) concurred by stating that a gap exists between the government's professional and academic knowledge about government asset management and asset management practice.

AMP is mainly directed at adding value and maintaining existing assets, and its processes should be undertaken by continuous maintenance and assessment of operating infrastructure. However, asset management is a growing field of research, and most developing countries frequently have insufficient finances and resources to implement effective asset management. This ultimately affects how government create asset management policies (Mastroianni *et al.*, 2021).

2.4.1 Asset Management Practice across the Globe

Kaganova and Telgarsky (2018) emphasised that most governments across the globe are entirely uninformed when it comes to good asset management. They also assert that

management of government infrastructures, land, and buildings became famous as a field of public management towards the end of the 1980s in certain developed countries: the United Kingdom, Australia, the United States of America, and New Zealand and today the field has grown substantially (ibid.). Mastroianni *et al.* (2021) researched asset management practice by focusing on the Middle East and North African region. Their study outlined the challenges associated with implementing asset management practices.

Accordingly, Sinha, Labi, and Agbelie (2017) emphasise the advantages and relevance of asset management practices based on facts. Still, Lee and Schaufelberger (2014) argue that substantial hindrances obstruct its adoption, especially in developing countries. Furthermore, the main barrier is the considerable investment required to start and carry out the maintenance needed for the infrastructure. They also pointed out that it is difficult to allocate and justify spending, especially in government, for long-term care. Lack of political and policy organisation also affects effective asset management negatively (Mastroianni *et al.*, 2021).

2.8.2 Asset Management Practice in Nigeria

The number of studies conducted on asset management in Nigeria is mainly related to and focused on AMCON - Asset Management Corporation of Nigeria AMCON is an institute established by the federal government of Nigeria to handle non-performing loans of Nigerian banks because of their exposure to oil and gas sector and capital market (Adegbola *et al.*, 2019; Mukhopadhyay, 2018; Amaechi *et al.*, 2017; Abata, 2015; Osuji, 2012;). This body mainly deals with loans that are under financial assets. What happens to other assets such as fixed assets, inventories, cash, account receivables, intangible assets, and other assets? And further study confirms that assets such as land are regulated under the land use act, which is considered

superior to the AMCON act (Nwatu and Nwosu, 2016). And public sector financial asset management is regulated and uses IPSAS (International Public Sector Accounting Standards) for financial reporting, according to Saheed and Kabiru (2020). But no study explicitly explains how the Nigerian public sector practices asset management for more performance and development. No AM institute has been established to train and develop asset managers.

Accordingly, Oluwaremi and Memba (2016) study investigated the association between asset management and financial performance of listed manufacturing firms in Nigeria. They identified different classes of asset management: fixed asset management, cash management, inventory management and accounts receivable management. Based on their discovery after conducting quantitative research, they recommended that companies pay more attention to the management of fixed assets by developing and maintaining an asset management culture with a good depreciation strategy in place, which would enable adequate funds for their replacement as and when needed. Furthermore, they recommended that account receivable management, which guarantees a good percentage of monies owed to the organisations, are collected quickly.

Evaluating the study by Oluwaremi and Memba (2016), it can be asserted that asset management, specifically fixed and account receivable management, requires more attention to optimise effectiveness and efficiency. However, the generalisation of applying should make recommendations to the public sector cannot be affirmed because the study is on manufacturing firms listed in Nigeria. In addition, other non-manufacturing companies were not part of the study. This leaves a gap in the field of asset management practice in Nigeria, indicating explicitly a dearth of analysis on Nigerian public sector asset management with no set of legal and operational frameworks to develop AMP.

2.9 Knowledge Management and Asset Management Practice

Attempts have been made to investigate public sector asset management practices (AMP) about the application of knowledge management by Scholars such as Giglio *et al.* (2018), Henderson *et al.* (2014); Oluikpe (2012); Ibrahim *et al.* (2010). But this area remains insufficiently explored due to limited literature available that categorically addresses this area, as Tafazzoli (2017); Gupta *et al.* (2000) elucidated. In addition, Arrau (2015, p. 3) asserts that "...Since its origin, knowledge management research has been carried out in the economic, social, and cultural context of the rich countries, especially of large companies, while the situation of developing countries has barely been approached...". While Beitelmal *et al.* (2017, p. 1185) stated that "...there is a dearth of literature that addresses the implementation of asset management systems in developing countries...". These Scholars attributed the barriers to implementation of asset management practice to knowledge shortage by stating that "lake of shared knowledge of asset management principles and systems across similar governmental units..." (ibid. p. 1186).

Based on the quotes above, it implies that KM study about AMP development is under-researched, especially in the public sector of most developing countries. The practice of asset management in developing countries is predominant in the private sector compared to the public sector, as asserted by Oluikpe (2012). Accordingly, it was found by Giglio *et al.* (2018) that one reason why it is not a common practice is that there is no sufficient understanding of knowledge and its management. But Alhazmi (2018) argue that uncertainty and competitiveness are the drivers of asset management practice, making it more attractive to the private sector. But, evaluating both AMP and KM are relevant managerial tools in both

industries. Besides, it is worth noting that most reforms adopted in the management of assets were first predominantly implemented by developed countries, specifically by the governments of the United States of America, the United Kingdom, Australia, New Zealand, and France (Ibid.). Most research is carried out in developed countries' public sectors compared to developing countries.

Nonaka and Takeuchi (1995, p.162) stated, "in an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge".

The quote above suits well with the present global crisis caused by the coronavirus pandemic. Considering the new normal presented by the coronavirus pandemic, knowledge management practice about asset management would have to be restructured from an ultramodern perspective. Even with the optimism from the new vaccine (as an enabler of us getting our old way of life back), knowledge management would have to be redesigned to accommodate unforeseen circumstances that might arise in future that could significantly affect asset management practice negatively.

2.10 Incentives, Knowledge Management and Improved Productivity.

According to Nyuur *et al.* (2022), when considering employees' attitudes, it can be stated that youthful individuals tend to value career development, new knowledge acquisition and resources which are relevant in shaping a brighter future, while older individuals gain satisfaction and place more value on helping others and building relationship. This is a relevant insight that could aid in identifying appropriate incentives and aligning them based on individual (asset managers and FAMO) needs.

Incentives are generally used as a medium to reward, reinforce and encourage behavioural change (Cahill *et al.*, 2015; Boue and Corradino, 2019) and improve productivity among employees. Incentives are categorised into two; financial and non-financial incentives (Altman and Motz, 2017). Scholars Finkelstein and Kosa (2003) researched the effectiveness of using financial and other incentives for worksite interventions. They found that if financial incentives such as paid vacation days, health insurance rebates and cash bonuses are correctly implemented, they may promote employee behavioural changes.

Furthermore, the financial incentive has financial value. It is measurable in money, and financial incentives are set to have a higher motivational effect, especially when personalised and channelled to meet employee needs. Although Altman and colleagues argue that money is an excellent factor in motivating employees, it is not enough. For instance, employees that earn less money would find monetary incentives appealing and exciting, but an individual that makes so much would find non-monetary incentives more interesting.

The next category of incentive is the non-financial incentive which is not material examples are promoting an employee based on performance, recognition of an employee through awards, and rewarding performance through scholarships for career development (Jennex, 2008). Altman and Motz (2017) stated that these “*incentives are according to social relationships*” (p. 495), and the authors went on to group non-financial incentives into three: “*knowledge-based incentive, organisational incentives and social incentives*” (*ibid.* p.496). however, their study concentrated on availables' available incentives. Hence, the paper's generalisation is questionable because understanding Nigerian public sector employees is necessary if the right incentive is used, which could ultimately lead to increased performance.

Examples of knowledge-based incentives are activities such as training, conferences, workshops, and seminars organised for employees' career development. Furthermore, based on the research conducted by Handdelsblatt (2017), it has been verified that the kind of incentive that might be appealing to an employee depends on the level or rank of the employee. For instance, managers are motivated to attain higher performance when presented with a good working environment, freedom of choice, high salary, work-life balance, development career opportunities, a working environment that is safe and being granted the opportunity to change tasks.

Likewise, examples of organisational incentives are giving employees flexible working time or hours, corporate culture, and personal development opportunities. And flexible working time has been confirmed v. The final group of incentives are the social motivations between managers and employees. Here an organisation can organise and introduce regular feedback discussion sessions or reward employees' good behaviour and productivity with the employee of the month (Altman and Motz, 2017). And this kind of recognition can become a cultural practice within an organisation.

However, there are several arguments on incentives; for instance, Capko (2009) argues that "Incentives do work for the right staff if the incentive is reasonable, well-executed, fair, and communicated effectively" (p. 41), and the further author claims that the aim for giving the incentive should be achievable and clear. Additional arguments affirm that incentives do not work for individuals or employees with lousy working habits and attitudes. Instead, when incentives are given to employees with bad character. They become suspicious and think of a manager trying to buy their loyalty. In addition, a simple thank you or a gentle pat on the back

is an incentive that can work for even employees that are paid well after tackling a challenging task with a colleague that was not corporative after having a tough week while understaffed; a simple thank you from the head or boss means you are appreciated and recognised (ibid. p. 42).

2.11 Challenges of Asset Management

This study would not be complete without discussing the implication of challenges to the development of asset management. Various factors can significantly affect the outcome of AMP and KM either positively or negatively. Reviewing significant challenges that could impact KM and AMP development in the public sector is pertinent. Firstly, the impact of political will and funding on knowledge management and asset management practice will be evaluated.

2.11.1 Issues of Political Will and Funding

Numerous scholars have explained political will differently (Kapoutsis *et al.*, 2017). For instance, Brinkerhoff (2000) defines political will as the commitment of political leaders to take on actions to complete a set of goals and to support the cost of such activities over time. While other scholars; Kpundeh and Dininio (2006); Stapenhurst, Johnston *et al.* (2006); UNDP (2008” cite in Kapoutsis *et al.*, 2017), define political will as a circumstance where political players illustrate a trustworthy intent for the common good. Similarly, Post *et al.* (2010, p. 659) affirm that political will “is the extent of committed support among key decision-makers for a particular policy solution to a particular problem and making the solution of such problem sustainable over time”. Accordingly, Treadway (2012) stated that political will is an abstruse phrase frequently used concerning the failings of government and politicians.

Even though the political will is broadly used across disciplines, it is a paradoxically defined construct. Political will is viewed as residing in the collective while the motivation of individual actors is ignored. The discussion on political will is appropriate for questions of public policy but fails to explain the individual influence behaviour that affects the leadership (Kapoutsis *et al.*, 2017). Political will and the lack of it are the most widely mentioned reason for government success or failure (Post *et al.*, 2010; Carbonetti *et al.*, 2014; Quah, 2015). This assertion highlights the importance of a political will in developing asset management in Nigeria. Similarly, Von Ah (2021, p.13) affirm, “Organizational leadership should clearly articulate its support for asset management and provide the necessary resources for asset management to succeed”.

In addition, the issue of inadequate funding cannot be overlooked. Mastroianni *et al.* (2021) affirm that considerable investment is associated with starting and maintaining assets. Even though asset management is capital intensive, its benefit outweighs the cost. Furthermore, some other mechanisms and factors would need attention if asset management development were realised. For instance, unforeseen circumstances would have to be tackled.

2.11.2 Lack of Crisis Management Mechanisms

Fall (2004) affirms crisis is unpredictable, and Sawalha *et al.* (2013) concur that situation can lead to colossal misfortune resulting in organisational damage when not appropriately managed. In addition, Abu-Tayeh and Mustafa (2018) explained that crisis ranges from natural disasters to psychopathic and economic calamities. And they advocate for establishing effective crisis management measures within an organisation to be in place to prevent and

protect the organisation from the adverse impact on core business. These measures are not just necessary for companies but also for government organisations.

Furthermore, Meyer (1982) stated that a crisis could also be explained as an unpleasant incident that has a significant negative impact on the environment. The environment could be anything from infrastructure failure to a terrorist attack to a global pandemic. And the present pandemic has interfered with the global processes and practice of asset management. For instance, the regular maintenance and servicing of infrastructure have been affected due to shutting down offices and other services which help provide optimal usage of assets. Even though the coronavirus pandemic is not the first incident of disaster that has hit the world, because of the incidences of viral infection such as SARS (severe acute respiratory syndrome) and the financial crisis that occurred in 2007-2011 (Mitroff, 2004) but coronavirus pandemic has caused a significant shake around the world. Likewise, the rise of the coronavirus pandemic has incapacitated the economy globally because it has caused the collapse of stock markets and has made most parts of the business community come to a complete halt (Otoc, 2020).

Consequent to this development, it has become imperative to review, re-evaluate and modify how both private and public sectors handle a crisis, and this has so much to do with knowledge management because it is the management tool that can aid organisations in knowing the effective and efficient measures to put in place in case of crisis. For instance, having a team responsible for regularly monitoring and evaluating events happening worldwide could help an organisation prepare and mitigate emerging circumstances that can affect them if not correctly handled. To support this assertion, Seeger *et al.* (1998) described organisational crises as any unexpected occurrences that threaten the organisation and leave them with limited time to act.

Then having a strategic plan and measures in place and ready to tackle and use the opportunities (Mitroff *et al.*, 1992) that such occurrences present is vital.

Crisis management is an organisational process used to act on (Otoc, 2020) and respond to an emerging crisis (Al-Sawafi, 2018). It is unpredictable and potentially threatens the organisation and its stakeholders. In the case of the Nigerian public sector, the problem can affect the effective development of asset management and knowledge management processes when not adequately managed. And Vargo and Seville (2011) pointed out another method that can be used to respond to a crisis: strategic planning. And strategic planning is viewed as the long-term process during an emergency, while crisis management is short-term. Denhardt (1985) further argued that strategic planning positively contributes to an organisation's capacity to handle and respond to crises, including changes. Conclusively, the federal government of Nigeria would have to have measures that address the threats, weaknesses, and opportunities that concerns present through the effective implementation and application of knowledge available to the organisation both internally and externally.

Al- muhammadi (2018) explained that crises could arise from the external environment, which can be outside the capabilities of an organisation, while some could be within the organisation's internal environment and others could arise from administrative causes. And Rumman and Alzeyadat (2021) argue that crisis management has various stages. Usually, the first stage is either the organisation avoids or ignores the crisis because top management assumes that the problem is under control. Then the second stage involves setting up plans and majors in managing the crisis through applying knowledge management and other relevant factors. And the third stage involves acknowledgement that there is a crisis and that the situation requires

both internal and external specialists' attention. Such experts could include knowledge consultants and experts in crisis management. The fourth stage involves containment management majors; strategic plans must be implemented to reduce the damage. And the fifth stage tries to address the crisis, and the final stage attempts to compensate for some of the losses recorded from the situation and set up developmental processes (Zidan 2003).

Additionally, Fazli and Farooq (2018) recommended that response to the crisis should be based on and designed to address the specific type and nature of crisis experienced. A change course strategy is advocated because it transforms the problem into something productive and effective. Another strategy involves understanding and utilising knowledge management to identify the cause of the crisis by identifying conflicting layers and potential benefits and then fragmenting the impact of the problem into many resolvable parts; this method is called crisis fragmentation strategy. Next, the crisis should be contained in a limited scope and frozen at a different stage to make it lose its strength. Likewise, an evacuation strategy should be applied to end the crisis through the identification of the content and causes of the problem. And the final strategy to use is the tactical reserve strategy that would help organisations handle the crisis.

2.11.3 Lack of Employees' Participation in Decision Making

Okechukwu and Enoh (2014) explained employees' participation in decision-making as a practice of involving persons of different ranks to share and influence the decision-making process. It is presumed that the involvement of employees in decision-making intensifies their loyalty and efficiency within an organisation. The authors affirm that a significant association

exists between employee commitment, organisational productivity and employee participation in decision-making. Similarly, Han *et al.* (2010) study highlight the impact employee participation in decision-making has on knowledge-sharing behaviour within an organisation. According to the authors, psychological perceived ownership by employees increases their commitment to the organisation, which induces an unselfish spirit of knowledge-sharing behaviour. Their research also confirms that psychological ownership positively correlates with employee participation in decision-making, and organisational commitment is positively associated with psychological ownership.

In turn, organisational commitment is a mediator between psychological ownership and knowledge-sharing behaviour. Accordingly, Elele and Fields (2010) argue that a better pool of information is gotten when employees are involved in decisions. Involving employees in the decision-making further equips employees to implement work processes after the decision (Miller and Monge, 1986). Employees who are recognised and engaged in decision-making perceive that the management views them as intellectuals, knowledgeable and valued stakeholders. This perception leads to employee satisfaction and ultimately higher productivity, according to French *et al.* (1960); Cotton *et al.* (1988). Looking at asset management practice in the public sector involving asset managers and officers in charge of asset management is imperative if the program is to be advanced and for a more productive workforce to be realised.

2.11.4 Legal and Operational Challenges

A conceptualised guidance with suggestions on how asset managers and FAMO can carry out day-to-day operations and decide on asset management practice in the public sector is relevant. More to the fact that the coronavirus pandemic has disrupted specific operational plans and

processes, then the need to re-strategies already made legal and operating model is necessary and following the guidance made by Nortje *et al.* (2021), for asset management development to be attained adjustment must be made on existing policy and practice of asset management is necessary and having a designed plan that tackles and mitigates unforeseen circumstances is paramount.

Similarly, Mohaghegh and Grobler (2020) also affirm that operational challenges occur frequently and as such various problem-solving programs need to design, introduced, and implemented. Operational problems are easier to observe compared to strategic decisions with long-term impacts; this implies that it is a possible action and procedure that can be undertaken to develop asset management practice in the public sector in Nigeria. After reviewing the relevant literature for this study, a model will be designed to summarise what can be inferred from the literature and how they are relevant to the development of asset management.

2.12 A Model Summarising all the literature reviewed.

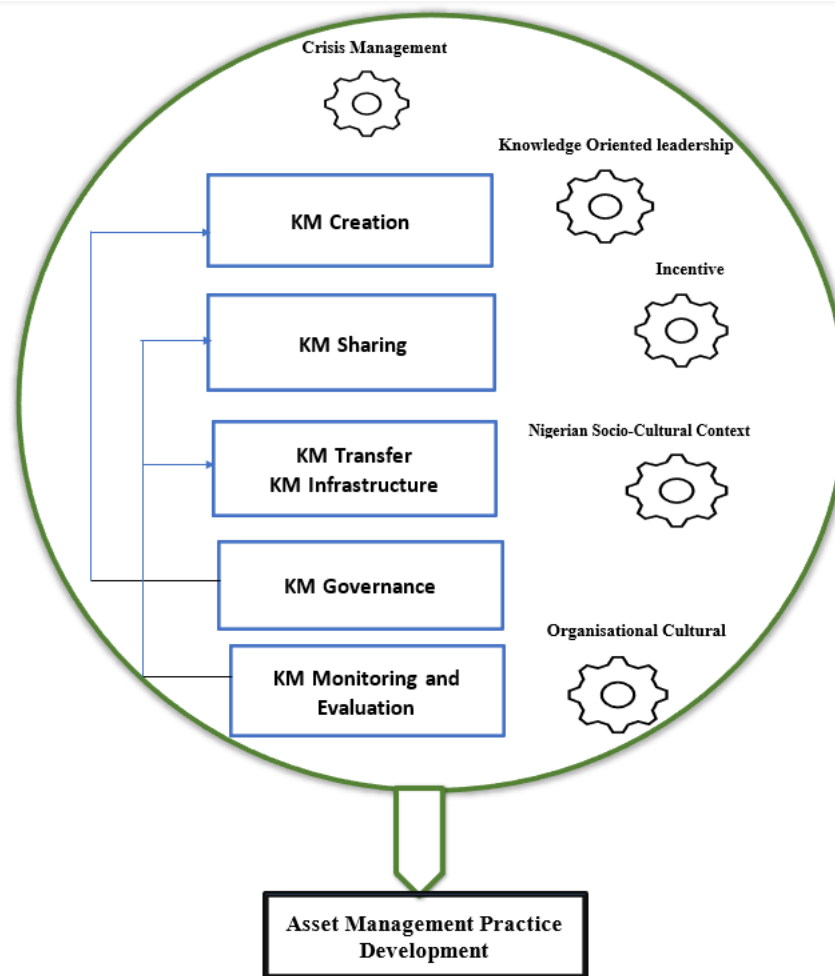


Figure 2: A model showing how the development of Asset Management practice can be attained through the interaction of Knowledge Management (KM) activities and socio-cultural and organisational factors.

The model figure 2 developed and illustrated shows how knowledge management processes and mechanisms, organisational culture, Nigerian socio-cultural context, crisis management and incentives all function holistically as an entity to aid the development of asset management. The model shows that knowledge management creation does have an impact on the way

knowledge is being governed within an organisation. While knowledge sharing is illustrated to affect how effectively knowledge can be transferred within an organisation. Similarly, knowledge sharing and transfer can be made possible through knowledge management infrastructures such as knowledge and asset management systems. However, an understanding of how effective the knowledge management practices implemented can be made when monitoring and evaluation mechanisms are in place. For instance, key performance indicators can be used to monitor and evaluate how asset management and knowledge management practices are progressing.

It is worth noting that based on figure 2, knowledge management and its mechanisms cannot lead to asset management development alone. Still, other organisational factors are also helpful in developing asset management practices. Organisational culture and Nigerian socio-cultural context, which have so much to do with institutional and organisational theories, are also vital factors influencing how employees perceive the policies on asset management development. The literature also highlights that leaders who adopts a combination of traditional leadership styles with knowledge management theories will aid in developing asset management practices.

In addition, managing unforeseen circumstances such as pandemics and having mechanisms to tackle the crisis is a contemporary issue that needs to be handled to avoid damages caused by such situations. Another factor that has relevance to the development of asset management in both the private and public sector are reward systems given to employees. Incentivising hard-working employees based on their needs is vital for a motivated, committed, and satisfied workforce.

In conclusion, the model shows that all the elements mentioned function as an entity to enable the development of asset management practices. As such, the model helps in highlighting what research methodology would be relevant to answer the research questions. Since the employees' perception has a role in this study, it is necessary to use a design that allows the employees to express their views and opinions. Before the discussion on the research methodology is done, a further conclusion of the literature reviewed will be undertaken.

2.13 Conclusion of the Literature Review Chapter

The literature review on knowledge management was done to understand the concepts of knowledge management so that relevant gaps can be identified, and based on the various literature reviewed; it can be stated that multiple scholars; Abbasi et al. (2020); Adeyinka (2015); Chong *et al.* (2014); Zyngier (2013); Jyoti *et al.* (2011); Radeliuniene and Kordab (2019); Bagheri et al. (2021); did explore the relevance of knowledge management and its processes in developing economies, applying quantitative research method, while Oluikpe (2012); Arrau (2015); Gupta *et al.* (2000) conducted an extensive literature review to evaluate knowledge management practices in developing countries.

However, Zyngier and Burstein (2012) did seek to address issues on organisational structure or organisational business models on which KM governance practice is articulated using a qualitative method which diverts from the standard process of investigating knowledge management practices. Evaluating all the literature reviewed, it can be stated that even though the literature showed the applicability of knowledge management in different organisational perspectives, none of the literature reviewed examined the application of knowledge

management in the Nigerian public sector. Next, a literature review on asset management practices was conducted.

A literature review on asset management shows that most studies are mostly conceptual studies or literature reviews; Beitelmal et al. (2017) conducted a literature review to investigate and compare the importance of barriers agencies face in establishing transportation assets management systems in the USA and Libya. A contrast between a case of a developed and developing count, while Henderson *et al.* (2014) conceptual paper did identify the additional benefits to be derived by incorporating the unique knowledge of the equipment supplier to create an “integrated asset management” partnership that will further enhance: Plant performance, profitability, Costs, Sustainability in terms of increased equipment life, reduced resource utilisation, and improved environmental performance.

Other studies conducted conceptually by Giglio *et al.* (2018) did examine how lifecycle asset management could be used in the public sector to manage large-scale assets such as transportation infrastructure cost-effectively, and Tafazzoli (2017) focused on an extensive literature review on how to implement infrastructure asset management in developing countries. Then (Alhazmi, 2017) study did explore how to understand physical asset management practices using qualitative methods and quantitatively; scholars such as Maletic *et al.* (2020); Kusnawati *et al.* (2019); Maletic *et al.* (2017) investigated to find out the effectiveness of Asset management (AM).

However, none of these studies did examine how asset management practice is undertaken in developing countries such as Nigeria or its public sector. Literature reviews on system thinking, organisational development, and institutional theories were conducted to understand how the ideas can be used to conceptualise the study. In summary, the three approaches highlighted how asset management and knowledge management could act as an entity for organisational performance to be attained. The literature on incentives was also evaluated.

A literature review on incentives was also conducted to understand what incentives could be relevant to employees. Accordingly, Nyuur *et al.* (2022) study found that economic, legal, ethical, and discretionary CSR practices influence employee satisfaction and engagement levels at the workplace. Although, the research found no proof of employee age moderating the relationship between the four CSR dimensions and employee job attitudes (engagement and satisfaction). While Altiman and Motz (2017) study on healthcare management, which analysed both financial and non-financial incentives for motivating humans in companies, concludes that examining what motivates employees in an organisation is vital to know the most appropriate incentives for a specific set of employees.

In addition, Finkelstein and Kosa (2003) research on how to assess the effectiveness of using financial and other incentives for worksite intervention found that financial incentives such as paid vacation days, health insurance rebates and cash bonuses are correctly implemented, they may promote behavioural changes among employees. These studies highlighted above examined various incentives that could appeal to employees; however, the studies were not conducted in the context of the public sector, which shows a gap in the literature.

A literature review on challenges experienced in asset management practices was done for an understanding of the current situation globally. Literature on political will, funding, and crisis management mechanisms was reviewed. Also, challenges that hinder employees' participation in decision-making were done. The literature reviewed on employee participation shows a significant association between employees' involvement in decision-making and organisational productivity (Okechukwu and Enoh, 2014). While Han *et al.* (2010) study show that organisational commitment facilitated the association between psychological ownership and knowledge-sharing behaviour, Elele and Fields (2010) found that factual points of participation and factual versus anticipated participation are associated with affective and normative commitment for Nigerian employees. All these studies did emphasise the importance of involving employees in decision-making. However, the studies were not conducted in a public sector setting, meaning a gap exists in the literature review.

3 METHODOLOGY

3.1 Introduction

This study investigated how asset management practices can be developed through the application of knowledge management in public sector organisations in Nigeria. Even though previous studies had been done on public sector asset management practices (AMP) about the application of knowledge management by scholars; Giglio *et al.* (2018); Henderson *et al.* (2014); Oluikpe, (2012); Ibrahim *et al.* (2010), this field of study remains inadequately looked at due to dearth of literature that addresses issues in this area (Tafazzoli, 2017; Gupta *et al.*, 2000). Similarly, knowledge management studies have been done mainly in rich countries' economic, social, and cultural contexts, exceptionally private businesses. In contrast, the situation of developing countries has scarcely been examined, which has been attributed to a lack of knowledge in the implementation of AMP (Arrau, 2015; Beitelmal *et al.*, 2017; Bagheri *et al.*, 2021). Based on this premise, the following research questions were developed:

1. To what extent has KM supported the development of asset management practice in Nigeria's public sector?
2. How can knowledge management activities aid in developing a tenable assets management practice?
3. What are the challenges encountered by the asset management department?
4. What incentives are needed to be employed for a boost in Knowledge management acceptance for higher performance to be achieved?
5. What could be the participant's recommendations on improving asset management in the public sector?

6. What kind of practical and novel framework can be developed for the implementation of Knowledge Management for the development of asset management to be achieved?

And to address these research questions, a suitable and appropriate research design was selected.

3.2 Overview

In the previous chapter, an extant review on KM and AMP around the globe and in Nigeria formed the foundation on which the research methodology is grounded. This chapter details how the study was conducted to answer the research questions. Consequently, this chapter is presented in four sections. The first section analyses the fundamental philosophical paradigm, assumptions, position, and views adopted in the study on how KM can be used to develop AMP. The second section highlights the method, design, approach, and sampling technique used to shape the research. While section 3 will elucidate how the data was collected and how ethical issues were handled. The fourth and final section 4 explains the process that was analysed in the study.

3.3 Definitions of Key Terms used in the Methodology section

- Research Philosophy is the system of assumptions and beliefs that govern knowledge development (Saunders *et al.*, 2019).
- Research paradigm is an individualistic view of the world that guides the study researchers engage in (Pickard, 2013).
- Ontology is the description of reality (Gruber, 2018).
- Epistemology is the viewpoint of how we can know reality (Brank *et al.*, 2005).

- Methodology is the practice of how we come to know reality (Saunders *et al.*, 2019).
- Research methods are only a specific strategy that a researcher designs to start investigating the problem or phenomena (Beins, 2017).
- Research sampling allows them to systematically collect information about the objects of study (people, objects, and phenomena) and the settings in which they occur (Kamba, 2009).

3.4 Section 1: Philosophical Foundations and Research Stance

This section explored the various philosophical paradigms and stances as they serve as the foundation for this study. The methodology adopted in this study is primarily affected by the researcher's beliefs and assumptions (Saunders *et al.*, 2019). Similarly, this research assumption adopted in this study is divided into three; ontology, epistemology, and axiology (Zukauskas *et al.*, 2018). While the paradigm employed does not include only ontology and epistemology but also the methodology and methods used in this study. The methodological choice of this study was determined based on the researcher's philosophical position and the analysed phenomena.

To determine the right research paradigm, the researcher analysed all the various research philosophies to identify the one that best suits and answers the research questions generated in this study. The five management philosophies are positivism, critical realism, interpretivism, postmodernism and pragmatism (Holden and Lynch, 2004). Positivism assumes that only one reality exists that is measurable and observable. The researcher takes a detached and neutral position in the study and is usually used in quantitative research. While in Critical Realism, reality is stratified, objective, empirical and knowledge is socially constructed. The

researcher recognises bias in the study and tries to minimise it as axiological consideration. This philosophy can be applied in multiple methods requiring both quantitative and qualitative research methods (Saunders *et al.*, 2019).

The next type of research philosophy considered is Interpretivism, which affirms that numerous sophisticated realities, with many meanings and socially constructed exist. Here the focus is on opinion, perception and interpretation of things made by individuals, and this stance recognises the researcher as part of the study. Qualitative research is used with an inductive approach (Azungah, 2018) using a small sample. Postmodernism assumes that there are nominally complex and socially constructed realities, the focus is on absence, and the researcher's narrative is suppressed by the axiological. Likewise, p qualitative research usually uses philosophy (Kahraman, 2015). The final philosophy that would be considered is pragmatism. The assumption is that reality is complex and external, and the focus here is on relevant and practical problem-solving, which is value-driven and initiated by the researcher's doubts. The mixed method is usually employed. This means quantitative and qualitative methods are relevant and utilised (Desta, 2009).

After analysing the various research philosophies and reviewing the relevant literature on KM and AMP. The researcher of this thesis believes that the most appropriate method is the one that acknowledges the fact that various realities are sophisticated, with numerous meanings which are socially constructed, as well as external and based on people's perceptions. Also, since the researcher of this thesis intends to proffer solutions to problems associated with KM and AMP development in the public sector, the researcher then assumes that knowledge is fluid and based on this assumption, exploratory research (De Langhe and Schliesser, 2017) was

conducted to investigate how knowledge management (KM) can be used to facilitate the development of Asset Management Practices (AMP) in the public sector by developing a futuristic and practical framework based on analysis conducted using various perspectives of asset management officers in the federal republic of Nigeria. Furthermore, since this research aims to solve a problem from the respondent's perspectives, an interpretivist stance was adopted (Lorino, 2018).

In research, every step taken is accompanied by an assumption. This assumption could either be about the reality of things (ontological assumption) or assumptions about human knowledge (epistemological assumption), or hypotheses about how beliefs and values (axiological assumptions) influence the research process (Burrell and Morgan, 2016; Cassam, 2016; and Nasution, 2018). Looking at the various beliefs, it can be explained that Ontology is an organised way of presenting relationships and concepts of a shared conceptualisation. In addition, ontologically knowledge is assumed to be either fluid or concrete (Asim *et al.*, 2018).

KM is a valuable resource for improving organisational performance (Jyoti and Rani, 2017). Epistemologically, prior research has shown how KM can be used to boost and acquire a competitive advantage (Lee *et al.*, 2016). However, the way and the extent to which KM can impact AM development are yet to be investigated. Thus, based on the selected stances, the researcher ontologically investigated the role KM plays in the development of AMP in the public sector and epistemological determined the relevant role that KM has played in the development of AMP as well as examined the extent to which KM has been applied and how it can be used to develop AMP in the public sector.

3.5 Section 2: Research Design.

This study was designed using a qualitative research method (Sampson, and Johannessen, 2020; Denny and Weckesser, 2019; Clark and Souse, 2015; Roberts, 2014) because the researcher wants to explore how knowledge management would boost asset management practices by considering perspectives of relevant participants. Also, the research did explore an in-depth understanding of the variables because the knowledge that context plays a lot many too (Kohler *et al.*, 2019). Elaborating more on why the qualitative research method was used is because it enables researchers to retrieve the opinions or perceptions of respondents in research (Eatough and Smith, 2017), which helps the development of an understanding of the meaning that individuals attach to their experiences.

On the other hand, the quantitative research method enables researchers to understand how and why certain behaviours occur (Sutton and Austin, 2015). In the field of KM and AMP, most research utilises quantitative research method (Bagheri *et al.*, 2021; Maletic *et al.*, 2020; Abbasi *et al.*, 2020; Radeliuniene and Kordab, 2019; Beitelmal *et al.*, 2017; Maletic *et al.*, 2017; Adeyinka, 2015; Jyoti *et al.*, 2011). But some scholars have taken their time to qualitatively study and understand employees' feelings and thoughts when implementing KM and AMP development (Alhazmi, 2017; Zyngier and Burstein, 2012). At the same time, others have utilised conceptual studies to understand KM and AMP (Tafazzoli, 2017; Arrau, 2015; Alavi and Leidner, 2001; Gupta *et al.*, 2000).

The study on KM and AMP has been undertaken using various qualitative methodologies: a case study (Zyngier and Burstein, 2012), archival research (Eugene, 2014), narrative inquiry (Paschen *et al.*, 2014), action research (Beauchet *et al.*, 2012), grounded theory (Bryant and

Charmaz, 2019), ethnography (Desta, 2009), phenomenology (Sutton and Austin, 2015). Nevertheless, this research used a Federal Parastatal in Nigeria as a case study. A case study method was employed because it appropriately and adequately answered the research questions (Saizew *et al.*, 2021). The case study method allowed an in-depth examination of the phenomenon within its real-life context because the research focus is not predictive but more descriptive and explanatory.

Similarly, case studies enable different types of evidence from interviews with participants and scrutiny of documents and artefacts (Francis *et al.*, 2010). In addition, an inductive approach (Sachiko *et al.*, 2020, David, 2006) was adopted because understanding the meanings of AMP, KM and the factors that influence employees' engagement in these practices are different. All these cannot be explained except when people are engaged in conversation separately to see and hear their views. Since the research intends to allow the theory to emerge from the data (David, 2006), interviews (May 2018; Zyngier and Burstein, 2012; Marshall *et al.*, 2013) are the best option. Next, the technique employed for data collection will be discussed.

3.6 Section 3: Data collection and how ethical issues were handled.

3.6.1 Sampling technique

The purposive sampling technique (Patton, 2015; Palmer *et al.*, 2020; Smith *et al.*, 2020) was adopted in data collection because the researcher wanted to have a flavour of the differences that eventually emerged from the data collected. In addition, purposive sampling was done so that the researcher could deliberately select the persons to participate in the study based on their ability to provide necessary data. The data collected reflected the six geopolitical zones

in Nigeria. Similarly, internet-mediated interviews (Saunders *et al.*, 2019) were the primary data collection technique used in this study because of covid-19 restrictions and about 30 consultations (Francis *et al.*, 2010) were conducted using participants from various Nigeria Federal Ministries, Departments and Agencies and the criteria used for choosing respondents was based on their role in either KM or AMP programs.

Using Francis *et al.* (2010) principles of data saturation as guidance, 30 interviews were conducted (with appropriate diversity sampling). New themes kept emerging when about 19 participants were interviewed. Still, after 11 additional interviews were conducted, no new themes emerged, and then the point of data saturation was established. The stopping criterion was tested after each successive interview until three consecutive interviews were without additional material. Next, the instrumentation will be discussed to understand further how the data was collected.

3.6.2 Instrumentation

The interviews were semi-structured (Saizew *et al.*, 2021), and the interview questions were used as a guide (see Appendix 12.4). Similarly, opened-ended questions (Sparkes and Smith, 2014) were asked because the researcher was interested in finding the themes that would emerge from the data collected from the participants (Saunders *et al.*, 2019). Also, Semi-structured interviews were utilised because they allow for open discussions, individuality, and flexibility during the process (Eatough and Smith, 2017). Participants could bring up essential topics even though they were not explicitly asked by the researcher (Warner and Dixon, 2015). For instance, questions on political will and funding were not included in the interview questions. However, the participants brought it up as a relevant issue that they encounter in

the practice of asset management. Also, the participants raised the information on the lack of synergy between the asset management officers and the department responsible for managing the technological aspect of asset management, which the researcher had no idea about. However, the interview questions generated were meant to act as guide towards answering the research questions.

Based on the answers the participants gave, follow-up questions were asked. It is worth noting that at the beginning, the researcher did ask direct questions on knowledge management, but after the researcher discovered that the participants found it challenging to understand what KM all is about. Consequently, the researcher asked how they create, store, process, share, exchange, and transfer their information and knowledge. Also, questions to evaluate their understanding of AMP were asked, questions on training and development were asked, and the researcher did ask questions on how they adopt technology and how to equip them to perform their responsibilities effectively. Similarly, employees who came into the department were also interviewed to confirm if they received the basic training and briefings needed to carry out their work schedules effectively and efficiently. Regarding secondary data sources, most information was obtained from the department documents emailed to the researcher by the head of the department of Asset Tracking and Management Program (ATMP).

3.6.3 Participants Selection

The researcher worked with the Director of Asset Tracking and Management Program and the head of Government Integrated Financial and Management Information Systems (GIFMIS) to select the respondents based on their knowledge and experience working in the asset management department. The researcher requested the email addresses of potential

participants from the head of the asset management program because all asset management officers posted to various ministries are under the authority. The potential participants and those who participated were sent an email by the researcher requesting them to participate in the study. Also, IT experts responsible for the asset management platforms in the federal republic of Nigeria were sent requests to participate in the study.

It is worth noting that the Nigerian public service comprises 27 ministries, and each has an asset management officer posted to oversee the affairs of asset management. About 50 potential respondents were contacted through emails, of whom 30 responded and accepted to participate in the research. Finally, about 30 participants were interviewed. About 27 of the participants work in 27 different ministries that exist in the public sector in Nigeria and the additional three participants interviewed are individuals that are based in the headquarters and are either responsible for handling the technological aspect of the asset management or in charge of managing the activities of asset management and tracking program.

The number of participants used is an accurate representation of the population of the asset management officers in the federal public sector because each ministry has either one or two asset management officers, and this is considered a good number to conduct qualitative research because Saunders et al. (2019) affirm that having 15 participants is enough for a qualitative study and Noon (2018) suggested that a sample size of six respondents is suitable for the development of a case without suffering from data overload and losing idiographic focus. Please, refer to table 1 on page 110 for the participants' vignette.

One of the primary reason why some of the asset management officers were due to lack of access to some of the asset management officers' contacts, especially the junior workers, due

to government regulations prohibiting them from going to work due to restrictions placed to contain the coronavirus pandemic while some felt they were new to the depart of asset tracking and knew little about the activities going on. Some did not want to participate in the research due to personal reasons. In addition, internet-mediated interviews were recorded using Zoom and Microsoft Teams (Munna, 2021), and the researcher ensured that the participants were relaxed and not tensed. Although, some of the participants stayed in their offices to have the interview where other workers were due to the lack of internet network in their residence, which made the background noisy.

3.6.3.1 Participants Vignette

Table 1: Participants Description

Participant (P)	Gender	Zone	Rank	Ministry
P1	Male	Southwest	Consultant	Finance
P2	Female	Southwest	Assistant Director	Women affairs
P3	Female	Southwest	Chief Accountant	Housing
P4	Male	Northcentral	Principal Accountant	Youth development
P5	Female	Southwest	Senior Accountant	Water resources
P6	Male	South-South	Assistant Director II	transportation
P7	Male	Southwest	Accountant I	Trade and investment
P8	Female	Northeast	Accountant I	Science and technology
P9	Female	Northeast	Director	Finance
P10	Female	Southeast	Principal Accountant	Power
P11	Male	South-South	Assistant Director	Petroleum Resources
P12	Female	Northeast	Chief Accountant	Tourism, culture and national orientation
P13	Male	Northeast	Deputy Director	Niger Delta
P14	Female	Northeast	Chief Accountant	Mines and steel development
P15	Male	Northwest	Deputy Director	finance
P16	Male	Northcentral	Principal Accountant	Lands and Urban Development
P17	Female	South-South	Accountant I	Labour and productivity
P18	Male	Northeast	Director	Justice
P19	Female	South-south	Senior Accountant	Interior
P20	Male	Northeast	Director	Information and Culture
P21	Female	Northcentral	Accountant	Health
P22	Female	Southeast	Accountant I	Foreign Affairs
P23	Male	South-south	Chief Accountant	Federal Capital Territory
P24	Male	Northwest	Assistant Director	Environment
P25	Male	Southeast	Accountant	Energy
P26	Male	Northcentral	Deputy Director	Education
P27	Male	Southeast	Special Adviser	Aviation
P28	Female	Northeast	Special Adviser	Agriculture
P29	Female	Northcentral	Accountant	Defence
P30	Male	Northwest	Inventory Officer	Finance

3.6.4 Pilot test

A pilot study was conducted with five asset managers online and recorded. During the interview, the researcher gave attention to their body language, non-verbal responses and the kind of questions asked. The pilot study provided an insight into the actual situation, and mistakes identified in the researcher's skills were corrected and not repeated in the main study.

Data analysis Method and Justification

3.6.5 Data Analysis Method and Justification

The unit of analysis used in this study was officers involved in asset management practice. The data was collected using 30 semi-structured interviews conducted in Nigeria's 27 federal government ministries. Due to the explorative nature of this study, thematic analysis was used to analyse the data. Thematic analysis was deemed most appropriate for a flexible and rich interpretation of the data (Braun *et al.*, 2016). Thematic analysis was also employed so that the researcher could analyse and present rich individual respondents' views, opinions, and perceptions on the application of knowledge management to the development of asset management. Similarly, the thematic analysis allowed the researcher to examine themes within the data collected (Fereday and Muir-Cochrane, 2006).

Using thematic analysis, patterns found within the data were represented. Also, this research method allowed the researcher to explain and arrange observations at a minimal level and let the interpretation of certain phenomena at a maximum level. The thematic analysis also allowed the researcher to examine both explicit and implicit ideas within the data (Guest and MacQueen, 2012). Similarly, Braun and Clarke (2006) stated the main benefits of deploying

thematic analysis are its easy accessibility to qualitative researchers with minimal or no experience; it allows the researcher to have the flexibility required to make data analysis, it is easy to learn, adapt and produce qualitative data analysis appropriate for policy development which allows the generation of insights and making interpretations which are socially constructed.

3.6.6 Ethical Considerations

The researcher emailed a letter to the Director of Asset Tracking and Management Program (ATMP) at the Office of the Accountant General of the Federation requesting permission to conduct the research in the various government Ministries, Departments and Agencies (MDAs) where federal asset management officers' work. When the approval was received, virtual appointments were made with the various participants with the help of the Directors of the ATMP and GIFMIS departments. Letters of invitation were sent to potential participants with attached consent forms, and for those that responded, interviews were arranged.

During the interview, the researcher thanked the participants for accepting the request and agreeing to be interviewed. The researcher then stated the purpose of the research and reiterated the agreed confidentiality and anonymity of the participants in compliance with the GDPR 2018 Act (Munna, 2021). The right of the participants not to answer questions they were uncomfortable with was emphasised, and the right to leave the interview at any time was also highlighted (Sparkes and Smith, 2014; Saunders *et al.*, 2019). The participants were informed about how the data collected would be used and stored. The data would remain stored in the OneDrive and passworded with the researcher.

The nature of the outcome of the research was started, and the offer to give the participants a summary of the transcribed research findings at the end of the study was also emphasised. The interview was 30 - 45 minutes, and the participants were requested to read and sign the informed consent form. These were completed within the first few minutes of the interview process. Also, the research informed the participants of the minimal risk that could occur, which was not more significant than any encountered in everyday activities.

3.7 Section 4: How the data were analysed in the study.

The data collected was assembled, categorised, and thematically sorted. This was undergone to have an organised platform for constructing meaning (Williams and Moser, 2019). In addition, using the coding method, the various themes embedded in the data collected were revealed, and this set the direction in which thematic directionality was determined for data categorisation. This provided a way through which meaning was negotiated, codified, and presented. Similarly, coding was employed because it enables data analysis and successive steps to serve the research purpose. Also, coding was done for the informant data to be gathered and analysed relative to ‘what they do, how they do it, and why they interact in the research (Charmaz, 2008). Likewise, during the coding process, the researcher ensured that the coding procedures were defined, rigorous and consistently applied in conformity with the validity and reliability standards of qualitative research. In addition, an attempt was made to utilise NVivo in the data analysis, but the researcher discovered that the richness of the data was not captured sufficiently by the software. As such, the study was finally done traditionally. Firstly, open coding was done to identify distinct concepts and themes for categorisation. This was done to express the data and phenomena in the form of concepts. Open coding was carried

out by creating initial broader thematic domains for data assemblage and, in comparison, with previous indicators of similar codes (Saldafia, 2009). Additionally, open coding presents opportunities for sub-coding data. After characterising the text, the data coded was supported by code notes produced to explain the content of the codes (Flick, 2009), which are relevant to the development of theory on how knowledge management can be used to boost asset management practice in the federal republic of Nigeria's public sector. Next, axial coding was conducted for the researcher to identify emerging themes.

Secondly, the researcher identified emerging themes using axial coding to refine, align and categorise the themes so that distinct thematic categories can be created for selective coding (Williams and Moser, 2019). The relationship between open codes was identified to develop core codes, and core codes emerged through engagement in continuous analysis, cross-referencing, and refining theme categorisation.

Finally, selective coding was conducted to select and integrate categories of the data for the conceptualisation of the yield from the selective coding, which provides the researcher with the flexibility in codifying and presenting the findings (Strauss, 1998). Selective coding enabled and provided an avenue for developing the theory, which ultimately transformed into a theoretical framework, making the construction of meaning feasible. Theoretical saturation was achieved as common themes identified continued to reoccur, such that subsequent interviews validated the previous information (Pepple *et al.*, 2021). Please, refer to table 2 on the next page for the data categorisation.

Table 2: Data Categorization

OPEN CODES	AXIAL CODES:		SELECTIVE:
	SUBCATEGORY	CATEGORY	THEMES
<p><i>“Asset management is all about maintaining and tracking federal government assets. It is another thing to have an asset, and it is left idle, or you do not know where it is” (Senior Accountant).</i></p> <p><i>“Asset Management has to do with how we take care of our assets, right, from the post point of procurements up to disposal level, depending on the nature of the asset” (Chief Accountant).</i></p> <p><i>Asset management means centralising all the PPE that is Property, Plant, and Equipment of an organisation into one centralised hub for control” (Director).</i></p>	<p>Basic and partial understanding of what asset management entails</p> <p>Understanding of asset management based on the type they manage</p> <p>Lack of knowledge on types of assets</p>	<p>Meaning of Asset Management</p>	<p>Lack of understanding of asset management practice.</p>

<p><i>“Well, the federal government is just trying to . They are just trying to bring in this idea of asset management” (Assistant Director I).</i></p> <p><i>“Asset management in Nigeria is just coming up” (Chief Accountant).</i></p> <p><i>“It is certainly it has not even started. We are very close to the infant stage” (Assistant director II)</i></p>	<p>Asset management is in its infancy stage.</p> <p>How GIFMIS have developed the technological aspect of asset management</p> <p>Stage of asset management development at the state level.</p>	<p>The stage of asset management in the public sector</p>	<p>Asset management at the beginning stage</p>
<p><i>“Okay, when we got here, I did not know asset management before I got it. When we got here, we had a director who started giving us lots of lectures about asset management” (Chief Accountant).</i></p> <p><i>“OK, we have never, let’s say maybe it’s happening, but we don’t know. But we don’t know what knowledge management is” (Director).</i></p> <p><i>“These trainings have soft copies sent to our Mails” (Chief Accountant).</i></p>	<p>Not familiar with knowledge management</p> <p>Lack of sources for acquiring knowledge on asset management</p> <p>Issue of knowledge hoarding by consultants hired</p> <p>Lack of adequate training and development for asset management officers</p> <p>Lack of Knowledge Repositories</p> <p>Lack of knowledge on public sector asset management in MDAs.</p>	<p>Lack of knowledge of Asset Management</p>	<p>Establish and Implement knowledge management</p>

<p><i>“For now, we have few desktops and laptops, but not if not everybody as it's” (Chief Accountant).</i></p> <p><i>“We were able to acquire some technology WAPS Asset cloud but not using it” (Director).</i></p> <p><i>“GIFMIS portal to some extent, not fully, but to some extent also fit into what you need so you can incorporate exactly, but I was thinking that when we have his software” (Chief Accountant).</i></p>	<p>Lack of devices</p> <p>Lack of initiative and sufficient expertise to use WAPS asset management software.</p> <p>Lack of synergy between GIFMIS and Officers handling asset management.</p>	<p>Lack of Technological Infrastructure for Knowledge Management and Assets management</p>	<p>Establish technological infrastructure for AM and KM</p>
<p><i>“Yeah, we tried to familiarise ourselves with, but as I said, the political will has always been the problem” (Director)</i></p> <p><i>“No, we have not been helped in that aspect. Because asset management needs funding and serious funding (Senior Accountant)</i></p> <p><i>“The government itself. I will have been attributed all the or alluding all the excuses to the lack of funds or the lack of</i></p>	<p>Lack of political will</p> <p>Lack of funds</p> <p>Effect of coronavirus pandemic on training</p>	<p>Fund the Department</p> <p>Involve asset managers and officers in charge of asset management in decision-making on the program</p>	<p>Challenges of asset management</p>

<p><i>political will. But I also want to say that Covid19 also was very unfriendly” (Director)</i></p>	<p>all officers handling asset management.</p> <p>No established asset management institution in Nigeria</p> <p>Lack of involvement of asset managers and officers in charge of asset management in decision making.</p>	<p>Regular capacity building is required.</p> <p>Tackle and put in measures to mitigate unforeseen circumstances</p>	
<p><i>“When it comes to motivation, we are not being motivated to the level we are supposed to, but because of the interest we have, we are putting in our best. So...” (Chief Accountant).</i></p> <p><i>“We pay our IT specialists overtime because they work round the clock in case of any problem there is always someone to handle it” (Deputy Director)”.</i></p>	<p>Lack of established incentives for asset managers</p> <p>GIFMIS pays their specialists overtime and grants other rewards</p>	<p>Increase asset managers’ salary</p> <p>Grant career development opportunities</p>	<p>Establish Reward System</p>

<p><i>“If the place is professionalised, and you know having career professional asset trackers” (Assistant Director II)</i></p> <p><i>“A strong backing in the operational and legal framework” (Director).</i></p> <p><i>“OK, enough to be done by the government, OK? Yes, he needs to understand what this is all about. It does not seem like. You know, they ought to be aware of the importance of asset tracking” (Chief Accountant).</i></p>	<p>Institutionalise asset management to a commission.</p> <p>Development and implementation of both operational and legal frameworks.</p> <p>Continuous capacity building.</p> <p>Career professionals in asset management should be employed and developed right from an entry point into the civil service.</p> <p>Government should involve asset managers in decision-making on asset management programs.</p> <p>Top management needs to be educated on the relevance of asset management.</p>	<p>Participants’ recommendations on how to improve asset management in the public sector.</p>	<p>Participants Recommendations</p>
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Next, the data presentation would be done before the analysis would follow.

3.7.1 Research Validation and Credibility

Authenticating research findings is imperative because it certifies the precision and reliability of the data collected through semi-structured interviews, as demonstrated in this research. McGuiggan and Lee (2008) explained that validity reveals the accuracy of a study and signifies whether the results denote what happened in the field and what has been stated in a study. The data collected for this study was validated by applying mixed data collection methods to attain triangulation. Employees trained and skilled in asset management programs were selected to increase this study's validity. Also, it was ensured that only such category of people was used because they can reflect on their positions which are subjective right from the beginning (Kinsella *et al.*, 2022)

The researcher took notes and recorded them in the research journal, interviews conducted were transcribed. Also, the transcribes made were shared with the participants for validation and endorsement; following Kumar's (2011) recommended guidance on ensuring data validity during the interview, the researcher informed the participants that the transcript would be shared for validation purposes. After transcription of each interview, a transcript summary was shared with the interviewees to check the correctness of what they said and further authenticate the validity of the data collected. This was achieved after a thematic analysis was undertaken. They were allowing the respondents to double-check the transcribed reliable findings. Also, during the frequent engagement with peers, e-data collection, scrutiny, and results write-up, the researcher confirmed y consulted for their valuable insights and recommendations.

In conclusion, adopting respondents' data checks enabled the attainment of external validity of the study (Kumar, 2011). In addition, the researcher acknowledged that personal bias did

interfere with the data collection and analysis; for instance, the researcher's knowledge of the government does not take the issues of management of knowledge seriously did affect the study; however, the results recorded in this study are a direct translation and interpretation of what was seen, heard, observed, and experienced. Consequently, the researcher presented the findings clearly and explicitly as the participants stated their various opinions.

3.8 Conclusion of the Methodology Chapter

In this study, Nigerian public service was used as a case. Thirtyirty interviews were conducted using fixed asset management officers, asset managers and IT experts as participants. Participants were selected based on their relevance to asset management practice from the 27 ministries in the public sector. The researcher did design the research using the qualitative research method because of the understanding that context plays a role in how participants perceive policies and responsibilities and to understand the meanings of asset management practice, knowledge management, and the factors that influence employees' engagement in these practices, this cannot be explained except when people are engaged in conversation separately to see and hear their views and since the researcher wants to allow the theory to emerge from the data then conducting interviews became imperative. Interviews were conducted using zoom and Microsoft teams due to Covid-19 protocols. Accordingly, thematic analysis was used to analyse the data obtained. The subsequent next chapter presents the findings obtained from the case.

4 FINDING AND DATA PRESENTATION

4.1 Introduction

This chapter gives a detailed explanation of the findings obtained from this qualitative study conducted in 27 ministries in the Nigerian public sector. The data collected was through semi-structured interviews. Next, the presentation of the findings obtained will be done, followed by the analysis of the data using thematic analysis so that the themes and concepts can be extracted to enable the development of sub-categories, categories, and themes. The discussion will then follow when the presentation of data is concluded.

4.2 Meaning of Asset Management:

To find out how knowledgeable the participants are on asset management and what asset management entails in the Federal Republic of Nigeria public sector, participants were asked a question about their understanding of asset management. The response was unanimous, and it highlighted the officer's knowledge of asset management and the various types of assets:

“Asset management is all about maintaining and tracking federal government assets. It is another thing to have an asset. It is left idle, or you do not know where it is. But when you talk of asset management, you don't want a situation whereby the asset would go missing because most of the time, it goes obsolete here; you can always replace it. Still, you cannot even trace it in a situation where it goes missing. You do not even know where it is. So, my idea of asset management is having an asset that you know, where it is from time to time, and how it is being depreciated along the line every year; this is going on. When do I change

it? How am I going to maintain it if I'm going to repackage or rebrand it or I'm going to sell off for everything to be in the record and then” (Principal Accountant)?

The findings show that the participants' understanding of the construct are somewhat different from the academic definitions of asset management by Kusnawati *et al.* (2019); Maletic *et al.* (2017). Based on this discovery, three subthemes were deduced to understand the rationale for participants' view of asset management.

4.2.1 Basic and partial understanding of what asset management entails

Findings showed that participants' understanding of asset management is based on what they learnt:

“In my understanding, I think Asset Management has to do with how we take care of our assets, right, from the post point of procurements up to disposal level, depending on the nature of the asset. So, in my view, that's just my understanding about asset management” (Chief Accountant).

The above explanation of asset management shows that the participant has a basic understanding and knowledge of what asset management is but is not well defined as provided by the literature review.

4.2.2 Understanding of asset management based on the type they manage

The participant believes that asset management is about the centralisation of government fixed assets for control:

“However, I forgot to tell you that assets themselves we are only managing the PPE aspect. But the asset you know is Mirage. So, we are managing just the tangible and the tangible, which is the physical. Asset management means centralising all the PPE that is Property, Plant, and Equipment of an organisation into one centralised hub for control” (Director).

The participant’s understanding of asset management negates the definition of asset management by scholars who defined asset management as an all-inclusive strategy that adds value and gives organisations a competitive edge over rivals.

4.2.3 Lack of knowledge on types of assets

The respondent did explain asset management based on what they do in their department, that is, management of fixed assets and then went further to state the various types of assets they manage,

“And we have various classes of assets that we manage in the public sector. We have up to like six classes, six or seven classes of assets, that we manage in the public sector. We have our motor vehicles, we have office equipment, we have furniture, land and building, and we also have the infrastructure; we also have what we call an asset under construction, and some assets are not completed as well. So, we also manage that and keep a record of all those types of assets” (Chief Accountant).

The participant’s response shows that basic knowledge of how literature explains the various types of assets is lacking. Moving on, it became imperative to ascertain the department's attainments regarding asset management development.

4.3 The stage of asset management in the public sector

To understand what has been done so far for the development of asset management in the public sector, the question on the level they are at was asked, and the response obtained was almost the same amongst the respondents:

“Well, the federal government is just trying to . They are just trying to bring in this idea of asset management” (Principal Accountant).

“Asset management in Nigeria is just coming up” (Chief Accountant).

“It is certainly not even started. We are very close to the infant stage” (Assistant Director).

“OK. Oh, that is a lot longer way we're just starting, but we are not just starting. Let me say the whole idea or the concept of asset management of the federal government PPE. By PPE, we mean Property, Plant and Equipment. So generically, these are the prevalent fixed assets that are found in government institutions. However, what we must do is that from the whole programme started in 2017, we had a very effective officer in the person of ah well, I am sorry to call her an officer, but she is a minister, an honourable Minister of Finance, Mrs Kemi Adeosun. I used to appreciate that, Lady. She's a perfect model for financiers; she's passionate about financial management and prudent management of the government's scarce resources. However, she is like a kind of the brain behind this; otherwise, we will say asset tracking and management is a recent thing or recent happening in Nigeria. 2017 the concept was conceived. The idea was conceived, and then they, the Minister, sent a memo. Send a memo to the Federal Executive Council of the Federal Republic of Nigeria that they should consider, and this is coming from the fact that the nation from 2010 has adopted the practice of accountancy in the bit to now be or meet or kind of flow in the Committee of Nations of the World. And so it

adopted the international public sector accounting standard, which is IPSAS. So, by adopting IPSAS, the requirements of IPSAS believe that we must have all our assets recorded. Otherwise, the financial statements of IPSAS cannot be complete without figures representing assets and liabilities. And to be able to do that, there is a need for synergy between all government agencies. There is what we call Ministries, department, and agencies, and these are the three arms of government made up of the executive, the judiciary, and the legislators, which is the National Assembly. So, all of them are owned by the government. And the government has assets, fixed assets or physical assets that are residing with them. So, there is a need to at least be able to quantify and make a statement to represent the value of such assets” (Director).

“We have fixed asset management units (FAMU) in various MDAs” (Chief Accountant)

From the responses, it can be stated that asset management in the federal republic of Nigeria’s public sector is in its infancy or that asset management just began or started. Similarly, it was adopted to meet International Public Sector Accounting Standards (IPSAS).

4.3.1 How GIFMIS have developed the technological aspect of asset management

GIFMIS is the Government Integrated Financial and Management Information Systems department that handles the technological aspect of asset management. The question asked was centred on the technical support they provide. Below is the response from a participant on their responsibilities.

“Ahh, Nigeria is moving fast technologically from where we started; we will see how Nigeria operates. They were more of a manual process with some element of a spreadsheet all along that is excel; we use excel in preparing reports. The implementation of GIFMIS has helped a

lot. We started back in 2004, and we eventually were able to develop this software and deplore it in 2012, when we went live. Precisely April 2nd, 2012. And we have been implementing the software in phases. We first started with about 93 MDAs. Gradually we have increased it to approximately 860+. Apart from the in place, we have also been deploying the financial management in phases. We started with the payment process. And we were later extended to the procurement process, asset management and inventory management. And now, going back to asset management precisely, that's your area of focus. Yeah, we. I think it exactly means 2020, 17 or 2016. We Now. We had what we call release 2. The release includes procurement, inventory management and asset management. And that's focused on the area of your concern. There we have all areas of asset management if I may give you the areas covered under that asset management.

Now, if you look at the asset management module, it has an area for receiving assets from the vendor or supplier. There is a process of obtaining it. I mean, that is done at the store or wherever you, the location wherever the asset was received? It has a method for the use of support as well. Those transferred to the user department because it is one thing for you to accept their assets into the store. It is another thing for them to be released to the user department. There's a process for it. You have the store request process, and with this store request process, the asset is moved to an appropriate place. Apart from that, we still have moved from one store to another, which is the asset transfer process. We keep track of it; the record contains details of the vendor, the location of the vendor, the date of purchase, the date of delivery, and the date of payment receipt into the system. Then we have a process for asset depreciation. By the time you commence the usage of the asset, you can start computing depreciation because the value diminishes as you start using the asset. So, there's a process

to maintain this, and we equally have a strategy for asset adjustment. Adjusting the value of assets adjusting the value of an investment may be very important because, at the end of the year, an asset that has maybe, 50% of its value may be damaged or spoiled and is beyond repair and may be of no value. We keep value in the system, so we may have to adjust. But the approval for this may occur maybe through the management. If approved, something could be done to change the value in the system. Then there's a process for any method they can initiate and support online and on the system as well” (Consultant).

4.3.2 Stage of asset management development at the state level

Nigeria has three tiers of government: federal, state, and local. And knowing the extent to which asset management programs are within the country is essential since asset control is intended for the entire country.

“No asset management program is taking place here, but our store managers handle all assets” (Chief Accountant).

The participant did confirm that the asset management program has not yet reached the state level.

4.4 Lack of knowledge of Asset Management

The researcher did ask questions on how they manage knowledge on asset management within the department because without understanding how they collect knowledge, it will not be possible to identify areas that need to be improved. The responses shed more light on understanding what needs to be done to improve knowledge management which would aid the development of asset management.

“Okay, when we got here, I did not know asset management before I got it. When we got here, we had a director who started giving us lots of lectures about asset management. And we also had to research and try on our own to understand asset management. And when he left our new director, also knowledgeable in the aspect to bring in her idea too. And we all in the process of brainstorming and researching, we're able to gather a lot of knowledge” (Senior Accountant).

The participant has no background or prior knowledge of asset management. From the statement made, it can be inferred that knowledge management could be deficient in the department.

4.4.1 Not familiar with knowledge management

Based on the response gotten from the respondents on how they manage asset management knowledge, the researcher went on to find out if the participants understood what knowledge management entails.

“OK, we have never, let's say maybe it's happening, but we don't know. But we don't know what knowledge management is” (Director).

The response gotten from most of the participants calls for a proper introduction and implementation of knowledge management. This led to the questions on how they acquire, distribute, store, and utilise knowledge within the organisation.

4.4.2 Lack of sources for acquiring knowledge on asset management

The knowledge management processes first discuss how learning can be created or acquired. And the response gotten from the participants shows how inadequate the extent of knowledge acquisition is within the department.

“So, staff training is an Asset Management Unit already in the office of the Accounted General. We’re going about training staff to develop our asset management knowledge, though we have not gone deep into the training aspects. Those are the proposals on the ground to ensure that staff are well equipped in asset management. Also, we need countries that are doing this, that have been doing this for a long time. We need them. Also, we need to collaborate and consult them. They’ve been training for a long time. We need them. Also, we need to learn exactly the area and learn from them to be able to customise or localise it based on our own country” (Senior Accountant).

The officer’s desire to acquire knowledge on asset management is there, but the government has not sufficiently provided that to the department. Furthermore, the participant’s idea of consulting and collaborating with countries that have established asset management systems is relevant for knowledge acquisition and the advancement of the program. Based on the participants' information, training and development questions were asked.

4.4.3 Issue of knowledge hoarding by consultants hired

The department did invite external consultants to train officers on asset management. But the response that followed the statement was not good.

“But to some extent, at least what we require, we get it, but sometimes they want to hold back so that we call them back again. Or they want to, you know, some even give you software and see hold back some things at the end of the day maybe by the time you start using the software, you will need to call back and tell them to come back. We don't know this; we don't know that they don't want to leave everything to you. And I think that is just the nature of most businesses. Exactly” (Chief Accountant).

Consultants hired to impact officers with knowledge of asset management indulge in knowledge hoarding for financial extortion purposes, which are unprofessional.

4.4.4 Lack of adequate training and development for asset management officers

The response received from participants on training and development is alarming.

“Well, because of our technical meetings, here and there then with the technical meetings, we get to impact and get a lot of knowledge from our boss. She tells us a lot about it. Okay, she tells us this do it as an assignment. We too in the process we learn more when you go online read some things, we come back to the meeting room we discuss it and then we have undergone one or two things so” (Principal Accountant).

Officers that need to be trained by experts in asset management are mainly trained by their directors; this is an issue that the government would have to investigate urgently.

4.4.5 Lack of Knowledge Repositories

Participants were asked how knowledge acquired in the department is stored for future referrals.

“These training have soft copies that are sent to our Mails. So, we have backups like that always refer to after they are gone after the consultants are gone Yes, we'll be able to refer to” (Chief Accountant)

The response from the participant indicates that they do not have an established technology-based system designed to provide and aid the storage and reprocessing of the organisation's knowledge on asset management. This is not consistent with the academic findings assertion. Also, based on this premise, the question of how Ministries, Departments and Agencies (MDAs) get and access basic knowledge and materials on asset management became necessary.

4.4.6 Lack of knowledge on public sector asset management in MDAs.

Respondents were asked how another MDAs outside of the Office of the Accountant General access learning resources on asset management, and the response was not encouraging.

“Yes, okay. Now, as my department, I could not do some justice to you around the beginning of this programme. You see, the asset management process is in phases, and so, since the process is in phases, the primary stage is predominantly the collection of the records or the information concerning the owned assets. There is the problem of identification. Like I said earlier, because of certain parameters or availability, some people don't even know; they just met the thing there. There is the problem of the non-keeping of records or the total absence of distance registers. Some issues affect less say whether, in fact, some MDAs what we call Ministries Department and Agencies. That's what we call MDAs. Some institutions don't even know they need to record such assets. They just saw it. So, when you start telling them, say, please give me this information until they can provide you with certain basic information, you

cannot be able to move. Then that is phase one. Phase two involves identifying and tagging them, identifying, and streamlining them whatever system of coding you now decide to use, either QR or that of the bar codes, but they don't know all these things are new. But the technologies are there” (Director).

The response gotten from the participant highlights the urgent need to overhaul knowledge management in the public sector. Furthermore, the question was asked about how they are working to educate the asset managers.

4.4.7 knowledge sharing and exchange need to be established as a culture

The knowledge management process of sharing and exchanging knowledge on asset management was asked to investigate the extent to which they practice it and identify what needs to be improved for the development of asset management. Also, since the experience officers would retire, the need to mentor the inexperienced is imperative.

“Okay, we have a few that are well-equipped. Okay, well, knowledgeable, okay. So, we are bringing up others to ensure that the inexperienced ones can also be able to. Yeah, they are because we were shared into groups. Okay, so that everybody people, everybody falls into a particular group. And the group is not those who are knowledgeable and experienced, who could bring up others who are not. And so that's what we are working towards” (Senior Accountant).

“OK, the culture in my organisation is participative management or participative administration because we all work together and come together. We resolve issues together. We brainstorm. If it requires taking it to the next meeting, or if it requires an urgent meeting,

or if it requires an external consultant or any help of an outsider, we identify such, or if it requires collaborations from our other department will now right to seek to meet so now we can collaborate with the department” (Director).

The response from the participants is encouraging, and it shows that effort that encourages sharing, exchange and transferring of knowledge has been made; however, the knowledge sharing, sale and transfer should be established as a culture within the various MDAs so that asset management development can be achieved. This calls for examining and knowing what technological infrastructure is available to aid knowledge management in asset management development.

4.5 Lack of Technological Infrastructure for Knowledge Management and Assets management

Both technical and human IT resource infrastructures are essential for implementing KM and AMP effectively. And based on this premise, respondents were asked questions about what they have available to aid them in doing their work effectively and efficiently.

“For now, we have few desktops and laptops, but not if not everybody as it's okay just some few people have their desktop or laptop to work with, but I feel that everybody every asset manager should be well equipped with the necessary technology to be able to carry out the work. Then we also have our barcoding barcode machines that were procured for us also in managing the assets at least we should be able to barcode the assets for easier tracking” (Chief Accountant).

“So, you need powerful workstations, not just some mini minicomputers desktop computers that they procure. Maybe it was fabricated or reconditioned or whatever you know, and they now come and give it we, we? We just received about seven sometimes late last year and before we say anything about three of them were crushed” (Director).

From the respondents’ answers, it can be stated that only a few devices have been made available to the officers, and some have already crashed. This does not conform with the definition of IT infrastructure because Benitez et al. (2018) explained Information Technology (IT) infrastructure as the organisation’s shared set of technical and human IT resource infrastructures that grant the foundation for specific IT applications run.

The main components of IT technical infrastructure include communication networks, IT applications, hardware, operating systems (computing platforms), and data, according to Byrd and Turner (2000). Also, IT human infrastructure refers to IT personnel’s skills, as Byrd and Turner (2001) stated. And Matook and Maruping (2014) argue that the Flexibility of IT infrastructure aids the adoption of environmental changes through the enablement of rapid development and implementation of IT applications. Similarly, when considering other IT infrastructures, KM and AMP computing platforms are non-existent. This confirms what El-Farr and Hosseingholizadeh (2019) affirm the proper implementation of asset management using technology to enable a successful asset management practice (AMP) remains a major contemporary management issue. Next, asset management software availability was asked to understand and know where improvement is needed.

4.5.1 Lack of initiative and sufficient expertise to use WAPS asset management software.

The participants mentioned a software they recently procured for asset management, which is a welcomed development but to what extent it has been utilised remains unknown:

“We were able to acquire some technology WAPS Asset cloud was able to give us this, the web technology machines. We have some handheld computers which are kind of solutions in themselves” (Director).

“We have not started. We have it, but we have not started for now. Then we also want, like earlier on, as I said, we were planning on our own we have almost procured our software. Before we like told that there is a difference I understand so” (Senior Accountant).

From the statements made by the participants, it can be inferred that the importance of utilising AM software for the project’s development is not acknowledged. However, the government has provided another platform for registering government assets from all the MDAs. Then, a question to answer is which government depart is responsible for providing the technological platforms for asset management.

4.5.2 Lack of synergy between GIFMIS and Officers handling asset management

From the answers given by the respondents, it can be asserted that a specialised department is responsible for providing asset managers with the technological support needed to aid their *project*.

“Because we initially, our software, software developers came around. We told them what we wanted customised to meet our needs. Then, the GIFMIS portal, to some extent, not fully, but to some extent, also fits into what you need so that you can incorporate it exactly. Still, I was thinking that when we have his software, we’ll be able to link up because there is this synergy that the federal government wants with all it is because of the public financial management system we are operating. We have IPPIS, the GIFMIS, and the TSA. They want a situation where all Can you can link exactly, so I used to be a central admin. So maybe that is why they said we should have that asset portal. Maybe that was why this is decided; I wish you would accept the quota. Drift means under some platform, so I felt they would have done it better by customising and making us aware that this is what is available. What do you think you need? Do you know? No, so that it will fit in” (Chief Accountant).

To understand which department is responsible for handling the technological aspect of the program, the question was asked on which software is available for them to use and who is responsible for ensuring they know how to use it.

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The information provided by the participant shows that GIFMIS, a government department, is responsible for providing the computing platforms for asset management. Still, they are not responsible for providing devices the asset managers need for effective asset management practice.

4.6 Challenges of asset management

4.6.1 Lack of political will

Understanding the problems faced by asset managers is imperative if a practicable framework is to be developed to solve the issues identified and proffer the way forward to asset management development in the federal republic of Nigeria.

“Yeah, we tried to familiarise ourselves with, but as I said, the political will has always been the problem” (Director)

“That is why I talked about that political will to want to implement it because we want to do it, we should do it. Right. It's true. We should do it. Right. And I and I believe if the management buys into the idea and sells itself to the federal government, I don't think they will kick against it. Okay, I don't think so” (Senior Accountant).

“And we are coming to say what we feel should be done. Yes, we also need the buy-in of management. If they don't buy it in, may we just keep it? Well, in one way or the other, we have always made our ideas known; today, they understand, and most times, they tell us it has been noted. So, we hope they will have the political will to carry it out” (Chief Accountant).

“Okay, I think the first thing is the inability of the federal government to take the all-asset management process in; they've not been able to. Some people still shy away from it; they don't want it. I think the ability for us to start first, by the time we start, and they see, what's the benefit that comes with it? I think” (Senior Accountant).

From the responses gotten from the participants, the officers are willing to work towards making the program a success, but the lawmakers are not encouraging the officers. Even

though the Federal Executive Council approved this program, they do not place priority on the agenda of asset management. The lawmakers are not committed to ensuring that the problems faced by asset managers are resolved. This might be due to a lack of knowledge of its importance. It is a good development that asset managers are voicing their concerns to the management.

4.6.2 Lack of funds

Participants were allowed to talk further based on the information obtained on political will and the funding issue.

“No, we have not been helped in that aspect. Because asset management needs funding and serious funding, but for now. We have not seen it coming, and we hope it would be if management can table our matter to the federal because the federal government has approved this to be done” (Chief Accountant).

“OK, the political will means resources. You cannot manage resources with no resources or with the absence or absence of resources; you need resources. It would help if you had things like take off grand. That's why I went to the grassroots to tell you that the programme itself is new. New in the sense that it should have been given like something like a take up grand, to be able to gain its root to now do the nitty grittiest, the fundamental things, or initial investment that need to be done. The staff grooming for them to be able to be, you know, to be passionate to love the job because the asset tracking business is exciting. But it would help if you had a lot of patience to start reaping the benefits. Ultimately, I will still be returning to the statement of political will because the asset tracking business in the initial stage is capital intensive” (Director).

The participants stated that the take-off grand for the program had not been released to the department for them to carry out their responsibilities effectively. This implies that training of field officers at various MDAs cannot be accomplished even if the department manager trains the officers at the head office sufficiently. This also means that they cannot be able to procure the necessary technological infrastructure and repositories on their own.

4.6.3 No established asset management institution in Nigeria

Participants were asked if they were aware of any asset management institution in Nigeria that trains individuals to become experts in asset management:

“No, I don't have an idea for now” (Chief Accountant).

“Universities have not even started” (Senior Accountant).

“There is none except for institutions like financial institutions or financial accountant firms” (Director).

No established asset management institutions in Nigeria for officers or individuals to acquire knowledge and specialise in asset management. Next, the question on the effect of the coronavirus pandemic was asked mainly on the restrictions on junior staff and how they can acquire knowledge.

4.6.4 Effect of coronavirus pandemic on training all officers handling asset management

The coronavirus pandemic has also affected the department activities on AMP; junior officers are not coming to work and, as such, cannot receive the required training necessary:

“How you even go because the government also has placed some restrictions. Yes. So levels are not expected to be in the office. Then those are the officers. You can’t mingle too much with each other, as always, this social distancing and everything. So, we have been trying our best, and I’m complying with most of all these protocols The federal government has put in place. And you find out that in most MDAs, these lower-level officers that are not to come to the office are even the ones doing the work; they work so hard. We work with those we see. Like those who are available, they are the ones that come around; they come to the summit, their register, things like that, you know. Still, most times, governments there is this a little bit lenient government has said those who might have essential work, okay, the necessity to be in the office can also be based on the organisations. For now, we have not gone out training ministries; we have not started, you know, all we demanded from them was their asset register. Yes, but when it comes to training, we have not done it, but for GIFMIS, when GIFMIS introduced the portal, they did add a little training for them so that they can import their register, but they still need not sure. So, when we went for that training, they told us that we are to take up that training aspect now is no longer with the GIFMIS department, so we should take it up. So that's what we are planning for now” (Chief Accountant).

“The government itself. I will have attributed all the or alluding all the excuses to the lack of funds or the lack of political will. But I also want to say that Covid19 was very unfriendly regarding the smooth. Let me say is what is best characterised by one year, seven months in the saddle of the management of assets. For coronavirus, let me say we're still religiously observing the social distancing principles, and we are practising that, washing hands several times but not going close to people maintaining two metres distance and a few other things. Trying to stay safe was trying that; however, the use of Sanitizers and putting of soaps at the entrances of our officers we are doing that, and we try to space the seats and the distance when we are having our meetings. Technical sessions and the accountant general sometimes send us mouth/face masks, and a few hands wash liquid soap. It is so. But we expect something better should have been done concerning that (Director).

The response provided by the participants shows how the government has taken stringent majors about containing the pandemic. However, such majors have deprived the junior officers of partaking in the regular training and development holding within the department. This is detrimental because they are responsible for carrying out the bulge of the work on asset management, and without the necessary training to make them efficient, asset management development would be negatively affected.

4.7 Reward systems for asset managers

The need to find out what can motivate the staff to do their work effectively is imperative if asset management is to advance in the public sector, and the response gotten from the participants was discouraging:

4.7.1 Lack of established incentives for asset managers

“And if you know, for now, nothing, nothing we are just because we believe in the project?

Yes. So, we are just working to make sure that it succeeds; for now, when it comes to motivation, we are not being motivated to the level we are supposed to, but because of the interest we have, we are putting in our best. So...” (Accountant I)

“Well, as per the incentive? If Is there anything that they have for us? Well, I wouldn't know. Okay, I know that. Over time, they talk about it. Some people want to do it, but you know you are not an island, and then the fact that we are part of this critical department. Yes. Because a department is a kind of reward, not everybody has gotten my training. Okay, so everybody, you see people coming in, okay, what do we do? We are the go-to person that alone it gives you; you simultaneously have the edge over others. Because you have the edge over others, you know something they don't know. So that's one, then for the incentive, of course, everybody wants to be pushed in the right direction to do one or two things. We will do much better if you are well motivated” (Senior Accountant).

From the responses obtained from the participants, it can be stated that no reward systems are in place to motivate the staff. Notwithstanding the present state, the participants express they are still willing to carry out their responsibilities because asset management is of interest. This shows the category of individuals handling the project. They are eager to learn but need motivation. Participant 4 highlights some of the incentives that they appreciate. Training of officers was mentioned, and according to participant 4, they understand the kind of specialised training they have in the department, which is not available to other accountants in the public sector.

4.7.2 GIFMIS incentives to specialists for overtime

Due to the work demand of the GIFMIS department, it was necessary to find out what incentives they have in place for their specialist in their department.

“We pay our IT specialists overtime because they work round the clock in case of any problem there is always someone to handle it” (Deputy Director).

The participant highlighted that the government pays their specialists overtime because they work 24 hours in case of technical challenges that might arise. This is a good source of incentive, but hearing from the specialists would be essential to understand what they value as a reward or incentive.

4.8 Participants’ recommendations on how to improve asset management in the public sector

The participants are in the best position to recommend what can be done to improve and make the program a success, and based on this premise, their opinion on what can be done to improve asset management in the federal republic of Nigeria was asked, and the responses gotten were relevant and practicable:

4.8.1 Development and implementation of both operational and legal framework

A Director suggests that asset management should be given:

“a strong backing in both operational and legal framework. Because we are talking about the PPE of the Federal government of Nigeria as a whole. If it can be made to stand alone, not to come under stringent control, or not to be run like a more normal conventional office or department of a mundane ministry. Yes, that is what I'm advocating. Yes, so if it has that and

an active legal framework, it can now help enforce it. But now, like in Nigeria, there are so many institutions. They are fighting and clamouring whether they don't, whether they come out to say they are fighting for the control of the assets of the Federal Republic of Nigeria or not; you could see it is happening. They are fighting over it. Every committee comes to perpetuate themselves and make themselves that that is how they will make money. There's one called the Presidential Implementation Committee (PIC). That was meant to now implement the provisions of a white paper. Still, that company seems 2015 that committee 2015 has perpetuated itself is even going into courts and litigations with people and is all along failing. The office of the Attorney General is now launching to say it is creating an agency that is recovering assets so it can manage them. That is not their primary calling. There is the AMCON. An act establishes AMCON, and yet, now they are supposed to concern themselves with banks' toxic loans. If possible, the portion that concerns government should go and kind of recover such or let the owners forfeit, recover it, and then come on. Now you know they want to do it to the last, but where they remit the proceeds of such transactions is still bleak. Honestly, I don't know. I don't know, so I could go on and on and on counting for you. Even the Central Bank of Nigeria. I know our House in Lagos used to be; it used to be the Treasury House in Lagos, the office of the Minister of Finance when the capital used to be in Lagos. But on sooner the movement to Abuja, from 1992, through 1995, the whole situation becomes something else, and some people were habiting the place we were, or we got to understand that CBN gave it to some officers. So, what can make CBN, is CBN being the banker of the government? Is it now a to be involved as a property seller? So, the policy in Nigeria, there is no clear-cut dimension”.

While a chief accountant affirms that,

“We believe that being a department might not allow it to flourish, the way it's supposed to, when it's made a commission where you have you can assess your funding, yes, we don't need to depend on the management of another agency to give you your funding, you know, you're able to go, you know, you have direct access to the federal government in a way, okay, executive, federal executive council, because you can lay your complains to them directly. So, I think that would be the best if we want it to work in Nigeria” (Chief Accountant).

Participants advocated that the asset management department should be upgraded into a Commission so that it can operate independently because being a department restricts its fund's approval and legal and operational backing. Also, the participant pointed out that different agencies oversee asset management, which should not be. There is supposed to be a central commission that handles all government assets, not other agencies handling various aspects of the country's assets.

4.8.2 Career professionals in asset management should be employed and developed right from an entry point into the civil service.

“If the place is professionalised, and you know how career professional asset trackers. There would be no need to worry about whether nobody is retiring because you start, for instance. The asset tracker or asset management II is now the entry point in the civil service or new graduate asset management” (Assistant Director II).

4.8.3 Government should involve asset managers in decision-making on asset management programs.

Having asset managers involved in the decision-making is an important area to look at, and valuable insights were gotten from the participants:

“I think management should be able to listen to us. You know, most times in the government sector, government cycle, they believe in consultancy, these that, forgetting that the civil servants that are there are also knowledgeable, we have tried our best, at least in the past one year, one and a half years, to put a lot together that even a consultant might not be able to. So, I think they should listen to what we have to say. And help us if they can do it the way because we are the ones on the field. No, we are the ones that are experienced in this line. And we have seen many discrepancies, even when MDAs submit their asset register. You know, a lot of issues. And this thing, if management could see it in our way, they shouldn't just do something and force it on us. It should be able to, that's why I told you about the asset portal, that it's like, we were not part of it. It was just developed and said use. So, it was in the training process; we're like, this cannot work. This should be like this; this should be like this. So, they should. Ideally, they should consult you” (Assistant Director).

The participants highlighted the importance of the government acknowledging their potential and expertise. Also, since they handle asset management, it is imperative to involve them in decision-making so that decisions are aligned with what the asset managers do. This should be applied to designing the asset management software.

4.8.4 Continuous capacity building

Director;

“I will recommend, let me say, continuous capacity building. Training and retraining and retraining the trainer. Attending conferences and workshops nationally and internationally and then trying to enhance the package of the asset managers. Make them feel different. Make them feel interested in the job because I might get uniforms for them. Try to make them feel special. Because sometimes they will go. They may enter stores or some other places, so if they use some over rules, that would be nice. Make them feel special, and then. Let's say. The financial incentive also is not totally out of place. So...”

The participants thus acknowledge the importance of training if the asset management program is to be accomplished.

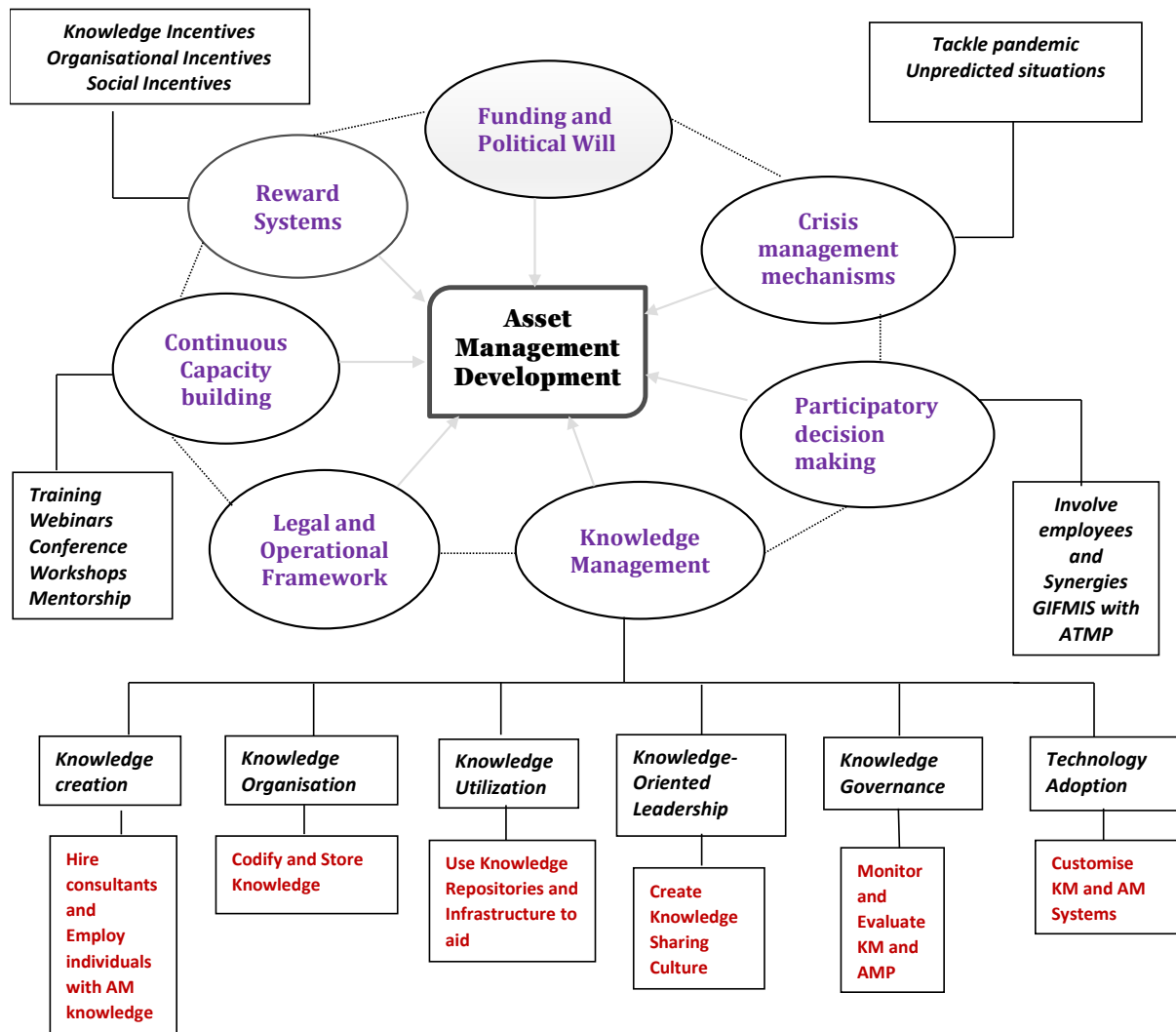
4.8.5 Top management needs to be educated on the relevance of asset management

“OK, enough to be done by the government, OK? Yes, he needs to understand what this is all about. It does not seem like. You know, they ought to be aware of the importance of asset tracking” (Chief Accountant).

Lack of knowledge on asset management among the top government officers, lawmakers and other stakeholders is part of the issues that would have to be resolved if the attention of the lawmakers is to be gotten.

4.9 Theoretical Framework

Figure 3: Theoretical Framework for Asset Management Development



Even though this study confirms the dearth of knowledge on KM and AMP, especially in the public sector of developing countries and the challenges faced in developing asset management in the public sector as stated by prior studies (Gupta *et al.*, 2000; Ibrahim *et al.*, 2010; Oluikpe, 2012; Henderson *et al.*, 2014; Arrau, 2015; Tafazzoli, 2017; Beitelmal *et al.*,

2017; Giglio *et al.*, 2018; Razzaq *et al.*, 2019). Notwithstanding, this study posits that when the elements mentioned in the theoretical framework figure 3 on the previous page are introduced and implemented, significant development would be recorded in AMP, which is useful in both public and private sectors.

The theoretical framework illustrates and provides more insight into what can be done to develop asset management practice. Integrating KM processes, mechanisms, and other organisational factors to function as an entity impacts asset management development. The lack of understanding of AM practices and weak KM suggests that public sector organisations may struggle in these areas that handle knowledge creation, storage, sharing, transfer, and implementation of knowledge. For public sector organisations to generate new ideas, they need to recognise previous unseen patterns, synthesise different disciplines and develop new processes (Olubiyi *et al.*, 2019). This new process would have to be gotten externally in the first instance and would have to be transformed into valuable assets for present and future use. Knowledge can be rented through the hiring of external consultants, or the organisation can help to fund research institutions and universities with the agreement of benefiting in future through the invention of technologies that can serve government needs on asset management (Gupta *et al.* 2004). The following different forms of storage should be created and used to store new knowledge; manuals, handbooks, databases, and archives (Jennex, 2008; Garcia and Sosa-Fey, 2020).

It is commendable how knowledge sharing, and exchange are encouraged amongst asset management officers. However, placing the workers in groups and informally mentoring the officers is insufficient for developing AM practices, implying more needs to be done.

Establishing a culture of knowledge sharing would aid the attainment of competitive advantages and improve performance and sustainability (Abbasi *et al.*, 2020). Nonaka (1994) affirmed that top management has a significant role in facilitating knowledge sharing. When the government adopt knowledge-oriented leadership, KM processes would invariably impact and boost the development of asset management (Ramezani *et al.*, 2017).

For knowledge transfer to be effective, the government must manage the knowledge possessed within the organisation by implementing and applying information technology-based knowledge repositories (Fadel and Durcikova, 2014). Knowledge repositories are known to enhance KM processes. However, only relevant knowledge valuable to the development of AM practices should be of concern, and this knowledge should be extracted from asset managers (Watson and Hewett, 2006). Such knowledge should be validated to ensure its correctness and value (Soo *et al.*, 2002). Knowledge repositories should also be given due consideration because they significantly enhance the transfer of knowledge by facilitating knowledge sharing (Alavi and Leidner, 2001). Furthermore, using the internet and intranet as knowledge infrastructure cannot be overlooked. The knowledge system adopted should also be flexible to adapt to environmental changes (Matook and Maruping, 2014).

The framework also displays and confirms the government's lack of political will to advance asset management in the country. Treadway (2012) stated that political will is an abstruse phrase frequently used concerning the failings of government and politicians. This is not a good omen for the development of asset management because without the government clearly articulating their support for asset management and providing the necessary resources,

including funding, the development of asset management will not succeed (Von Ah, 2021). Similarly, the key decision-makers would have to show their commitment and support for the policy passed on asset management by coming up with solutions and providing funding so that the program can be sustainable over time (Post et al., 2010).

Another challenge highlighted in the framework is the impact of the pandemic. The lockdown interfered with the training and development programs of the department. This adverse effect is because of poor strategic planning. Al-Sawafi (2018) affirms that a crisis is unpredictable and can lead to colossal misfortune leading to organisational damage due to limited time to act. Consequently, establishing an effective crisis management measure is imperative to prevent and protect asset management development from the adverse effect of the crisis. Denhardt (1985) also noted that a strategic plan has a positive impact and contributes to an organisation's capacity to handle and respond to emergencies and changes in an effective manner.

It is commendable how the government, through their IT-based system known as Government Integrated Financial Management Information System (GIFMIS), ensure that the technological aspect of management is centralised and flexible to accommodate any new project. The use of IT-based systems to develop asset management is in line with what Zack (1999); Kankanhalli *et al.* (2005) advocated. They highlight that a base system would aid the process of storing and reprocessing organisational knowledge assets and substantially boost the transfer of knowledge within an organisation that is relevant to asset management. However, when considering other IT infrastructures, KM and AM practice computing platforms are non-existent, which confirms what El-Farr and Hosseingholizadeh (2019) affirm

the proper implementation of asset management using technology to enable successful asset management practice (AMP) remains a significant contemporary management issue. This framework highlights the lack of urgency and importance placed on AM in the Nigerian Civil Service. This framework is just a proposition that needs to be operationalised by the federal government. Next, a detailed discussion on the participant's demography will be done to highlight the sociocultural relevance of demography in Nigeria.

4.10 Understanding of participants' demography and how it affects the results.

Including participants' demography in this study helped the researcher avoid the risk of taking an absolutist stance, which suggests that the phenomenon of interest is universal regardless of race, belief, custom, and traditions (Hammer, 2011). Also, the information on participants' demography enabled the researcher to appreciate that universal psychological processes manifest differently depending on the respondents' tradition, custom, race, culture, and beliefs (Beins, 2009). Similarly, a systematic explanation of respondents permitted the researcher to decide to whom the research results generalise; this enabled and provided an avenue for comparisons to be made across replications of studies. Participants' demography also provided the information needed for research syntheses and secondary data analyses, and this would also be helpful and useful immensely in future studies. Next, a detailed analysis of factors such as gender, age, ethnicity and how they affected the findings would be done.

Looking at the effect of participants' gender on the findings, it can be stated that the female participants concentrated more on providing ways to improve asset management practice in the public sector. In contrast, most male participants feel that nothing has been done on asset management, but a few male participants believe that little has been achieved, but more is

needed to improve and develop AM in the public sector. After reviewing the participants' opinions, the researcher found out that most of the female participant has the knowledge and are experienced in managing the assets they deal with. The few males that contributed are also active and participate in aiding AMP development. While most of the male participants who have little to say and contribute are primarily new to the department, some have been in the department for less than six months, without proper training and with no technological infrastructure to work with. Their disappointment in the department affected their responses during the interview. However, the male participants provided valuable information from the GIFMIS department.

Next, considering the effect of the age of the participants on the findings, most of the participants interviewed are well experienced and have reasonable knowledge of the purpose responsibilities of the department and know the bureaucratic rules within the establishment. Most of the valuable findings were obtained from older employees. However, the younger participants also provided relevant information, mainly on how adequately they had been trained. They also expressed and acknowledged the fact that they are inexperienced and lack relevant knowledge on asset management. The younger employees showed eagerness to learn and acquire new knowledge on AM, but the inability of the department to train them discourages and dampens their morale and interest in AMP. This finding is consistent with the suggestion that younger people value career development, resource, and knowledge acquisition (Nyuur *et al.*, 2022). This implies that career development through training and development programs is necessary for an effective young workforce. Next, the effect of participants' positions on the results will be discussed.

The position or ranks of the participants also affected the findings obtained. Most of the participants interviewed are senior officers because officers on the status of Principal Officers, Chief Accountant, Assistant Directors, and Deputy Directors to the Director levels are all called senior officers (Public Service Rules, 2009). About 23 participants are on those respective levels, while only seven are on the junior officers level; this includes the Accountants, Accountants I and II, and Senior Accountants. From the responses explicitly received from the consultant GIFMIS, it can be stated that the management prefers to train officers at high levels because they believe that the minimum educational qualification of such officers is either bachelor's or HND (Higher National Diploma). As such, they can assimilate and comprehend what asset management is about and thus have the impetus to carry out the responsibilities of asset management.

It is good that they try to use the well-experienced and educated officers for the program; however, the junior officers are also graduates and involving them in the training and development would help develop a strong workforce which is also necessary for knowledge transfer to take place. This is necessary because they will be the ones to continue the program when the well-experienced officers either retire or leave the public sector to pursue other aspirations in life. Furthermore, not involving the junior officers can cause inadequate innovation and creativity (Hulpke, 2019) because talented individuals might not be identified from the younger and low-ranking personnel. The effect of ethnicity will be investigated next.

Nigeria is a highly diverse country, and the public service workforce comprises individuals from different states, diverse cultures, beliefs, customs, traditions, and backgrounds. In addition, there are 36 states in Nigeria, and within each state, there are about 374 different

ethnic groups with other cultures, customs, beliefs, and values (Nwabunike and Tenkorang, 2017). However, from the findings, it can be stated that the head of the ATMP department, the Director, has done well in building a team that works despite their cultural background differences. Similarly, the assets managers and FAMO stated they work as a family. This is quite commendable and encouraging. Overall, it can be affirmed that in this study, the causal effect of ethnicity has affected the results positively and significantly.

4.11 Conclusion of the Findings Chapter

Applying system thinking, organisational development theories, and institutional theory, this study found that knowledge management is not recognised and established while asset management practice is yet to be at its peak within the various critical institutions and organisations in the public sector in Nigeria. Lack of knowledge of asset management practices, lack of understanding of the relevance of establishing Knowledge Management and its processes which includes inadequate sources for acquiring knowledge on asset management, consultants' unwillingness to train asset managers effectively, lack of adequate training and development for asset management officers, lack of understanding of public sector asset management, non-existent knowledge repositories, non-established knowledge sharing and exchange culture, lack of IT infrastructure for knowledge management and asset management practices, lack of synergy between Government Integrated Financial and Management Information and various asset management departments in various ministries. Also, the study confirmed that asset management is not developing due to the non-existent of knowledge-oriented leadership, ineffective knowledge governance, lack of continuous capacity building,

inadequate funding due to poor political will, lack of legal and operational framework, lack of employees' participation in decision making and unestablished reward system.

5 DISCUSSION AND IMPLICATIONS

5.1 Introduction

This study has successfully investigated how asset management practice can be developed through the application of knowledge management in public sector organisations in Nigeria. Furthermore, the various research questions created were all answered. The study did examine the extent to which Knowledge Management has supported the development of asset management practice in Nigeria's public sector. Also, the KM approach that could aid in developing a tenable assets management practice was identified, and an innovative and practical framework that could be used to implement knowledge management in asset management practice was developed. Also, incentives and facilities that could encourage knowledge management practice and acceptance for significant performance were identified. Next, based on the research questions, an analysis of the findings will be undertaken.

5.2 To what extent has KM supported the development of asset management practice in Nigeria's public sector?

Analysing the results, firstly, the participants gave divergent explanations of the meaning of asset management. Descriptions were mainly based on their basic understanding. These findings show that the participant's perception of the construct is somewhat different from the academic definitions of asset management given by the scholars in the literature review. Kusnawati *et al.* (2019) defined asset management as an effective and efficient approach to managing individuals and expertise by allocating scarce resources to solve the needs of essential assets within an organisation. Also, asset management can be explained as the

process which enables organisations to keep a tab on all their purchases, guarantees accurate amortisation rates, and identifies and manages risk (Giglio *et al.*, 2018; Beitelmal *et al.*, 2017).

Similarly, the explanations given were based on three subthemes from the interview. Subtheme 1 highlighted that the participants have a primary and partial understanding of what asset management entails but is not well defined as provided by the literature reviewed, while subtheme 2 confirmed that the asset managers could explain asset management based on the type of asset they manage which is mainly fixed assets: Property, Plant and Equipment. The participant's explanation negates the academic categorisation of the kinds of assets by Lee *et al.* (2018) because they categorised assets into two: tangible and intangible. Greco *et al.* (2013) gave examples of tangible assets: equipment, cash, vehicles, building and inventory. While intangible assets: computerised information (software and database), innovative property (designs, branding, knowledge, patents, trademarks, licensing, and copyrights) and economic competence (market research, training of staff and management consulting) were stated as examples by Thum-Thysen *et al.* (2019). This information illustrates that officers responsible for asset management in the public sector need proper training on what asset management means. Also, until officers acquire the necessary and basic knowledge of asset management, they should not be rushed into handling asset management activities.

Although, considering the reason why the federal government would only concentrate on the management of fixed could be justified based on Oluwaremi and Memba (2016) study that more attention should be on the management of fixed assets by developing and maintaining an asset management culture with good depreciation strategy in place which would enable adequate funds for their replacement as and when needed because it correlates with financial

performance. However, this recommendation might not apply to the public sector because their research was on manufacturing firms listed in Nigeria. In contrast, the public sector does not only have fixed assets but other types of assets that need to be given attention if performance improves.

Analysing the level of asset management in Nigeria's public sector, it can be stated that asset management is at its beginning or infancy stage. This should not be the case in a country that gained independence over 60 years ago. However, this presents an opportunity to develop the project right from the foundation level on solid grounds. Examining how other countries practice and succeed in asset management would be helpful at this stage. Similarly, at this stage, since there is no established framework, the framework that would be developed could be used as the first guide to aid the development of asset management. Likewise, looking at what other countries have done to develop asset management and applying theoretical recommendations would help create a customised asset management framework that is practical and appropriate for the public sector.

Next, how the federal government handles the technological aspect of asset management will be analysed. This was done to understand how technologically asset management is supported technologically and to identify what needs to be improved. It is commendable to know that the Nigerian government has an established Government Integrated Financial and Management Information System (GIFMIS) that supports asset management practices. The department in charge of GIFMIS uses released two software for the technological aspect of asset management. The software is customised based on government assets and contains a record of all government assets. It takes care of the record of help right from the time of procurement

to the time of disposal of the asset or when it is rendered obsolete. This is a good start on asset management development. Also, they organise and conduct regular training to familiarise officers with registering their various MDA assets. Furthermore, handbooks and soft copies of each activity are usually sent to officers' emails to refer to when needed.

However, an investigation shows that most MDAs are not even familiar with the program or the platform for registering their assets. Also, issuing just handbooks and softcopy of training to Officers is not a good way to ensure that they are technically trained to carry out their responsibility. However, we must acknowledge that the proper implementation of asset management using technology to enable a successful asset management practice (AMP) remains a major contemporary management issue, as El-Farr and Hosseingholizadeh (2019) affirmed.

Furthermore, interviews conducted with participants at the state level indicated that the asset management program has not yet reached the state level; however, the participants claim that their Store Officers handle and manage their assets. This discovery indicates a gap that needs to be worked on for improvement. Also, the data shows that asset management awareness is insufficient for officers to know and utilise the benefit of asset management practice at the State and Federal levels. This would also have to be investigated by the government.

It is pretty commendable how the government, through their IT-based system known as Government Integrated Financial Management Information System (GIFMIS), ensure that the technological aspect of management is centralised and flexible to accommodate any new project by using a software called Release 2; they were able to incorporate asset management into the platform. The asset management module is structured so that record is taken right from

procuring to when it reaches the store before dispatching it to the user department. Also, asset depreciation and maintenance begin as soon as the asset is used. Based on the participants' information, the department periodically organises train for asset managers. Furthermore, the use of IT established systems for developing asset management is in line with what Zack (1999), Kankanhalli *et al.* (2005), and Alavi and Leidner (2001) advocated. They highlight that a base system would aid the process of storing and reprocessing organisational knowledge assets and substantially boost knowledge transfer within an organisation.

5.3 How can knowledge management activities aid in developing a tenable assets management practice?

Based on the results and analysis carried out on the first research question, which examined the extent to which KM has been used to support the development of asset management practice in Nigeria's public sector, it can be stated that KM has not been effectively established and implemented to develop asset management program. To be precise, very minimal and noticeable KM activities are taking place within the organisation, which is associated with knowledge management as opposed to what the literature states by Olubiyi *et al.* (2019). KM processes involve the creation, acquisition, sharing, storage, and application of knowledge within an organisation, and these processes have been confirmed to positively influence organisational performance (Raudeliuniene and Kordab, 2019). This implies that implementing KM processes can bring about development in asset management practice.

Similarly, based on the results obtained, the participants acknowledge that they lack basic asset management knowledge and the department head – the Director mainly tries to impart knowledge to them by organising technical sessions. Although attempts have been made to

invite consultants to train the asset managers, they end up hoarding knowledge so that they can call them back to make more money from the government. The Officers had only acquired knowledge from primary sources that were not sufficient. Following the guidance by Jennex (2008), it can be stated that the organisation could adopt numerous sources of knowledge acquisition.

According to Jennex (2008), new knowledge can be acquired by purchasing the organisation with the relevant expertise or by hiring individuals with the necessary knowledge. Although, Nonaka and Takeuchi (1995) pointed out that in the case of acquiring knowledge, an organisation has no guarantee that the ability and the people that possess it will remain in the organisation that developed it. However, a significant portion of the Knowledge may be retained. Another factor to consider is how cultural and political aspects influence how new knowledge is integrated into the organisation.

The organisation would have to generate new ideas, recognise previous unseen patterns, synthesise different disciplines and develop new processes as Olubiyi *et al.* (2019) advocated. This new process would have to be gotten externally and would have to be transformed into valuable assets for present and future use to be adopted and implemented in future. Also, Jyoti *et al.* (2011) point out that knowledge acquisition is an innovative insight that builds new knowledge and improves managerial activities. Furthermore, Gupta *et al.* (2004) assert that learning can be rented through the hiring of external consultants, or an organisation can help to fund the research conducted by research institutions and universities with the agreement of benefiting in future through the invention of technologies for commercial purposes. Another way of acquiring knowledge is establishing a research centre within the organisation's premise

to generate new ideas and technologies. An example of a company that adopted this method is Xerox in invented a graphic user interface.

Likewise, there are other ways of acquiring new knowledge through knowledge elicitation, data mining or text mining. Knowledge elicitation involves obtaining information from a knowledgeable source through interviews in specific areas and then codifying and storing the information in a form others can retrieve when needed. Although Gupta *et al.* (2004, p. 11) argue that knowledge elicitation is a complex process and is often seen as a barrier to knowledge acquisition and the problem is due to the inability of experts to express their methods of reasoning and thoughts, which is referred to as “paradox of expertise”. At the same time, data mining techniques can obtain and extract important structures, changes, and associations from data. Also, data mining firms can screen, choose, relate and filter data automatically, which is helpful in fraud detection. Furthermore, new knowledge acquired on AM should be codified and arranged in an orderly, documented format as organisational knowledge (Nonaka and Takeuchi, 1995). The following different forms of storage should be created and used to store new knowledge; manuals, handbooks, databases, and archives (Jennex, 2008; Garcia and Sosa-Fey, 2020).

It is pretty commendable how knowledge sharing, and exchange are encouraged amongst asset management officers; however, placing the workers in groups and informally mentoring the officers is not sufficient for the development of AM, implying more needs to be done. Establishing a culture of knowledge sharing would aid the attainment of competitive advantages and improve performance and sustainability (Jackson *et al.*, 2006; Aljuwaiber, 2018; Ramirez *et al.*, 2019; Abbasi *et al.*, 2020; Bendak *et al.*, 2020). Also, knowledge

governance and opportunity for knowledge-sharing control mechanisms would have to be introduced and implemented (Huang *et al.*, 2013), and the organisational culture would have to be transformed into a knowledge-sharing culture because corporate culture has a positive correlation with knowledge sharing (Aquilani *et al.*, 2017).

Accordingly, Bagheri *et al.* (2021) affirm that knowledge transfer is a valuable resource that an organisation can possess because it promotes efficiency and productivity. This implies that the introduction of knowledge transfer mechanisms is vital. For the practice of knowledge transfer to be effective, the informal mentorship practice in the organisation would have to be formalised for competitive advantage to be attained (Athanasopoulou *et al.*, 2018). Similarly, establishing technologically aided platforms that aid the mentorship process would have to be created. Likewise, knowledge sharing could be used as an avenue for knowledge creation and utilisation within the organisation for AM to be developed. In addition, knowledge sharing would enable full asset life span attainment through regular maintenance of assets which can be made possible when knowledge resides in the organisation. Accordingly, a knowledge-oriented leadership style would have to be considered. Nonaka (1994) did affirm the relevant role that top management play in facilitating knowledge sharing.

Top management's ability to establish an avenue for interpersonal relationships among asset managers through communication and interaction would create an environment for creativity and innovation. As Alavi and Leidner (2001) stated, this is achievable through knowledge sharing. Furthermore, when the government adopt knowledge-oriented leadership, KM processes which are known as enhancers of organisational performance, would invariably impact and boost the development of asset management (Shujahat *et al.*, 2017; Ramezani

et al., 2017; Naqshbandi and Jasimuddin, 2018; Sadeghi and Rad, 2018; Raudeliuniene and Kordab, 2019).

When considering knowledge transfer, the following types of transfer can be utilised; serial transfer can be used to transfer knowledge within the organisation by continuing with their technical sessions. Also, frequent regular meetings and assigning the tasks to asset managers and officers to participate is imperative. Similarly, immediate transfer could be used when handling routine AM activities. Here steps and methods of action on AM should be recorded electronically through emails or word documents for other asset managers to have access to enhance performance, as Dixon (2000) suggested. Equally, the far transfer can also be used by organising and introducing new projects to asset managers to do with invited external team members with experience on AM so that they can exchange knowledge to solve and complete the assigned task with viable solutions. In addition, the strategic transfer of expertise identified by top management should be gathered and interpreted by knowledge experts. Also, the expert transfer can be used to gather explicit knowledge from professionals, as Dixon (2000) advocated. Finally, proper communication channels and platforms on how AM practice would be undertaken to solve problems should be explicitly stated and having asset managers interact on an ongoing basis is necessary (Wenger *et al.*, 2002).

For knowledge transfer to be effective, the government must manage the knowledge asset by implementing and applying information technology-based knowledge repositories (Fadel and Durcikova, 2014). Also, by using knowledge repositories, KM processes are enhanced. However, only relevant knowledge that is valuable to the development of AM should be of concern. This knowledge should be extracted from assets managers (Watson and Hewett, 2006)

and contributed knowledge should be validated to ensure its correctness and value (Soo *et al.*, 20002). Similarly, understanding factors that impact knowledge contribution to knowledge repositories are necessary because knowledge repositories are information technology-based systems designed to give and enhance storage and reprocessing of an organisation's knowledge asset following the suggestion by the literature reviewed by Kankanhalli *et al.* (2005).

Knowledge repositories should be given due consideration because they significantly enhance the transfer of knowledge by facilitating knowledge sharing (Alavi and Leidner, 2001). Furthermore, using the internet and intranet as knowledge infrastructure cannot be overlooked. However, as artefacts, knowledge artefacts would have to be arranged, investigated and recovered in a customised Knowledge Management System (KMS). Knowledge systems boost creativity and innovation by enhancing collaboration, knowledge capture, storage, transfer, flow, and utilisation (Jennex *et al.*, 2018). Knowledge maps can also illustrate knowledge architecture using the intranet to display knowledge domains architecture and standardised graphic interfaces. Accordingly, knowledge domains such as ontologies and taxonomies can be used by asset managers to the group and arrange knowledge. Rapid ontology can be used to build unstructured knowledge domains, and it should be remembered that meaning out of unstructured information is quite challenging (Zhou *et al.*, 2002; Jennex, 2008). The knowledge system adopted should also be flexible to adapt to environmental changes (Matook and Maruping, 2014).

Similarly, technology adoption would enable the government to attain a competitive advantage and organisational development of KM and AMP (Williams and Dickinson, 2010; Martinez-Caro and Cegarra-Navarro, 2010; Chong *et al.*, 2014). This includes customised software

compatible with asset management practices in the country. Similarly, WAPS asset management software purchased by the government should be utilised to standardise AMP in the country. Proper training would be needed to familiarise the asset managers with the software. Accordingly, GIFMIS experts should work with asset managers to synchronise and synergise AMP programs. Also, the officers in charge of asset management should be involved in the development of platforms and software meant for their department. The government can also acquire a competitive advantage through knowledge management systems (Kuo and Lee, 2011), which could aid the development of AMP in Nigeria. Also, relevant asset management knowledge should be applied in technology adoption and observed to see if it works for the public sector; otherwise, another method will have to be implemented.

Knowledge management governance would have to be introduced and established to monitor and facilitate knowledge-related activities. However, it is unclear if it would work for the public sector (Zyngier and Burstein, 2012). Equally, balanced scorecards and perception can be used by asset managers to measure the level of knowledge governance when established within the organisation. Informal knowledge governance could be used to strengthen knowledge sharing culture, which could reduce knowledge hoarding and ultimately impact the development of AM. Finally, Key Performance Indicators (KPIs) should be introduced and used to monitor and evaluate performance; However, it is not entirely reliable, and to solve the issue of their reliability, other elements such as leadership styles should be considered to assess AM development in the country (Novak, 2017). Furthermore, innovative performance is feasible when wise leadership interacts with KM (Nonaka, 2016). Next, the discussion on challenges experienced by the workers will be expounded.

5.4 What are the challenges encountered by asset management departments?

The results confirm the lack of political will by the government and lawmakers to advance asset management in the country. Treadway (2012) stated that political will is an abstruse phrase frequently used concerning the failings of government and politicians. This is not a good omen for the development of asset management because without the government and lawmakers clearly articulating their support for asset management and providing the necessary resources, including funding, asset management development will not succeed (Von Ah, 2021). Similarly, based on the participants' results, the federal executive council approved the program on asset management. The key decision-makers would have to show their commitment and support for the policy passed on asset management by coming up with solutions and providing funding so that the program can be sustainable over time (Post et al., 2010).

Also, considering what Mastroianni *et al.* (2021) stated, they affirm that asset management is a growing field of research. Most developing countries frequently have insufficient finances and resources to implement effective asset management processes, which ultimately affects how governments create asset management policies. But since the benefits of asset management outweigh the expenses in the long run, allocating and providing funding to develop the program is vital. Likewise, Nigeria's lack of established asset management institutions is not encouraging, even though it is suggested by Gupta *et al.* (2004) that the government could fund institutions and universities to research asset management. However, it will be more valuable to have the universities include asset management modules in their

curriculum so that individuals with a solid foundation in asset management can evolve and asset officers with no prior knowledge of asset management can be handled.

Likewise, from the findings obtained, the coronavirus pandemic has interfered with training and development programs of the department because the powerhouse, also known as the primary workers, are not able to attend training that would make them more productive because the government has asked all junior workers to stay at home. This adverse effect is because of poor strategic planning. If the government had a strategic plan, they would have known how to avoid a situation whereby juniors' staff are being left out and unable to participate in organised training and development programs. Seeger *et al.* (1998); Vargo and Seville (2011); Al-Sawafi (2018) affirm that crisis is unpredictable and can lead to colossal misfortune leading to organisational damage due to limited time to act then establishing an effective crisis management measure is imperative to prevent and protect asset management development from the adverse effect of the crisis. Denhardt (1985) also concur that a strategic plan has a positive impact and contributes to an organisation's capacity to handle and respond to emergencies and changes in an effective manner.

Since the coronavirus pandemic has caused major shakeups around the world, leading to an incapacitated economy globally (Otoc, 2020) then, having a team in the ATMP department that monitor and evaluate events happening externally would help the department prepare and mitigate emerging circumstances that can pose a threat to the management of asset management is necessary (Mitroff *et al.*, 1992). Likewise, the present pandemic has interfered with asset management's global processes and practices. For instance, the regular maintenance and servicing of infrastructure have been affected due to the shutting down of offices and other

services which help in providing optimal usage of assets, even though the coronavirus pandemic is not the first incident of disaster that has hit the world, because of the incidences of a viral infection such as SARS (severe acute respiratory syndrome) and the financial crisis that occurred in 2007-2011 (Mitroff, 2004). Still, the coronavirus pandemic has caused a significant shaking around the world.

Based on Rumman and Alzeyadat (2021) suggestion on crisis management, firstly, the federal government should not ignore any potential crisis by assuming it is under control. Secondly, the department of ATMP must set up plans and majors on how to apply KM and other relevant majors to manage assets. Thirdly, the department must acknowledge a crisis posed by the pandemic (Meyer, 1982; Abu-Tayeh and Mustafa, 2018), resulting in a lack of proper training of employees because no technological adoption has occurred to facilitate hybrid movement. Also, they should accept that the situation requires external and internal experts' attention. Knowledge consultants, IT experts and experts in crisis management should be involved in solving the crisis. Fourthly, strategic plans must be implemented to reduce the damage and finally, developmental processes should be established to compensate for some of the losses recorded (Zidan, 2003).

Conclusively, Fazli and Farooq (2018) recommended that response to the crisis should be based on and designed to address the specific type and nature of crisis experienced. A change course strategy is advocated because it transforms the problem into something productive and effective. Another strategy involves understanding and utilising knowledge management to identify the cause of the crisis by identifying conflicting layers and potential benefits and then fragmenting the impact of the problem into many resolvable parts; this method is called crisis

fragmentation strategy. Next, the crisis should be contained in a limited scope and frozen at different stages to make it lose its strength. Likewise, an evacuation strategy should be applied to end the crisis through the identification of the content and causes of the problem. The final strategy to be used is to tactical reserve strategy that would help the ATMP department handle the crisis.

5.5 What incentives are needed to be employed for a boost in Knowledge management acceptance for higher performance to be achieved?

The findings confirm that no reward system is in place for both asset managers and officers. Although, IT experts that handle GIFMIS have reward systems for them by the government. Incentives are suitable mediums for encouraging behavioural changes, which could increase and motivate the officers in charge of asset management to work effectively and efficiently (Cahill *et al.*, 2015; Boue and Corradino, 2019). Similarly, when financial incentives such as paid vacation days, health insurance rebates and cash bonuses are correctly implemented, they promote behavioural changes within asset managers and officers, as Finkelstein and Kosa (2003) advocated.

However, incentives given should align with the needs of the employees, as Nyuur *et al.* (2022) suggested from the literature reviewed, because younger employees tend to value career development and new knowledge acquisition compared to older persons who love building relationships and helping others, which is valuable in mentorship. Also, an asset officer earning less money would find monetary incentives appealing, while an officer making more would find non-monetary incentives more exciting (Atiman and Motz, 2017).

Equally, non-financial incentives should be considered to reward asset managers and officers in the government for their hard work. Promoting asset officers based on performance, awards recognition, and scholarships for career development can also motivate the asset managers and officers to work and perform more effectively and efficiently. Furthermore, the rank of the officers should be considered to ascertain the kind of reward or incentive that would appeal to the workers (Handdelsblatt, 2017). Also, the stimuli to be considered can be grouped into three categories: knowledge-based incentives, organisational incentives, and social incentives, according to Altman and Motz (2017).

However, the department already partially practises knowledge incentives, which is commendable. Notwithstanding, having regular training, workshops, and seminars and allowing asset officers to attend a conference related to AMP and KM for career development would help in aiding the development of AM because it will enable the officers to earn new knowledge which is relevant to AM. Furthermore, considering asset managers in the ATMP department office, providing them with a good work environment, freedom of choice, high salary, and work-life balance would motivate them to learn more and be willing to exchange and transfer their knowledge to other colleagues in different MDAs.

Then for the officers handling asset management in the various MDAs, organisational incentives would be highly beneficial; flexible working time or hours, personal development opportunities and working in an inclusive environment would boost and motivate the officer's productivity. When considering social incentives, the government should introduce mechanisms for regular feedback discussion sessions and establish a culture of rewarding an officer each month based on performance; the incentives to be considered should be reasonable,

well-executed, fair, and effectively communicated. It should also be noted that incentives will not work for asset managers and officers with terrible attitudes and horrible working habits because they might assume that the government wants to buy their loyalty (Altman and Motz, 2017).

5.6 What could be the participant's recommendations on how to improve asset management in the public sector?

An in-depth understanding of what needs to be done partly depends on the perception and opinions of the participants, and Kohler, Smith and Bhakoo (2019) affirm that context plays a significant role in solving organisational issues and only through interviews that the perceptions and opinions of the respondents can be gotten, because of the development of an understanding of the meaning that individuals attach to their experiences (Eatough and Smith, 2017). Similarly, aligning respondents' opinions with literature recommendations would be the most appropriate way to develop asset management in the federal government.

Some of the participants recommended establishing and implementing a legal and operational framework for the development of asset management. This is a relevant opinion because a legal and operational framework is essential to holding the government and political actors accountable for addressing asset management challenges. The framework would secure government and political commitment to implementing strategies and policies that could develop asset management practice with an established knowledge management practice. Based on the guidance provided by Mohaghegh and Grobler (2020); Nortje *et al.* (2021) in the literature reviewed, due to the negative effect of the pandemic and the improper establishment

and development of asset management in the public sector, it becomes imperative and pertinent to re-design, plan and reform asset management practice.

The participant's opinion on continuous capacity building is an essential element that needs to be well established. Continuous capacity building will provide the asset managers and officers acquire the new knowledge required to build asset management practice and KM. Referring to the literature on the history of KM, it can be seen how Peter Drucker emphasised the importance of a knowledge worker within an organisation. Strassman also reiterated and highlighted the relevance of knowledge as a resource in a firm. At the same time, Peter Senge concentrated on the importance of a learning culture within an organisation (Tzortzaki and Mihiotis, 2014). Likewise, webinar-based capacity building can provide training platforms for asset officers and the junior officers who are left out of regular training to acquire new knowledge necessary for the development of asset management practice in Nigeria since live conferences and face-to-face capacity building activities are facing a setback in this pandemic (Tanucan and Uytico, 2021).

One of the participants suggested that Career professionals in asset management should be employed and developed right from an entry point into the civil service. This suggestion is in line with what the literature advocates. Jennex (2008) argue that for an organisation to know how to manage knowledge, it must first have the ability to work with, and numerous ways of acquiring and creating new knowledge within an organisation have been identified. New Knowledge can be acquired by hiring or employing individuals with the relevant expertise. This implies that having officers in the asset management cadre is a strategy the government can use to address the issues of knowledgeable asset managers and officers.

Another participant believes that for development in asset management to occur, Government should involve asset managers in decision-making on asset management programs. This suggestion is a good one because asset management is an inclusive strategy that adds value and gives organisations a competitive edge over competitors (Maletic *et al.*, 2017); Giglio *et al.*, 2018; Maletic *et al.*, 2020) and without involving asset managers and officers in decision making on asset management practice, any policy or determination made by the government might be in contradiction to what the work of the asset managers and this can negatively impact the development of AMP and KM in the government.

Furthermore, recognising and involving asset managers and officers in asset management decision-making will intensify their loyalty and efficiency (Okechukwu and Enoch, 2014). Accordingly, this would also have a positive and significant impact on the knowledge-sharing behaviour of asset managers and officers within the public sector in Nigeria because psychological ownership has a positive relationship with employee participation in decision making, and organisational commitment is positively associated with psychological ownership Han *et al.* (2010). In turn, organisational commitment is a mediator between psychological ownership and knowledge-sharing behaviour. Accordingly, Elele and Fields (2010) argue that a better pool of information is gotten when employees are involved in decisions. Applying asset managers in decisions made will further equip the officers on ways of implementing work processes after decisions are made on asset management (Miller and Monge, 1986). Finally, French *et al.* (1960); Cotton *et al.* (1988) confirm how employees derive satisfaction knowing that they are recognised and involved in their organisation's decisions, consequently leading to more productivity.

Another vital solution proffered by the participants is for the top management to be educated on the relevance of asset management. Lack of knowledge on asset management by chief government officers and lawmakers would be one of the reasons why the program is not given attention. Having control that has knowledge-oriented leadership in place would help build AMP and KM because knowledge-oriented leadership has been identified as a crucial organisational factor that has influenced and significantly impacted knowledge management processes which are determinants of enhanced organisational performance, according to Shujahat *et al.* (2017); Ramezani *et al.* (2017); Naqshbandi and Jasimuddin (2018); Sadeghi and Rad (2018); Raudeliuniene and Kordab (2019). It is worth noting that improved organisational performance would ultimately aid asset management practice development in Nigeria. In the same vein, Von Ah (2021) advocates that executive leadership that can clearly articulate its support for asset management and provide the necessary resources for asset management does provide an avenue for AMP to succeed.

5.7 What kind of practical and novel framework can be developed for the implementation of Knowledge Management for the development of asset management to be achieved?

Based on the results obtained, a framework that integrates KM and the inner dynamics of an organisation can be developed. Consequently, a framework has been developed as a theoretical contribution to the body of knowledge and is helpful for practitioners (please refer to section 4.9 for the theoretical framework created).

5.8 Summary of findings

Below is a list of summaries of findings conducted in this study:

- There is a Lack of knowledge on Asset Management.
- Lack of familiarity with knowledge management.
- Inadequate sources for acquiring knowledge on asset management.
- Consultants' unwillingness to train asset managers effectively.
- Lack of adequate training and development for asset management officers.
- Lack of knowledge of public sector asset management.
- Lack of Knowledge Repositories (KR).
- Lack of established knowledge sharing and exchange culture.
- The stage of asset management in the public sector; infancy stage.
- Lack of Technological Infrastructure for KM and AM.
- Lack of synergy between Government Integrated Financial and Management Information (GIFMIS) and asset management and tracking department.
- Lack of political will and funding.
- Lack of crisis management handling mechanisms.

- Covid-19 hinders junior officers from participating in training and development workshops due to poor technological facilities.

Overall, it can be stated that the findings did proffer answers to the following research questions displayed below.

1. To what extent has KM supported the development of asset management practice in Nigeria's public sector?
2. How can knowledge management activities aid in developing a tenable assets management practice?
3. What are the challenges encountered by asset management departments?
4. What incentives are needed to be employed for a boost in Knowledge management acceptance for higher performance to be achieved?
5. What could be the participant's recommendations on improving asset management in the public sector?
6. What practical and novel framework can be developed for implementing Knowledge Management to build asset management in the public sector?

Ultimately, these findings have successfully provided the opportunity to accomplish the research aim, which is to investigate how asset management practices can be developed through the application of knowledge management in public sector organisations in Nigeria because areas that will need changes have been identified.

5.9 Recommendations

The government would have to provide the necessary funding, build a legal and operational framework that would institutionalise the program, also continuous capacity building, recruitment of individuals with knowledge of AM and KM, hiring of AM and KM consultants, and create synergy between GIFMIS and ATMP to encourage collaboration would have to be established for advancement to be achieved. Furthermore, technological adoption of relevant Asset Management systems (AMS) and Knowledge Management Systems (KMS) are vital. Likewise, the establishment of knowledge repositories and infrastructure is necessary, and a knowledge-sharing culture would have to be established by encouraging and introducing a knowledge-oriented leadership style. Also, employee participation in decision-making is significantly associated with knowledge-sharing behaviour. This implies that the management should adopt and introduce a culture of having FAMO and asset managers in decision-making processes relating to AMP for development to be attained.

Similarly, KM and AMP would also have to be monitored and evaluated regularly to assess the progress made and identify deficiencies for improvement to be established. In addition, various reward systems would have to use based on asset managers, and fixed asset management officers (FAMO) need to encourage them to be more effective and productive in carrying out their responsibilities for AM to be developed. Finally, mitigatory mechanisms for crisis management should be introduced and established; this should be done to buffer against FAMO missing crucial training on AMP because, without continuous capacity building, no significant improvement would be realised.

5.10 Limitations and Areas for Future Research

This study is not without limitation; the research was only conducted in Nigeria, meaning that the findings from the data collected may not apply to other countries, especially within developed economies. They were considering other developing countries with similar contexts; it can be stated that Nigeria is a good representation of what is obtainable in the various developing economies. This implies that the findings are helpful, especially among developing economies (Pepple *et al.*, 2021). Also, the issue of the research validity cannot be overlooked because it was conducted using a qualitative research method. Considering the small sample size, the challenge of generalisation is raised (Easterby-Smith *et al.*, 2012, Saunders *et al.*, 2019). However, the researcher ensured minimal bias and respondents' anonymity, and the themes were generated using codes. Furthermore, using the qualitative research method enabled the researchers to gather rich and relevant results, which led to an in-depth understanding of the situation from the various perspectives of the participants, and this allowed for proper and appropriate solutions to be proffered for the development of asset management practice in Nigeria aided by KM and other inner organisational dynamics.

Considering areas for future research:

- The theoretical framework developed a proposition that needs to be operationalised to assess how the model works. Consequently, this study will benefit from quantitative analysis to test the recommendations.
- In addition, the framework developed provides a starting point for examining the challenges of establishing AM practices in public sector organisations, especially in developing countries.

- Similarly, there is a dearth of literature and studies on how socio-cultural context is associated with organisational performance (Johnson *et al.*, 2014). This is an area that needs further studies.
- Another area that needs further investigation is knowledge hoarding amongst employees. An in-depth understanding of the situation is necessary for knowledge-sharing culture to be established and practised so asset management can improve and advance.

5.11 Theoretical Contribution

The theorisation of KM and AMP significantly contributes to the existing body of knowledge and theory. Firstly, developing a framework that explains the mechanisms through which KM can boost the development of AMP provides a starting point for examining the challenges of establishing AM in public sector organisations like those in the Nigerian context (please refer to figure 3 on the next page). Furthermore, most literature investigating KM and AMP in Nigeria dealt with the private sector. A few that examined the public sector focused mainly on just KM but not on AMP in the public sector. The framework developed in this study makes it easier for academics and practitioners to identify how AMP can be created from employee, organisational and societal levels.

Similarly, this research highlights the relevance of how knowledge management, its processes, and mechanisms (KM creation, KM organisation and storage, KM application, KM sharing, KM transfer, KM infrastructure, KM governance, KM monitoring and & evaluation,

knowledge-oriented leadership, crisis management, incentives, sociocultural context, organisational culture) function holistically as an entity together with other inner organisational dynamics to foster the development of asset management practice. Also, this is the first study that integrates and shows how KM and AMP are related and work together to produce success. In addition, this study shows the importance of KM and AMP in the public sector, specifically in a developing nation where such research is dearth and, to some extent, does not recognise

5.12 Research Implication

5.12.1 Practical Implication and Policy Implication

In practice, this research points out how underdeveloped KM and AMP are in the public sector of a developing country and proffers ways to develop asset management and knowledge management practices in the public sector. This study points out how the government and policymakers can overhaul and implement a viable asset management practice through established knowledge management. Firstly, the government should focus on introducing and implementing KM that could benefit the public sector. Secondly, for the Nigerian government to meet international standards, technology adoption would have to be considered for both KM and AM. Finally, the establishment of KM in AMP would boost productivity due to knowledge management processes that facilitate competitive advantage.

Furthermore, approvals and making available the necessary funding needed is imperative, building a legal and operational framework, continuous capacity building, recruitment of individuals with knowledge on AM and KM, hiring of AM consultants, synergise GIFMIS and ATMP for collaboration and when all these factors are implemented advancement would be realised in AMP in the public sector. In addition, technological adoption, the establishment of

knowledge repositories and infrastructure, creating a knowledge-sharing culture through the introduction of a knowledge-oriented leadership and involving employees in decision-making on AMP will aid the development of AMP. Similarly, monitoring and evaluating KM and AMP regularly to assess the progress and identify deficiencies is essential for improvement. Finally, if adopted based on asset managers' and fixed asset management officers' needs, various reward systems will significantly boost employees' satisfaction and productivity, ultimately positively impacting AMP within the country.

The findings from this study imply that the government and policymakers' current policies on asset management will have to change if progress is made in asset management practices. However, this can trigger litigations and resistance by relevant stakeholders because the changes will require a review of the current approved policy made by the federal executive council, of which not all relevant stakeholders would agree to have the changes made based on individual opinion and understanding.

5.13 The contextual implication of the findings in the Nigerian and African context

The findings provide more insight into the implementation of knowledge management and how organisations can contribute to the lack of understanding of knowledge management practices, especially in the public sector of developing countries. Overall findings suggest that asset management officers may continue to struggle with the creation, storage, sharing, transfer, and implementation of knowledge. For the public sector in Nigeria and Africa to advance in knowledge management practices, the organisations would have to generate new ideas, recognise unseen patterns, synthesise different disciplines and develop new processes based on

the institution's context. This new process would have to be gotten externally in the first instance and would have to be transformed into valuable assets for present and future use. Knowledge can be obtained by hiring external consultants (Gupta *et al.*, 2004). Findings suggest that this was not the case for the empirical context, and consultants hoarded due. The following different forms of storage should be created and used to store new knowledge; manuals and handbooks consistent with Jennex (2008) and Garcia and Sosa-Fey (2020).

It is commendable how knowledge sharing and exchange are encouraged amongst asset management officers. However, informally mentoring the officers is insufficient for their development, implying more needs to be done. Establishing a culture of knowledge sharing would aid the attainment of competitive advantages and improve performance and sustainability (Abbasi *et al.*, 2020). Nonaka (1994) affirmed that top management has a significant role in facilitating knowledge sharing. When the government adopt knowledge-oriented leadership, KM processes would invariably impact and boost the development of asset management (Ramezani *et al.*, 2017). However, applying what the literature suggests is difficult in the Nigerian context because top management teams lack the understanding and implications of establishing knowledge management.

For knowledge transfer to be effective, the government must manage the knowledge possessed within the organisation by implementing and applying information technology-based knowledge repositories (Fadel and Durcikova, 2014). Knowledge repositories are known to enhance KM processes. However, only relevant knowledge that is valuable to the development of asset management practices should be of concern, and this knowledge should be extracted from asset managers. Also, the knowledge extracted should be validated to ensure its

correctness and value (Soo *et al.*, 2002). Knowledge repositories should also be given due consideration because they significantly enhance the transfer of knowledge by facilitating knowledge sharing (Alavi and Leidner, 2001). Furthermore, using the internet and intranet as knowledge infrastructure cannot be overlooked. The knowledge system adopted should also be flexible to adapt to environmental changes (Matook and Maruping, 2014). This is relevant because both knowledge management systems and asset management systems that would be used to develop asset management practices in Nigeria and Africa should align with the public sector practices in place.

The participants' demography in this study provided unique insights into how socio-demographic factors may influence the effective implementation of knowledge management practices. In addition, Dwivedi *et al.* (2011) reiterate the importance of comprehending cultural context's influence on knowledge management practice. Investigating the role of context is important because it underscores those universal psychological processes manifest differently depending on the respondents' tradition, custom, race, culture, and beliefs (09). This section of the findings is in line with the Systems Thinking Theory, which suggests that understanding a phenomenon requires a holistic view of organisational and contextual factors (Mahon & Patton, 2018).

Nigeria is a highly diverse country, and the public service workforce comprises individuals from different states, diverse cultures, beliefs, customs, traditions, and backgrounds. In addition, there are 36 states in Nigeria, and within each state, there are about 374 different ethnic groups with other cultures, customs, beliefs, and values (Nwabunike and Tenkorang, 2017). However, from the findings, while language barrier and ethnicity are challenging,

concerted efforts encourage employees to work together as a fraternity irrespective of their ethnicity. This is quite commendable and encouraging.

The position or ranks of the participants influenced knowledge management practices. Most of the participants interviewed are senior officers because officers on the status of Principal Officers, Chief Accountant, Assistant Directors, and Deputy Directors to the Director levels are all called senior officers (Public Service Rules, 2009). About 23 participants are on those respective levels, while only seven are on the junior officers level; this includes the Accountants, Accountants I and II, and Senior Accountants (Please refer to table 1 for more details). From the responses received, it can be stated that the management prefers to train officers on high levels because they believe that the minimum educational qualification of such officers is either bachelor's or HND (Higher National Diploma). As such they can assimilate and comprehend what asset management is about and thus have the impetus to carry out the responsibilities of asset management.

It is good that they try to use the well-experienced and educated officers for the program. However, the junior officers are also graduates and involving them in the training and development would help develop a strong workforce which is also necessary for knowledge transfer. This is necessary because they will be the ones to continue the program when the well-experienced officers either retire or leave the public sector to pursue other aspirations in life. Furthermore, not involving the junior officers can cause inadequate innovation and creativity (Hulpke, 2019) because talented individuals might not be identified from the younger and low-ranking personnel. More discussions on the participants' demography in the next section, 5.14, will provide more insight into how Nigerian text plays a vital role in the study.

5.14 Implication of Participant's Demography

Including the participants' demography in the study allowed the researcher to decide on the result generalisation because it enabled and provided a route for comparisons across study replications. Participants' demography also provided the information needed for research syntheses and secondary data analyses, which would be immensely valuable in future studies. Evaluating the effect of participants' gender, it can be suggested that the commitment of female participants to the program has helped attain the little progress recorded; however, lack of training and development has demoralised most of the male participants. This shows how the females handled the situations differently, showing resilience and determination. This is a relevant discovery that could help managers understand how to manage the asset managers and FAMO based on their sex and how they handle the situations.

This study has also illuminated more light on the age group with vast AMP knowledge. This is relevant to practitioners because it will aid in providing the top management with ideas on how to facilitate and encourage knowledge sharing and transfer among the officers in charge of asset management. For instance, since most experienced staff are of higher ranking, assigning projects and responsibilities should be randomly allocated between the tall order and a mixture of the junior officers for collaboration, knowledge sharing, exchange, and transfer. This would enable continuity when the older officers retire or leave.

Another exciting contribution is showing a different perspective on how participants' ethnicity impacts AMP. Having the head of the department as a woman who believes in involving and working with all her staff as a family has proven that the adverse effect that diverse ethnic and cultural backgrounds of a workforce can cause can be managed positively and effectively to

make employees from diverse cultural backgrounds work together and have the feeling of being in an inclusive environment with no emphasis given to staff racial or cultural difference. Ultimately, this would improve performance and aid the development of asset management practice.

5.15 Conclusion

This study investigated how Knowledge Management (KM) can be used to progress Asset Management Practice (AMP) in the public sector organisations in Nigeria. The research took an interpretive stance (Pepple et al. 2021) with a pragmatic twist and applied a qualitative research method with an inductive approach; the study was designed to enable the researcher to gain an in-depth understanding of the constructs and the role that context plays (Kohler, Smith and Bhakoo, 2019). Thirty participants from different federal government ministries, agencies, and departments participated in the study, and semi-structured interviews were conducted online due to coronavirus restrictions. Accordingly, a purposive sampling technique was used to collect the data from participants. A criterion for choosing respondents was applied based on their role in either KM or AMP activities. Also, Information Technology (IT) experts with knowledge of AMP and asset management officers were involved in the interview (See Table 3 on page 140 for participants' descriptions). Most of the participants interviewed were senior civil servants, mainly comprised of accountants and a few GIFMIS specialists. Reflecting on the research aim, interview questions centred around the following areas:

- a. A What is your understanding of AM?
- b. What has been done so far to develop AM program?
- c. How often do you have training and development?

- d. What is the culture like in your organisation?
- e. How technological equipped are you in your organisation?
- f. What challenges do you face in managing knowledge of asset management practices?
- g. What can be done to do better?

Likewise, all ethical issues were handled appropriately before and during the interview, also, interview sessions lasted from 30 minutes to 45minutes, and all sessions were recorded and transcribed.

Drawing on institutional theory, system thinking approach and organisational development theory (Wu and Chu, 2015; Glanz *et al.*, 2002; Schneider *et al.*, 2013; Levin *et al.*, 2013; Gatarik, 2019), this research discovered that KM is not acknowledged and instituted within the public sector while AMP is at the beginning stage and the various Ministries, Departments and Agencies (MDAs) are not yet familiar with AMP. Similarly, the program is not progressing due to the shortage of pertinent knowledge and expertise on AM, absence of knowledge-oriented leadership, ineffective knowledge governance, ineffectual capacity building, insufficient funding and political will, and non-existence of legal and operational framework in place. Likewise, poor technological infrastructure and lack of reward systems are having an inauspicious effect on the development of asset management too. Finally, the lack of not involving employees in decision-making is also hurting the development of asset management in the public sector.

As a result, this research construes that for AMP to progress in Nigeria, there would be a need to introduce and put KM into practice. Correspondingly, the advancement of understanding of

AM amongst asset managers and fixed asset management officers (FAMO) through capacity building is fundamental. In the same way, adopting technology that supports AM and AMP is necessary. Likewise, the synergy between GIFMIS (Government Integrated Financial and Management Information Systems) and Asset Management and Tracking Program (ATMP) department must be built and harmonised. Also, the government would have to consider developing a legal and operational framework to advance and institutionalise AM because of its immense value (Brinkerhoff, 2000). The culture of involving asset managers and FAMO in decision-making should be introduced and implemented because it fosters knowledge sharing. Finally, relevant reward systems that align with asset officers' needs should be investigated, trained, and executed.

By investigating how KM can be used to improve the development of AMP in the public sector in Nigeria, this study makes relevant and valuable contributions; Firstly, by creating an advanced and sophisticated KM model which is made up of various elements that can aid the development of AMP in multiple organisations which is also applicable in the private sector. Secondly, the study highlights specific details that could work together to develop AMP within organisations; funding, institutionalisation, establishing a knowledge-oriented leadership, KM governance, employee participation in decision-making on asset management to create and establishing a knowledge-sharing culture and providing and adopting necessary technology would significantly develop AMP in Nigeria.

The theorisation of KM and AMP substantially contributes to the body of knowledge because the theory and framework developed to explain the mechanisms through which KM and other organisational dynamics can boost the development of AMP. The framework developed

provides a starting point for more studies to examine challenges in establishing AM in public sector organisations like those in the Nigerian context (please refer to figure 3). Furthermore, most literature that had investigated KM and AMP in the Nigerian context, most of the literature dealing with the private sector and a few that examined the public sector did that focusing mainly on just KM but not about AMP in the public sector. The framework developed in this study makes it easier for practitioners to identify how AMP can be created from employee, organisational and societal levels.

Even though this study confirms the dearth of knowledge on KM and AMP, especially in the public sector of developing countries and the challenges faced in developing asset management in the public sector as stated by prior studies (Gupta *et al.*, 2000; Ibrahim *et al.*, 2010; Oluikpe, 2012; Henderson *et al.*, 2014; Arrau, 2015; Tafazzoli, 2017; Beitelmal *et al.*, 2017; Giglio *et al.*, 2018; Razzaq *et al.*, 2019). Notwithstanding, this study posits that when the elements mentioned in the theoretical framework (figure 3 on page 165) are introduced and implemented, significant advancement would be recorded in AMP, which is helpful in both the public and private sectors.

This research points out underdeveloped asset and knowledge management practices in Nigeria's public sector. This calls for an urgent overhaul of how AM and KM are handled. The government would have to provide the necessary funding, build a legal and operational framework that would institutionalise the program, continue capacity building, recruit individuals with knowledge of AM and KM, hire AM consultants, and synergise GIFMIS and ATMP for collaboration and advancement to be achieved.

Furthermore, the technological adoption of relevant AMS and KMS is vital. The establishment of knowledge repositories and infrastructure is necessary. Knowledge sharing culture would have to be established by encouraging and introducing a knowledge-oriented leadership and involving FAMO and asset managers in decision-making on AM. Similarly, KM and AMP would also have to be monitored and evaluated regularly to assess the progress recording and identify deficiencies for improvement. Finally, various reward systems would have to be used based on asset managers' and officers' needs to encourage them to be more effective and productive in carrying out their responsibilities for AMP to be developed. Measures for tackling unforeseen circumstances should be introduced and established. This would help in handling the FAMO not attending AMP training.

Furthermore, this research is not without limitations; the study was only conducted focusing on the public sector organisations in Nigeria, meaning that the findings from the data collected may not apply to other countries, especially within developed countries. However, considering other developing countries with similar contexts, it can be stated that Nigeria is a good representation of what is obtainable in the various developing economies. This implies that the findings are helpful, especially among developing economies (Pepple *et al.*, 2021). Also, the issue of the research validity cannot be overlooked because it was conducted using a qualitative research method. Considering the small sample size, the challenge of generalisation is raised (Easterby-Smith *et al.*, 2012, Saunders *et al.*, 2019).

However, the researchers ensured minimal bias, respondents' anonymity was provided, and the themes were generated using codes. Similarly, using the qualitative research method enabled and gave the researcher the rare opportunity of gathering rich and relevant information

and an in-depth understanding of the situation from the various perspectives of the participants allowing for proper and appropriate recommendations to be proffered for the development of asset management practice in Nigeria aided by KM and other inner organisational dynamics.

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APPENDIX

A. Ethical Approval Letter

Christine Makama (1806602)

From: Postgrad Research
Sent: 29 April 2021 16:44
To: tinamakama@yahoo.com; tinamakama@yahoo.com; Christine Aliyu Makama (1806602)
Cc: John-Paul Okeke; London Student Services; John-Paul Okeke; Dennis Pepple
Subject: EC852 PG2 Ethics Form Approved: MAKAMA, CHRISTINE ALIYU (1806602)

Dear Christine Aliyu Makama,

I am pleased to confirm that the submission of the Ethical Approval on your research " has been **APPROVED** by the University's Ethics Committee.

Please ensure that you are aware of, and use, the University's Research Data Management Policy and the extensive resources on the University's Research Data Management web pages (<http://uwtsd.ac.uk/library/research-data-management/>).

Please do not hesitate to contact the office should you require any further information on this matter.

Kind Regards

Steve Davies

Swyddfa Academaidd (Graddau Ymchwil Ôl-raddedig) / Academic Office (Postgraduate Research)
Campws Caerfyrddin / Carmarthen Campus
SA31 3EP
Ext: 4464
steven.davies@uwtsd.ac.uk

B. Participation Information Sheet

Research Title: Investigating the role of Knowledge Management in the Development of Asset Management Practices in Selected Public Sector Organisations in Nigeria.

Researcher: Christine Aliyu Makama

Research Participant's name:

Purpose of the Interview: To investigate how asset management practices can be developed through the application of knowledge management in public sector organisations in Nigeria.

The interview will take about 30 to 45 minutes. We don't anticipate any risks associated with your participation, but you have the right to stop the discussion or withdraw from the research at any time.

I would also like to thank you for agreeing to be interviewed as part of the above research project. Furthermore, ethical procedures for academic research undertaken by UK institutions require that interviewees explicitly agree to be interviewed and how the information in their interview will be used. This consent form is necessary for me to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Would you, therefore, read the accompanying information sheet and then sign this form to certify that you approve the following:

- The interview will be recorded, and a transcript will be produced.
- You will be sent the transcript and allowed to correct any factual errors.
- The interview transcript will be analysed by christine Aliyu Makama, the researcher
- Access to the interview transcript will be limited to Christine Aliyu Makama and academic colleagues and researchers with whom she might collaborate as part of the research process.

- Any summary interview content, or direct quotations from the interview, that is made available through academic publication or other academic outlets will be anonymised so that you cannot be identified, and care will be taken to ensure that additional information in the interview that could identify yourself is not revealed.
- The recording will be kept in OneDrive, password-protected and only accessible to Christine Aliyu Makama, the researcher.
- Any variation of the conditions above will only occur with your further explicit approval.

C. Interview Consent Form

Quotation Agreement

I understand that my words may be quoted directly.

With regards to being quoted, please initial next to any of the statements that you agree with

	I wish to review the notes, transcripts, or other data collected during the research about my participation.
	I agree to be quoted directly.
	I agree to be quoted directly if my name is not published and a made-up name is used.
	I agree that the researcher may publish documents that contain quotations by me.

All or part of the content of your interview may be used;

- In academic, policy or news articles
- On other media that we may produce, such as spoken presentations
- On other feedback events
- In an archive of the project, as noted above

By signing this form, I agree that;

1. I am voluntarily taking part in this project. I understand that I don't have to take part, and I can stop the interview at any time;

2. The transcribed interview or extracts from it may be used as described above;
3. I have read the Information sheet;
4. I don't expect to receive any benefit or payment for my participation;
5. I can request a copy of the transcript of my interview and may make edits I feel necessary to ensure the effectiveness of any agreement made about confidentiality;
6. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

Printed Name

Participants Signature

Date

Researchers Signature

Date

Contact Information

The University of Wales Trinity Saint David Research Ethics Board has reviewed and approved this research. If you have any further questions or concerns about this study, please contact:

Name of researcher: Christine Aliyu Makama

Full address:

E-mail: 1806602@student.uwtsd.ac.uk

D. Interview Questions

RQ1: To what extent has Knowledge Management (KM) supported the development of Asset Management Practice (AMP) in Nigeria's public sector?

1. Could you describe your understanding of Asset Management (AM)?
2. Can you describe the standards that you use in asset management?
3. Can you explain the type of framework (if any) you use for Asset Management Practice (AMP)?
4. How would you describe your perception of the management of Knowledge?
5. Can you describe your understanding of the relationship between KM and AM?
6. Can you describe how you manage knowledge in AMP?
7. Could you describe the type of strategies you use for monitoring and evaluating your organisational knowledge?
8. Tell me about training and meetings undertaken in your organisation for the development of AMP?
9. Could you describe your organisational culture and design?
10. Could you describe the mechanisms you have in place for addressing socio-cultural differences among your staff?
11. Can you describe how you feel about the current AMP and strategy used in the public sector?

RQ2: How can knowledge management activities aid in developing a tenable assets management practice?

1. Could you describe how you acquire and create knowledge within your organisation?
2. Could you describe how you store information and knowledge?
3. Could you describe the method you use in ensuring you extract and retain the knowledge and experience of your experienced staff? For example, do you encourage mentorship?
4. Can you describe how your department encourages knowledge sharing?
5. Can you describe the technological infrastructure (Asset management system and knowledge management system) that you have in your organisation that supports AMP?

RQ3: What are the challenges encountered by the asset management department?

1. Could you describe how you address issues related to facilities used for AMP and KMP?
2. Can you describe your understanding of best practices?
3. Can you describe the innovative practices that you use in your organisation?
4. Could you describe the crisis management measures that you have in your organisation?
5. Do you have any AM institutes in Nigeria?
6. Can you describe how your decision-making impacts AMP in your organisation?

RQ4: What incentives are needed to be employed for a boost in Knowledge management acceptance for higher performance to be achieved?

1. Could you describe the current incentives used in your organisation to boost productivity?

2. Could you describe what you consider incentives to boost your productivity?
3. Could you describe your feelings about learning new things (career development)?

RQ5: What could be the participant's recommendations on improving asset management in the public sector?

1. What can be done to do better?

E. Organisation Access Letter

F. Sample Transcript

Speakers: Christine and Participant 3 (Chief Accountant)

Christine Makama 0:01

Good afternoon ma. My name is Christine. I'm a student at the University of Wales Trinity St. David, and I'm conducting research on how asset management can be developed through the aid of knowledge management; in Nigeria's public sector, nothing personal would be asked, and your identity would remain anonymous, and you have the right to the interview at any time. And if you're uncomfortable with any question being asked, you have the right not to answer the question. Yes. So, I would like to start by asking, what's your understanding of asset management? What do you do? Just tell me to feel free; let's just discuss.

Participant 3 0:49

In my understanding, I think Asset Management has to do with how we take care of our assets, right, from the post point of procurements up to disposal level, depending on the nature of the asset. So, I believe that's just my understanding of asset management.

Christine Makama 1:19

In your organisation, what kind of assets do you manage?

Participant 3 1:27

And we are various classes of assets that we manage in the public sector. We have up to like six classes, six or seven classes of assets, that we work in the public sector.

Participant 3 1:47

We have our motor vehicles, we have office equipment, we have furniture, land and building, and we also have the infrastructure; we also have what we call an asset under construction; some assets are not completed as well. So, we also manage and record all those types of assets.

Christine Makama 2:07

And not. Do you have a standardised practice that you adapt and follow in asset management in your department?

Participant 3 2:16

Yes, we have followed since the advent of IPSAS our asset management or its compliance. So we follow what the IPSAS says save about assets management. And we also have our national chart of accounts in the public sector, those where we have the classes of assets, then how you're supposed to manage them, based on the depreciation level of each of these assets. So those are basically what we follow in the public sector in Nigeria, which leaves us our purposes, and our national Chart of Accounts. And that has been linked with our IPSAS adoption, okay? IPSAS adoption has been tied together with a national chart of accounts to ensure that we do

Christine Makama 3:15

So much since you have such a big responsibility, or you're supposed to manage the total assets in the Federal Republic of Nigeria, how do you go about managing knowledge within the organisation that could help you develop asset management?

Participant 3 3:35

Asset management in Nigeria is just coming up and just coming up. So basically, we train or train officers on how to manage the asset. Since assets are something that the federal government felt that there was a need for us, earlier on, it wasn't as we are about to do now. But now, since the government has decided that we need to manage our assets so that these assets can be appropriately documented and whatever of that nature. So training staff is an Asset Management Unit already in the office of the Accounted General, and we're going about training staff to develop our asset management knowledge. However, we have not gone deep into the training aspects. Those are the proposals on the ground to ensure that staff are well equipped in asset management.

Christine Makama 4:49

Next, level So, the question is pretty much what I just had. Sorry for the silence I just had to take care of some technical aspects, ma'am. Then I would like to find out what strategy to use because, as you said, is something new coming up? So, is there anything the government has in place like having a strategy to help develop this programme? And you work with the theme me just say, the latest technology, do you have things like asset management system like is the software they use all the all I used to like the stage of development where you're acquiring your facilities before expanding it, I would like to know at what stage you are

Participant 3 6:22

Since the federal government has agreed on the management of assets and having like, a record of all national assets is a comprehensive record, there is there was approval from the FEC (Federal Executive Council) council that every MDA (ministry, department and agency) should submit a record of their asset register to the asset tracking management programme, some have responded. So, we are yet to. So, we did send out a template every MDA would follow in submitting such register. Then of recent software, we were planning on developing asset management software. Still, the Office of Accountant General we have what we call GIFMIS in the office of the accountant government (government integrity financial management information system). So, they wanted a situation where that GIFMIS does payments and receipts. So a new module was introduced into the GIFMIS for asset management. So, they want a case whereby instead of another software, we have integrated software that could manage our budgeting, our payment receipt and our assets since asset forms, the significant aspects of the Federation some So, that was newly introduced. We have been trained. Okay, it has also been introduced to the MDS? So, they are to submit their asset register through that platform. Okay. So, we would manage, we will ensure that every MDA complies with adhering to and we will see to it that they do it the right way. So, we are gwilleveral like a monitoring agency to ensure that all these MDAs comply with the software they submit their report. So, that is what is ongoing now. So majorly about, we have more than 600 have already complied with that directive. So their assets are all on the GIFMIS platform. So, we will now go out to verify these assets to ensure that they exist and to ensure that the appropriate value is attached to these assets and ensure that they arappropriately

depreciated. So that we recommend, once they're ready for disposal, are those already obsolete, so that we can recommend all those things.

Christine Makama 9:49

Someone, how prepared are your colleagues and employees and subordinates? How efficient and knowledgeable are they on assets management? You said you've undergone training. But do you think that training is enough for them to be on their own to be independent? To get all the information you need, the data you need? Do you think they've been well equipped? Yeah,

Participant 3 10:16

well, to some extent, at least for a start, they already know what reports do well; I believe training and retraining by the time we go on the field when you go out then some things that you didn't envisage you could meet. So, by the time we begin going out on the go now, we are equipped to be able to go out okay, for verification; by the time we are out, whatever hitches that we may find out, we could come back and ensure that even the software itself, they put the assets module itself on the GIFMIS platform, we noticed a few things that might not be okay.

Christine Makama 11:08

I understand you need it to be customised.

Participant 3

So, we have already let them know.

Christine Makama 11:15

So, you need a specific asset management system; you need something customised to suit Nigeria's public sector.

Participant 3 11:24

Exactly, exactly. So, we noted all those things during the training understand, and it has been noted anyway and they said they will investigate it to ensure that they can readjust all those necessary areas. So that will fit yes actually what because what we know what we want, we want a system that will give us what we want exactly is so it is not going to tell you though there are areas that might not hinder our work. The main drivers are not really into our work, yeah, but you just make some associates understand,

Christine Makama 12:06

But have you heard about the management of knowledge or how you manage knowledge within your organisation because my Asset Management cannot be done without managing knowledge without managing the knowledge you have within the organisation? And you cannot do that without bringing in your technology. You will need devices to don't just walk I will need to know what you're expected to do you have to be literate (computer literate) to undertake this. So how ready and equipped and efficient are your employees?

Participant 3 12:42

Okay, we have a few that are well-equipped Okay, well knowledgeable, okay. So we are bringing up others to ensure that the inexperienced ones can also be able to

Christine Makama 13:03

become more efficient, like the experienced ones but are the experienced ones willing to help and teach and coach the inexperienced.

Participant 3 13:13

Yeah, they are because we were shared into groups. Okay, so that everybody people, everybody falls into a particular group. And the group is made up of not those who are knowledgeable and experienced, who could bring up others who are not. And so that's what we are working towards,

Christine Makama 13:38

because that's important for continuity to exist and for asset management to be developed, you know, if you're just starting a work in progress, but if you can be able to get even those below, below to also feel inclusive and if there is, let me say okay, regarding the culture in your organisation, you all comfortable to bring in, say your ideas, and it's been considered in decision making.

Participant 3 14:16

And actually, we are coming out to say what we feel should be done Yes, what we also need is the buy-in of management. If they don't buy it in, may we just keep Well, in one way or the other, we have always made our ideas known, okay, today, they understand and most times, they tell us is been noted? So we hope that they will have the political will to carry it out.

Christine Makama 14:51

So ma you work in and let me say Nigeria blessed and our strength is our diversity. You work in an environment, you have different people from different socio-cultural groups different backgrounds, different religions and beliefs. So how do you cope and work together to ensure that the department grows?

Participant 3 15:14

Um, we have always, there's always this fraternity that we promote, and it started from our head, this spirit of fraternity is something she has already imbibed in all of us. So we don't see ourselves as diverse sort of, we are as a family. So we work together. So you can not differentiate whether this is from this or that we carry ourselves a lot.

Christine Makama 15:46

Well, so Ma, would present strategy present decisions and what is on the ground on asset management? What's your own opinion about the present situation? What do you think will be done to make Asset Management improve and grow?

Participant 3 16:07

Okay, I feel that presently, I think management should be able to listen to us. You know, most times in the government sector, government cycle, they believe in consultancy, these that, forgetting that the civil servants that are there are also knowledgeable, we have tried our best, at least in the past one year, one and a half years, to put a lot together that even a consultant might not be able to. So I think they should listen to what we have to say. And help us to, if they

can do it the way, you know because we are the ones on the field. No, we are the ones that are experienced in this line. And we have seen a lot, even when MDAs submit their asset register, we see a lot of discrepancies. You know, a lot of issues. And this thing, if management could see it in our way, they shouldn't just do something and force it on us. It should be able to, that's why I told you about the asset portal, that it's like, we were not part of it. It's was just developed and said use. So, it was in the process of training, we're like, this cannot work. This should be like this, this should be like this. So they should, ideally, they should consult you.

Christine Makama 17:44

I wanted to find out how long have you worked here?

Participant 3

About three years now.

Christine Makama

How do you know so much about asset management? How did you develop yourself to be able to do your work efficiently ma?

Participant 3 18:03

Okay, when we got here, totally, I did not know asset management before I got it. When we got here, we had a director then who started giving us lots of lectures about asset management. And we also had to go further researching and trying on our own, trying to understand what asset management is. And when he left our new director, also knowledgeable in the aspect to

bring in her idea too. And we are all in the process of brainstorming and researching, we're able to gather a lot of knowledge.

Christine Makama 18:50

understand. So, what can be done to help the inexperienced was coming up because I believe is because of the level you are you know, you have to equip yourself and get the knowledge you need, but you find out the younger ones will not be interested or do not have interest in it what can be done to have them to have that knowledge to be able to carry the whole process that you have already started building on?

Participant 3 19:22

I believe that's why most times we talked about training. Training is very essential. In the process of training, you acquire knowledge. So, when we are properly trained training or retraining says it's a new development in the country. We need countries that that doing this, that have been doing this for a long time we need them also we need to collaborate and consult them. they've been training for a long time. We need them also we need to learn exactly the area right and learn from them as to be able to customise it or localise it based on our own country.

Christine Makama 20:02

Especially the public sector. The public sector is entirely different from the private sector, so it has to be customised. And I agree with you, you may reference on consulting and learning from the developed countries with exactly how the developed countries you and how they

manage asset so that we could be up to standard and that our level would be recognised worldwide. But ma with regards to consultation. Okay, you can apply Yes, I agree with acquiring new knowledge from the consultant out there. But there's one issue I had of the some of the resource people or the consultant to come want to share the knowledge to teach what you're expected to know. So, they will call you back in tomorrow have you experienced such have they been doing

Participant 3 21:03

that? Yeah, you know, a lot of them want to like keep their knowledge to themselves, so that you still have to call them back. There are a lot like that. But to some extent at least what we require we get it but sometimes they want to hold back so that we call them back again. Or they want to, you know, some even give you software and see hold back some things at the end of the day maybe by the time you start using the software, you will need to call back and tell them to come back. We don't know this, we don't know that they don't want to leave everything to you. And I think that is just the nature of most businesses. Exactly.

Christine Makama 21:52

I understand ma then ma all this training that you've been undergoing? Do you have like recordings, or do you have like a platform where you document all these trainings so that you can refer back and not just you those coming in after you can also refer to it to understand what you people are doing? Or how do you go about it?

Participant 3 22:19

Now as individuals, we, most of all these trainings have soft copies that sent to our Mails. So definitely we have backups like that always refer to after they are gone after the consultants are gone Yes, we'll be able to refer to

Christine Makama 22:40

so you don't have things like the intranet, or you don't have a platform where you know, you people can go ask a question I'm not clear on these Can anybody help me out is not well established to that level yet. So I wanted to find out again, what do you think? What facilities do you need? Now? I'm now deviating to the technological aspects Okay. What do you need to carry out your asset management efficiently and what do you have on the ground that is helping you (Systems desktop).

Participant 3 23:28

For now, we have few desktops and laptops, but not if not everybody as it's okay just some few people have their desktop or laptop to work with but I feel that everybody every asset manager should be well equipped with the necessary technology to be able to carry out the work. Then we also have our barcoding barcode barcoding machines that were procured for us also in managing the assets least we should be able to barcode the assets for easy tracking.

Christine

Have you started that one?

Participant 3

We have not started we have it but we have not started for now. Then we also want like earlier on like I said, we were planning on our own we have almost procured our software before we like told that there is a difference I understand so.

Christine Makama 24:35

So so. Okay, if you people had your software, could that be a backup plan for you? Or it is not even up to the standard of the GIFMIS because you people need something that is customised. Exactly. And that suits the Federal Republic of Nigeria, not something then I think that means they have to go back seat with asset managers to develop a software that will fit in our Nigerian public sector as what it means, right? Yes, yes.

Participant 3 25:09

Because we initially, our software, software developers came around. We told them what we wanted customised to meet our needs. Then, the GIFMIS portal to some extent, not fully, but to some extent also fit into what you need so you can incorporate exactly, but I was thinking that when we have his software, we'll be able to link up because there is this synergy that federal government wants with all it is because of our the public financial management system that we are operating. We have IPPIS, the GIFMIS, the TSA they want a situation where all Can you can link exactly so I used to be a central admin. So maybe that is why they said we should have that asset portal maybe that was why this is decided, I wish you wish that accept quota. drift means under some platform, so that's why I felt that they would have done it better

*by customising making us aware that this is what is available? What do you think you need?
Do you know? No, so that it will fit in*

Christine Makama 26:33

That would bring us back to innovation ma? I believe as you said you do talk to them. It will help your work and help you do better if they were agreed for you, the asset managers to bring in their innovative ideas exactly to create a software for Nigeria, that oh, I think is a good aspect as something that should be pushed implemented you know,

Participant 3 26:57

That is why I talked about that political will to want to implement it, because we want to do it, we should do it. Right. It's true. We should do it. Right. And I and I believe if the management buys into the idea and sells itself to the federal government, I don't think they will kick against it. Okay, I don't think so. Omar,

Christine Makama 27:26

have you heard of knowledge management software to is just used is also used the same way use asset management's software, we have knowledge management software's Okay, now also aid you in storing all these training the knowledge you are acquiring so that the staff can refer back to because right now, I don't know how do you ensure that the asset managers in other department, organisations or your MBAs are efficient to carry out this task that you want them to do? Because you are receiving the necessary training? Maybe out there? I don't know what is happening. I was the picture in other organisations?

Participant 3 28:11

most times, some of them come around, okay, and be like, they don't know what to do. You people you need to put us through Okay, they come around to make all those kinds of complaints. understand them, we have already we because we also need to be well equipped before we can also equip others. So we are still working on ourselves. Okay, then, as time goes on, incorporate them also in the training, so that all of us be on the same page. Because most come around and complain make the complaint here and there that when we call me up like just it's not because it's not we are not the one we are not the cause now management don't do this we can't go out of our way, you know, to do it. So we are still working on

Christine Makama 29:02

Have you raised this issue with the management?

Participant 3

We have, we have

Christine

Ma do you have any idea in Nigeria if we have any Asset Management Institute?

Participant 3

No, I don't I don't have an idea for now.

Christine

But now how are you coping with the COVID how are you managing things right now, anything can happen with so many unforeseen circumstances. How do you manage crises and I believe is affecting how you manage assets,

Participant 3 29:42

how you even go because the government also has placed some restrictions. Yes. So particular levels are not expected to be in the office. Then those are the office. You cant mingle too much with each other, as always this social distancing and everything. So, we have been trying our best and I'm complying with most of all these protocols The federal government has put in place. And you find out that in most MDAs, these lower-level officers that are not to come to the office are even those that are doing the work, they work so hard. We work with those we see. Like those who are available they are the ones that come around, they come to the summit, their register, things like that, you know, but most times, governments there is this a little bit lenient government has said those who might have essential work, okay, the necessity to be in the office can also base on the maybe the organisations.

Christine Makama 30:58

So, Ma'am do they come for training or because of the social distance and restrictions or they are not part of the training?

Participant 3 31:05

For now, we have not gone out training ministries, we have not started, you know, all we demanded from them was just their asset register. Yes, but when it comes to training, we have

not done but for GIFMIS, when GIFMIS introduced the portal, they did add a little training for them so that they can import their register, they still need not be sure. So, when we went for that training, they told us that that we are to take up that training aspect now is no longer with the GIFMIS department, so we should take it up. So that's what we are planning for now.

Christine Makama 31:50

So my view what you think, as an incentive, or something that can motivate you to work? Or what's in place right now, that motivates your staff? Is there any more reward system to help your staff to be motivated to do their work?

Participant 3 32:08

And if you know, for now, nothing, nothing we are just because we believe in the project? Yes. So we are just working to make sure that it succeeds, for now, when it comes to motivation, we are not being motivated to the level we are supposed to, but because of the interest we have, we are putting in our best. So

Christine Makama 32:33

if your own opinion, what do you consider as something that can motivate you to do your work?

Participant 3 32:41

Okay, even when we have office space? Yes. Then our technology, we need our ICT, and also all those, we need all those things. So because not everybody, just a few persons I know it can be in an office and maybe you alone have a computer the other person does not it does work won't flow and we need more of the training, not just local training, in house training, we need

knowledge from other nations. So we could be some, if not everybody, but at least to some extent, we should be able to like visit nations that these are already established, established so that we can see it, how they do they're doing it

Christine Makama 33:29

so that you can bring and implement and customise it and make it better. Exactly it does. We have to customise it to suit the public sector as it is

Participant 3 33:38

It's a new development. In this area, we need big knowledge, we really if we want it to stay

Christine Makama 33:48

You need the development to help you grow exactly and to carry out the work efficiently. Well must My last question, I thank you for your time, but what do you think about, have they given you attention with regards to the funding and everything to help you with the development of asset management.

Participant 3 34:12

No, we have not been helped in that aspect. Because asset management needs funding and serious funding, but for now. We have not seen it coming and we are hoping it would we are hoping if management can table our matter to the federal because the federal government has approved this to be done. Okay.

Christine

So what is holding the process back ma?

Participant 3

we don't know. We can't say this is I no because so many agencies have dual roles. They have these dual roles that so many agencies are performing. We have the Office of auditor Generally during the years, taking the so their attention has gone from the main agency that is supposed to carry it out. And everybody's is doing Which one feels is right?

Christine

In a nutshell? Do you think you are comfortable being a department, or it should be sort of like an organisation or commission that should be on its way you people are independent, and you are well equipped to carry out your responsibility efficient?

Participant 3

We believe that being a department might not allow it to flourish, the way it's supposed to, when it's made a commission where you have you can assess your funding, yes, we don't need to depend on the management of another agency to give you your funding, you know, you're able to go, you know, you have direct access to the federal government in a way, okay, executive, federal executive council, because you can lay your complains to them directly. So I think that would be the best if we want it to work in Nigeria.

Christine Makama 36:11

Bama, why do you think they just made it a department? Or why are they just trying to see how it would blossom from the department?

Participant 3 36:19

Well, I think the reason, then they it was the Minister of Finance, Mrs Kemi Adewosun that conceived that idea. So, I think they wanted to start initially and see how far it could go. Then they were more concerned about registering assets. Okay. Before it was later, the idea was now conceived that we shouldn't limit it to just registering or tracking. But also the management is very essential. So, by the time all those ideas were conceived, they began to like grow. So there is a need for it to remain exposed.

Christine Makama 37:07

I thank you ma, for your time I do appreciate your contributions. At the end of this interview, I'll transcribe it. If you need a copy, I'll give you a copy of the transcript. And after the whole research, I tend to bring in copies to the stamp department and submit them to the OAGF office. Okay, and some to gfx office, then the last conversation I had with one of the participants, they recommended even taking it to the minister of finance, because of the recommendations that will be made, at least they'll be somebody that carry it and try to see what needs to be done. And this is what the asset managers have said because based on their own let me just say complaints and their ideas because you have you're highly knowledgeable, you have ideas and if those ideas are being accepted by the management, I believe the whole process will grow. So thank you for your time. I do appreciate. Thank you.

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